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PRODUCTIVITY CHALLENGES IN CURRENT ECONOMIC FRAMEWORK

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Abstract. Designing policies to rise in productivity and understanding global challenges affecting the growth are an important current issue. OECD, IMF, World Bank, the European Commission deal with different aspects of productivity. The research aims are to analyse the theoretical foundations of productivity measurement and causes of actual trends, labour market policies fostering productivity growth and promoting sustained economic growth.

The research consists of three parts. The first part of the research deals with indicators and causes of the current situation. This section presents as well as the literature review. OECD methodology of productivity measurement has been used in the paper. There are different productivity measures. Value-added based labour productivity is one of them. Labour productivity is a useful measure due to the fact that it reflects how efficiently labour is combined with other factors of production. Measurement of labour productivity is closely connected with the development of living standards. The choice among productivity measures depends on the purpose of productivity measurement. Second part of the research deals with problem of productivity growth in Latvia and in the EU is analysed based on empirical data and calculations. Productivity of Latvia has grown significantly during the past decades, but still far behind of OECD average level. Third part of the research is dedicated economic policy for faster productivity. There are different channels for productivity growth at country level: sustained innovation, well-functioning labour market and other markets, effective insolvency, a supportive business environment ect. Flexible labour market policy appears to be important to faster productivity growth in the short run and long run.

Key words: *Global Value Chains, labour productivity, productivity, productivity measures*.

JEL code: D24, E24.

Introduction

Productivity growth has slowed globally over recent decades, and understanding global challenges affecting the growth are an important current issue.

Measures of productivity growth determine main indicators for analysis of economic growth. There are different approaches to productivity measurement, their calculation and interpretation. There are also differences between measures of productivity growth and productivity level. The research mainly deals with labour productivity.

The research questions that needs to be answered: How to choose productivity measurement? What kind of criteria could be used? What are trends and dynamics of productivity? What can government policies do to increase productivity?

The research aim is based on theoretical foundations of productivity analysis of current situation and causes of actual trends find out labour market policies fostering productivity growth and promoting sustained economic growth in Latvia and the EU.

Tasks of the research:

- Study methodology of productivity measurement;
- Analyse productivity growth in Latvia and in the EU;

- Find economic policy tools for faster productivity.

The research methods applied in the paper are based on OECD and Eurostat methodology, analysis of the literature and advanced papers in the field of productivity.

Indicators and methodology of productivity measurement

The economic theory of productivity measurement concerns with the development of models which explain the rate of economic growth and indicators which have been used to calculate productivity. Literature review shows different models (Harrod-Domar, Solow, Lucas and other) and factors that influence productivity.

There are different models and approaches to growth. Harrod-Domar model of economic growth uses concepts of natural rate of growth and warranted rate of growth. (Ruterford D., 1995). Warranted rate of growth – the rate of output growth at which firms believe they have the right amount of capital and it is not necessary to increase or decrease investment (capital –output ratio). Natural rate of growth – corresponds to the increase in the labour force: if the labour force rises, growth must rise to maintain full employment. There is also actual growth concept in Harrod-Domar model: the change in aggregate output that finally materializes. Harrod-Domar model depends on a capital theory of value. Labour and capital should always be used in a fixed proportion. If labour and capital grow at different rates, then in the model, one of the two factors must remain less than full-employment. In the Harrod-Domar model none of the three variables is endogenous. The Harrod - Domar model has two policy implications: to increase either raise the savings rate, or use capital more efficiently or do both.

Robert Solow explained productivity measures by using production function and accounting attributes of economic growth to capital accumulation, labour force growth, and technological change.

In the simplest version of the Solow model, output per capita is an increasing function of capital-labour ratio and the state of technology, saving equals investment (a closed-economy feature), and the rate of population growth is assumed to be constant and exogenous. In steady-state equilibrium, capital, labour, and output, all grow at the same rate, given by the exogenous rate of population growth. According to the Solow growth model, a higher rate of population growth leads to a permanent increase in the growth rate, but to a fall in the steady-state levels of per capita output. Technological progress allows for faster permanent growth. The model can be extended to an open-economy framework. Thus, international capital flows have played an important role in financing the process of economic growth in many countries. (Sachs J., Larrain F., 1993, pp. 584 - 586).

Robert Lucas explanation of productivity growth has a closer association with investment in human rather than in physical capital. He argued that one person's investment in human capital raises not only her own productivity, but the productivity of others as well. There are positive externalities arising from investment in human capital. Thus, a 10 percent increase in the positive externality of human capital gets translated into a 4 percent increase in output. (Sachs J., Larrain F., 1993, p. 584). Robert Lucas has contributed to theoretical developments in endogenous growth theory.

There are different methodologies to obtain data of output which shape also outcome of productivity measurement. Theoretical foundations to productivity measurement based on OECD approaches to measuring productivity are presented in Figure 1.There is presented choice between gross output and value-added based productivity measures. Labour productivity is useful measure due to the fact that it relates to the single most important factor of production. Labour productivity is a key determinant of living standards.

Single factor productivity measures	Multi-factor productivity measures

| Labour (L) Capital (C) $\Downarrow$ $\Downarrow$ L productivity C productivity based on based on gross output gross output $\Downarrow$ $\Downarrow$ L productivity C productivity based on based on value-added value-added | Capital & labour Capital, labour& energy, materials,services (CLEMS) $\Downarrow$ $\Downarrow$ C&Lmulti-factor CLEMS multi-factor productivity based on productivity output $\Downarrow$ C&L based on value-added |

Source: author's construction based on OECD

Fig. 1. **Productivity measures**

Labour productivity reflects also how efficiently labour is combined with other factors of production

All models above shoved that higher productivity can be achieved through efficient and effective use of resources such as labour, capital, and materials in the production of goods and services.

The research mainly deals with labour productivity.

Productivity growth in Latvia and in the EU

Since 2010 the productivity of Latvia's economy has been at the level of 40-45% of the EU average. Although in recent years productivity growth rate was faster than the EU average, but labour costs grew almost twice the rate. A further increase in labour costs is inevitable in the open market conditions, therefore strengthening the competitiveness of Latvia is largely determined by the ability to reduce the productivity gap with the advanced economies. (Jekabsone S., Skribane I., Priede J., Skapars R., 2017).

The recent labour market trends are partly the result of cyclical movements, but they are also due to structural and institutional labour market challenges affecting economic activity and the performance of labour markets. For example, consistently implemented economic policy in the previous years has fostered improvement of macroeconomic situation and as result it contributes positively to the growth and employment in Latvia. (Baranova D., 2013).

Labour productivity is a key driver of economic growth and living standards.

If we use for productivity levels calculation as GDP per capita divided by average numbers of hours worked, Luxembourg has the highest productivity level (Table 1). Latvia's rank is 30, Estonia's – 26 and Lithuania's – 29 in 2017.

Table 1

World's Most Productive Countries and Baltic Countries in 2016 and 2017

2017	2016	Country
1	1	Luxembourg
2	2	Norway
3	4	Switzerland
4	7	Denmark
5	15	Iceland
6	8	United States
7	3	Australia
9	5	The Netherlands
10	10	Sweden
26	27	Estonia
29	26	Lithuania
30	**33**	**Latvia**

Source: author's construction based on World, Most Productive countries, 2017.

The gap in productivity in the Baltic countries is substantial to compare with the best performers.

Since 2010 annual productivity growth in Latvia has been 2.5% on average (Figure 2). It is one of the highest in the EU. The EU average productivity in 2010 – 2015 was 0.7%. Latvia's productivity growth is high, but its innovation performance is average.
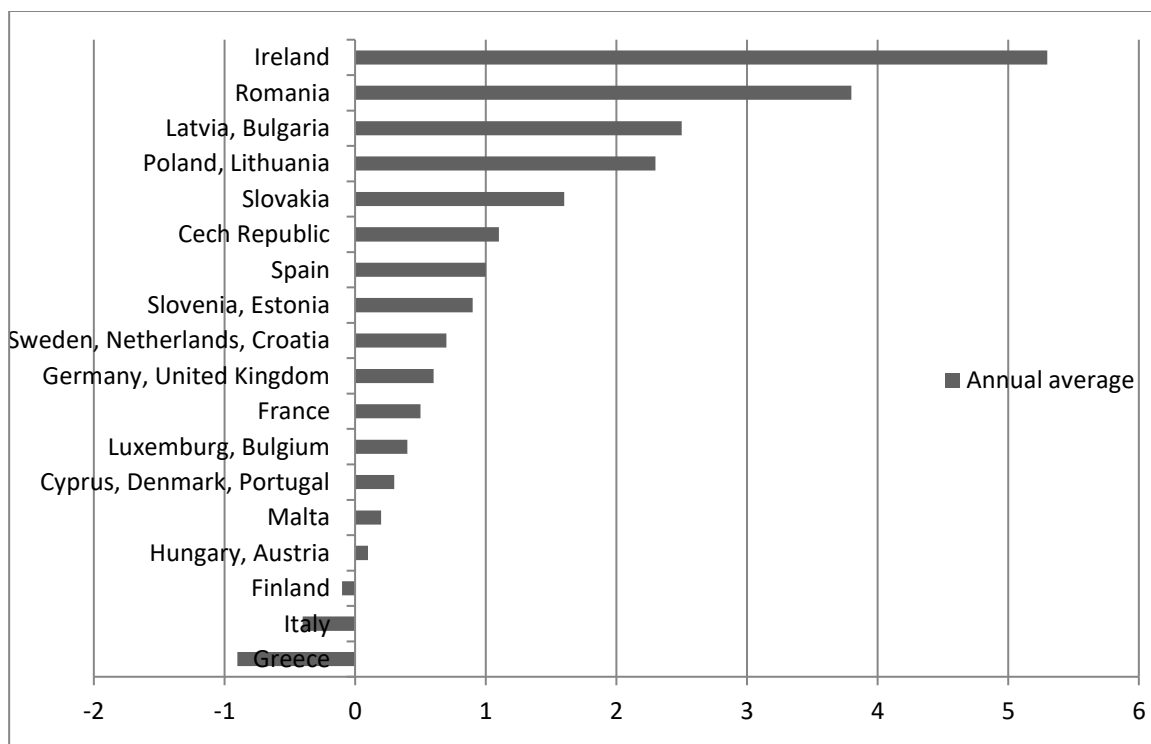
Source: author's construction based on .Eurostat, 2017.

Fig. 2. P**roductivity in Latvia and in the EU 2010 - 2015, % change**

Average annual growth of labour productivity in Latvia in 1995 – 2005 and 2005 – 2016 in different sectors is presented by Figure 3.
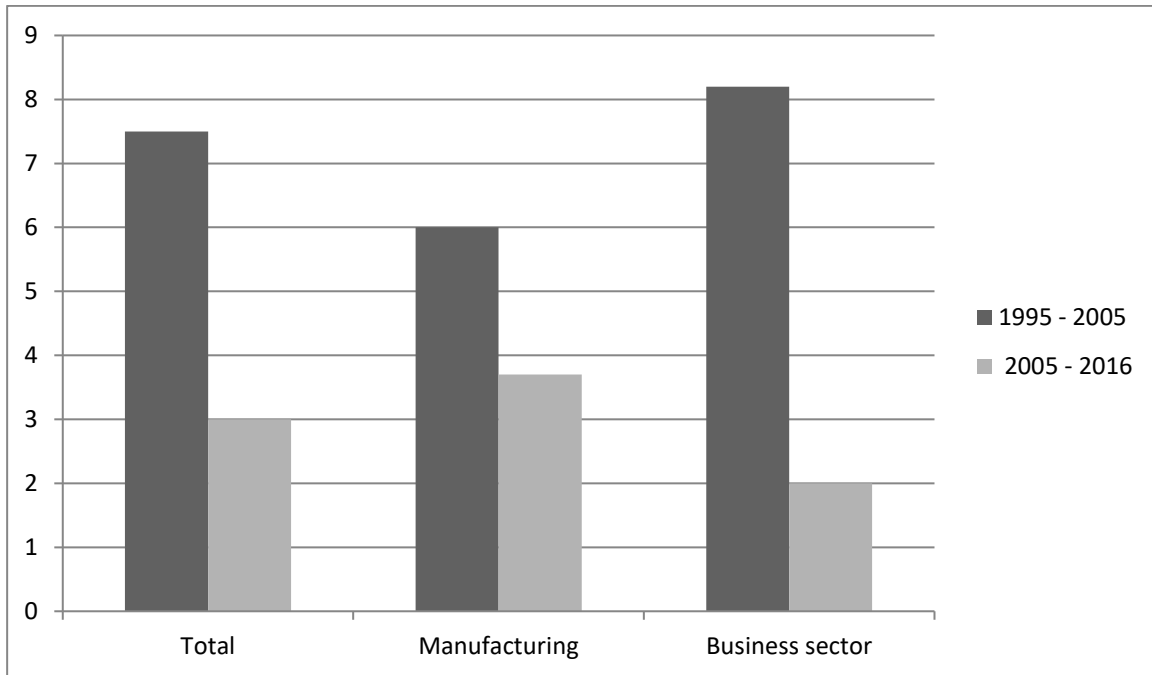
Source: author's construction based on OECD, 2017.

Fig. 3. **Average annual growth of labour productivity in Latvia, %**

Dynamics of labour costs in Latvia from 2011 till 2015 are presented in Figure 4. The dynamics of labour costs and productivity were largely determined by factors of structural nature. With economic growth resuming , wage growth is become more rapid, substantially due to the growing competition in the EU labour market and the low competitiveness of Latvia. By contrast, growth of productivity has been more moderate.
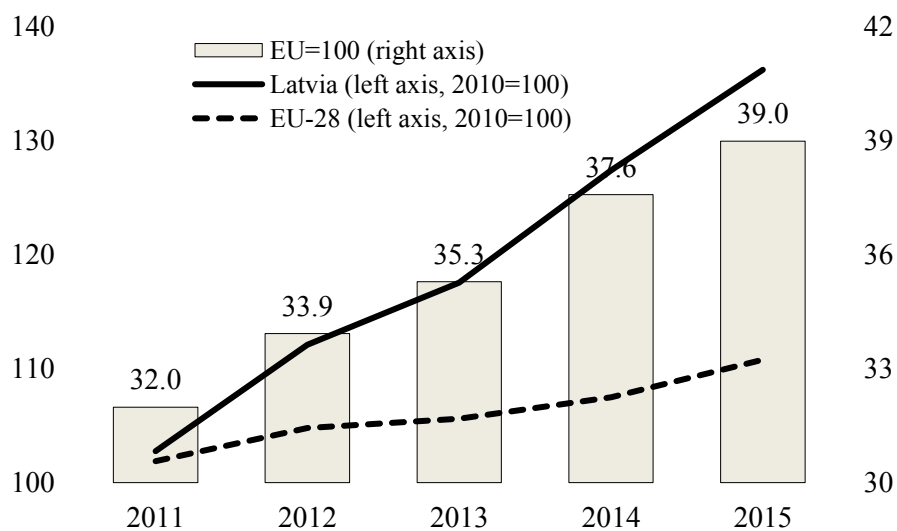
Fig.4. **Labour costs in Latvia and EU**

Source: Jekabsone, S., Skribane, I., Priede, J., Skapars , R., 2017.

As shown by labour costs dynamics and wage growth, wages grow at faster rate than productivity in Latvia. Therefore wage growth must be balanced with increase in productivity.

The main causes of the productivity growth slowdown are still debated. "Technology pessimists" mention a weaker impact on productivity of the recent IT- driven innovation cycles and skill mismatches in the labour force". (OECD, 2015)

Economic policy for faster productivity

Designing policies to rise in productivity and understanding global challenges affecting the growth are an important current issue. OECD, IMF, World Bank, the European Commission deal with different aspects of productivity. Challenges for productivity growth and the policy priorities may differ across countries.

Designing effective policies to raise productivity is a complicated business. An increase of productivity growth requires some combinations of increased growth in the capital stock, in labour inputs, or in technological progress. Government may use fiscal policies to encourage saving, investment, and expenditures on research and development.

Productivity hinders: population aging, slowdown in global trade and unresolved legacy of global financial crisis.

Changes in the structure of the global network reflected position of Global Value Chains, identifying central and peripheral countries and sectors. The productivity effects of Global Value Chains depended on position within them. Latvia must move up the Global Value Chain to knowledge-intensive activities. Flexible labour market policy is important to transform the changing structure of Global Value Chains into faster productivity growth. Productivity growth by trade openness and participation in Global Value Chains is one of instruments.

Innovation policies, cooperation between universities and firms, as well as R&D tax incentives are other instrument to increase productivity.

Improvements of matching in labour market by reducing skill mismatch can also increase productivity. Therefore, lifelong learning and labour market reforms are necessary. Rising labour market participation and sustainable increase in productivity is a key to supporting future growth.

IMF estimated that in advanced and emerging economies, the slowdown of educational attainment has lowered labour productivity growth by 0.3 percentage points annually since the 1990s. IMF analysis shows that, if advanced economies were able to ramp up private R&D by 40 percent on average, they could increase their GDP by 5 percent in the long term. (Lagarde C., 2017)

OECD in *The Future of Productivity* demonstrates that there is much scope to boost productivity and reduce inequality simply by more effectively allocating human talent to jobs. A better use of talent could translate into significant labour productivity gains in many OECD economies. (OECD, 2015)

According to the IMF, to encourage investment and risk-taking, governments need to give clear signals about future economic policy. High-quality public investments in education and training, R&D, and infrastructure, including in the United States, could help provide those signals, catalysing private investment while boosting productivity and economic potential. Similarly, signals about tax policy can enhance predictability for investors. In Europe, governments can move the productivity needle by facilitating corporate debt restructuring and strengthening bank balance sheets. And for countries that have received large numbers of refugees, effectively integrating immigrant workers would contribute to a younger and more dynamic workforce, with growth and productivity dividends. (Lagarde C., 2017)

According to the World Bank, productivity accounts for half of the differences in GDP per capita across countries. Identifying policies to stimulate it is thus critical to alleviating poverty and fulfilling the rising aspirations of global citizens. Yet, productivity growth has slowed globally over recent decades, and the lagging productivity performance in developing countries constitutes a major barrier to convergence with advanced-country level income. The World Bank Productivity Project seeks to bring frontier thinking on the measurement and determinants of productivity to global policy makers. (The World Bank Productivity Project, 2018).

There is no one right productivity policy, there are productivity friendly principles.

Conclusions

The main findings of the research are:

1. There are different productivity measures. Value-added based labour productivity is one of them. Labour productivity is a useful measure due to the fact that it reflects how efficiently labour is combined with other factors of production. Measurement of labour productivity is closely connected with the development of living standards. The choice among productivity measures depends on the purpose of productivity measurement.

2. Since 2010 the productivity of Latvia's economy has been at the level of 40-45% of the EU average. Although in recent years productivity growth rate was faster than the EU average, but labour costs grew almost twice the rate. A further increase in labour costs is inevitable in the open market conditions

3. There are big differences in productivity between the EU countries. The euro area and the EU in terms of labour productivity are behind the US.

4. Productivity growth by trade openness and participation in Global Value Chains is one of instruments of economic policy for faster productivity. Changes in the structure of the global network reflected position of Global Value Chains, identifying central and peripheral countries and sectors. The productivity effects of Global Value Chains depended on position within them. Latvia must move up the Global Value Chain to knowledge-intensive activities. Flexible labour market policy is important to transform the changing structure of Global Value Chains into faster productivity growth.

5. To boost productivity and reduce inequality simply by more effectively allocating human talent to jobs. A better use of talent could translate into significant labour productivity gains in many OECD economies.

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PRODUCT PROMOTION AS BODY OF INTEGRATED MARKETING COMMUNICATION TOOLS FOR SUSTAINABLE DEVELOPMENT OF BUSINESSES

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Abstract. The article reflects the core and role of the integrated marketing communications in today's market to develop an innovative entrepreneurship, paying attention to merchandising in a set of integrated marketing communications. In order to elaborate measures for integrated marketing communications for enterprises, the article draws a special attention to the role of merchandising and its boosting within the framework of sustainable development of enterprises.

Given the topical issue of nowadays - the lack of consumer awareness of ecologic performance and health impact of products, and the physical availability of domestic products in the Latvian food retail chains - and the trends of development of integrated marketing communications, businesses need to focus product promotion on communication with consumers in order to foster a greater understanding of the healthiness and ecological performance of products etc., thus contributing positively to demand for them.

The authors hold a view that demand is affected by factors such as product location and placement in a shop's premises, shelves etc., advertising in mass media, internet, outdoor advertising, advertising stands, visual information about product discounts, product discount coupons etc. measures to increase sales, product tasting in shops, shop assistant consultations etc.

The article is based on authors' studies conducted in the food retail sector during 2017. In their study authors used companies' data, surveyed leading food retail chains' main specialists in Latvia. The objective of the study is to research and assess the integrated marketing communications as a set of merchandising tools to develop innovative entrepreneurship In order to achieve the objective of the study, the authors used the following quantitative and qualitative methods — surveys, comparison, grouping — typically applied in the studies of science of economics. The study is based on the scientific works published by Latvian and foreign scientists, general and specialised literature, periodicals. The authors of the study carried out an assessment, market research, and comparative analysis, organised a survey of leading specialists from Latvian food retail chains.

Key words: *integrated marketing communications, integrated marketing communications tools, sustainability, sustainable development, merchandising*

Jel code: M31

Introduction

Today in the context of entrepreneurship development, it is important to develop innovative management principles with a crucial role assigned to setting up sustainable integrated marketing communications (IMC) of the companies as

they foster synergy between companies' targets and consumer audiences. A pre-requisite of merchandising is product availability and factors motivating a consumer to choose. Therefore authors have added tools like product quantity and availability in shop shelves during evenings to the set of IMC merchandising tools. Taking into consideration that a modern consumer is interested in the availability of local products, the company must take care of information about locally produced product and their location in shelves, location of offered local brand (private brands) products in shop shelves as well as location of imported and GMO products (or products containing GMO ingredients) in shop shelves (Bormane, S. et al, 2017). Emphasizing locally produced products and placing them at the level of the eyes, and supplementing the shelves with informative signs with specified organic product location in the shop at the same level, the company would promote their availability and sales (Bormane, S. et al., 2018). It is therefore necessary to thoroughly study the impact of promotion-related IMC tools upon demand. Since IMC in the literature is mainly described as a process and approach to a customer, however, in order to evaluate certain guidelines in IMC process with a customer, the authors studied Latvian food retail chains, surveying the leading specialists in order to find out the impact of IMC merchandising tools on demand, allowing us to make very significant conclusions about the innovative approach in enterprise processes including formation of sustainable IMC, because they foster synergy between the companies' targets and consumers.

Objective of the study is to research and assess the integrated marketing communications as a set of merchandising tools to develop innovative entrepreneurship while **object of the study** is merchandising as an essential component of IMC and a set of tools. **Subject of the study —** merchandising tools for a sustainable development of retail chains. In order to achieve this objective, the **tasks** of the study involved analysis and assessment of theoretical development trends of the integrated marketing communications, elaboration of a questionnaire to survey food retail chains' leading specialists and evaluate merchandising as a set of integrated marketing communications measures for a sustainable development of companies, applying conventional quantitative and qualitative **methods.** The study is based on the scientific works published by Latvian and foreign scientists, general and specialised literature, periodicals. The authors of the study carried out an assessment, market research, comparative analysis, organised a survey of leading specialists of Latvian food retail chains, processed data with MS Excel.

The study verified a **hypothesis** that application of IMC in merchandising increases consumption of sustainable, organic products and hence also sustainable lifestyle.

1. Theoretical development of integrated marketing communications

Today in the context of entrepreneurship development, it is important to develop innovative management principles with a crucial role assigned to setting up sustainable IMC of the companies as they foster synergy between companies' targets and consumers. In the literature IMC is mainly described as a process and approach to a customer, yet, in order to evaluate certain guidelines in IMC process with a customer, the authors studied Latvian food retail chains, surveying the leading specialists in order to find out the impact of promotion-related IMC tools upon demand and came to very significant conclusions about innovative approach in enterprise processes, including formation of sustainable IMC, because they foster synergy between the companies' targets and consumers.

Integrated marketing communications have nowadays become an integral process in the companies (incl. agencies providing for their needs) when communicating with a consumer. In order to have a more comprehensive look on the current global situation of IMC, the authors offer to take a glimpse at the development trends of IMC.

According to Kitchen (Kitchen, J.P., 1999) and Schultz (Schultz, D.E., 1999), IMC was clearly the major turn of the last decade of 20th century in communication development, even though the majority of IMC approaches, theories and novelties are very new and are still revised and supplemented in the literature. More and more businesses and

organisations believe that IMC is the greatest competitive advantage related to marketing (Kitchen, P.J., Schultz, D.E., 2001).

When implementing IMC in practice, companies try to combine and integrate communication complex elements using one type of advantage to compensate shortcomings of others. For instance, about 20 years ago Hackley (Hackley, C., 1998) and Kitchen (Kitchen, J.P., 1998) pointed out that many companies actively integrate their communication disciplines under one function of strategic marketing communication, IMC in particular. Also Smith (Smith, P.C., 2002) noted that publicity and advertisement support each other and yield a stronger effect in a cost effective manner. Durkin (Durkin, M., 2001) and Lawlor (Lawlor, M.A., 2001) admitted that IMC approaches have earned recognition and become important in efficient marketing, especially taking into account a trend to spend less for mass media advertising due to an increasing fragmentation of this media and segmentation of consumer taste and choice. Even back then, the research of IMC suggested of a search towards approaches and methods for more effective communication based on companies' external factors – target audience, market development trends, its segmentation, communication channels, development of the Internet etc.

Nowadays, too, one must take into account the market trends where the application of IMC in product promotion depends not only on consumer segments, electronic solutions, the growth of importance of internet marketing and social media in the business market and communication with consumers etc. The task of IMC is no longer to popularise the company's products, brands and services in a consistent manner, but to present a story that makes the customer actively participate in the story-telling process. (Bruhn, M., Schnebelen, S., 2017)

The development of social networks leads to new ways of marketing communication and poses new scientific challenges. The growing importance of B2B and B2C communication and the relationshop with the customers is influenced by dynamic changes in the e-marketplace. (Davidaviciene, V., et al., 2017)

The sustainable development of internet marketing faces the dynamic environment and its alterations, which occurs in both business terms and conditions and in the use of electronic tools and applicable concepts. The growing importance of internet marketing is being indicated by the development of electronic markets, an increasing number of new generation consumers, a deepening interest of scientists from different scientific fields, as well as the widening of the related knowledge base. (Sabaityte, J., Davidaviciene, V., 2018)

Today's society consists of individuals who belong to different generations. Natural change will lead to the fact that a new generation of individuals will take up most of the society's structure, at the same time raising questions about behaviour in virtual space changes. Assimilation of new technologies in society greatly depends on consumer attitudes that are determined by the psychological characteristics of consumers. (Sabaityte, J., Davidavicius, S., 2017)

As the virtual environment is constantly changing, not only users' informational and knowledge needs but also the means and channels of communication with customers applied by organisations change. There is a noticeable trend to move more and more advertising campaigns to social media networks because of the opportunities they provide to organisations and users, which results in the ever-increasing popularity of social media networks and number of their users. (Raudeliuniene, J., et al., 2018)

The aforesaid confirms that within one decade IMC conceptions have become a widely discussed topic in marketing and marketing communication literature and also obviously integral part of marketing and even corporate communication strategy in many companies. Since no new mind-set and innovative theory is perceived with unanimous support, authors believe that it is worth looking at both positive and negative sides of IMC.

For instance, due to changing needs of knowledge consumers in the context of globalisation organisations find it important to search out the way of effective application of the process of knowledge sharing and distribution in their

activity in order to create and/or select proper means of communication with consumers on purpose of effecitve satisfaction of their knowledge needs (Raudeliuniene, J., Davidavicus, S., 2017).

The progressive social changes and observed megatrends occurring in the food chain induce manufacturers to take an interest in possibilities of attracting consumers' attention to reliable information on a product. The information contained on food packaging, as one of the components of marketing information, is a factor significantly influencing the opinion of consumers about the product (Wyrwa, J., Barska, A., 2017)

Remanufacturing of returned products has been increasingly recognised in industries as an effective approach to face environmental responsibility, government regulations, and increased awareness of consumers (Zhang, Z., et al., 2018).

Advertisement and public relations agencies, being important participants of IMC planning, coordination and implementation, undertake important role in the entire process, even though customers are considered to be a stimulus of IMC vector. For instance, Belch (Belch, G.E., 2001) and Belch (Belch, M.A., 2001) point out that advertisers assume great responsibility over elaboration of a marketing programme and adoption of final decisions about the advertisement and programme of promotional measures.

In the literature IMC is mainly described as process and approach to a customer, yet, in order to evaluate certain guidelines in IMC process with a customer, the authors studied Latvian food retail chains, surveying the leading specialists in order to find out the impact of promotion-related IMC tools upon demand and came to very significant conclusions about innovative approach in enterprise processes, including formation of sustainable IMC, because they foster synergy between the companies' targets and consumers.

2. Study of merchandising in IMC context

Basically agreeing with the conclusions on development of integrated marketing communications nowadays, the authors have put forth a hypothesis claiming that use of IMC in merchandising, in context of sustainability, could increase consumption of sustainable, organic products and hence also sustainable lifestyle.

In order to verify or refute the hypothesis the authors researched application of IMC in Latvian food retail chains' companies. In order to evaluate the impact of IMC merchandising on demand and hence to see a link between the targets promoted by the company and consumer audiences, an expert questionnaire was elaborated. All companies from Latvian food retail chains, operating as the chain, including companies representing brand stores network located in Riga and Riga region and offering mainly food products, participated in the survey of leading specialists. The survey engaging leading specialists of Latvian food retail chains, incl. top management and marketing specialists, was conducted in 2017. MS Excel was used as a platform for collecting expert questionnaires' data and data analysis. The objective of the survey was to research IMC impact on demand, with a special emphasis on merchandising.

Main shortcomings established during the survey of leading specialists served as a basis for preparing proposals and improvement of IMC to continue development of sustainable development of companies.

The study further on sums up IMC merchandising tools, because the authors believe that demand is affected by factors such as product location and placement in a shop's premises, shelves etc., advertising in mass media, internet, outdoor advertising, advertising stands, visual information about product discounts, product discount coupons etc. measures to increase sales, product tasting in shops, shop assistant consultations etc.

The results of the survey of leading specialists (see Fig.1) show that companies' demand is considerably increased by such IMC promotion tools as visual information about product discounts, product placement in shops, arrangement of the offered products in shop shelves, location of the offered products in shop shelves. Meanwhile special brochures of companies, product catalogues, including information about product use, quality, ingredients and storing, as well as shop

assistant consultations about product ingredients and application have been evaluated by experts as a tool slightly increasing IMC merchandising efficiency. Experts have admitted that tools of IMC merchandising such as outdoor advertising regarding product quality, composition, storing and application, just like mass media advertising (TV, radio, printed media etc.) regarding product quality, composition, storing and application are not used by the companies. An IMC tool reducing the demand, in experts' opinion, is regular change of location of offered products in shop shelves. Authors agree with experts that, if the product location in shop shelves is changed on a regular basis, it can have adverse impact on product demand. Often the basis of habits of consumers is certain fundamental products; the more loyal a consumer is to a certain brand, the more sensitive he is when they are not available (due to lacking information or physical absence of a product). Regular change of the product location in shop shelves fails to promote consumer loyalty not only regarding the shop but also certain manufacturer's products, while product offer is a competitive advantages of each chain of stores.
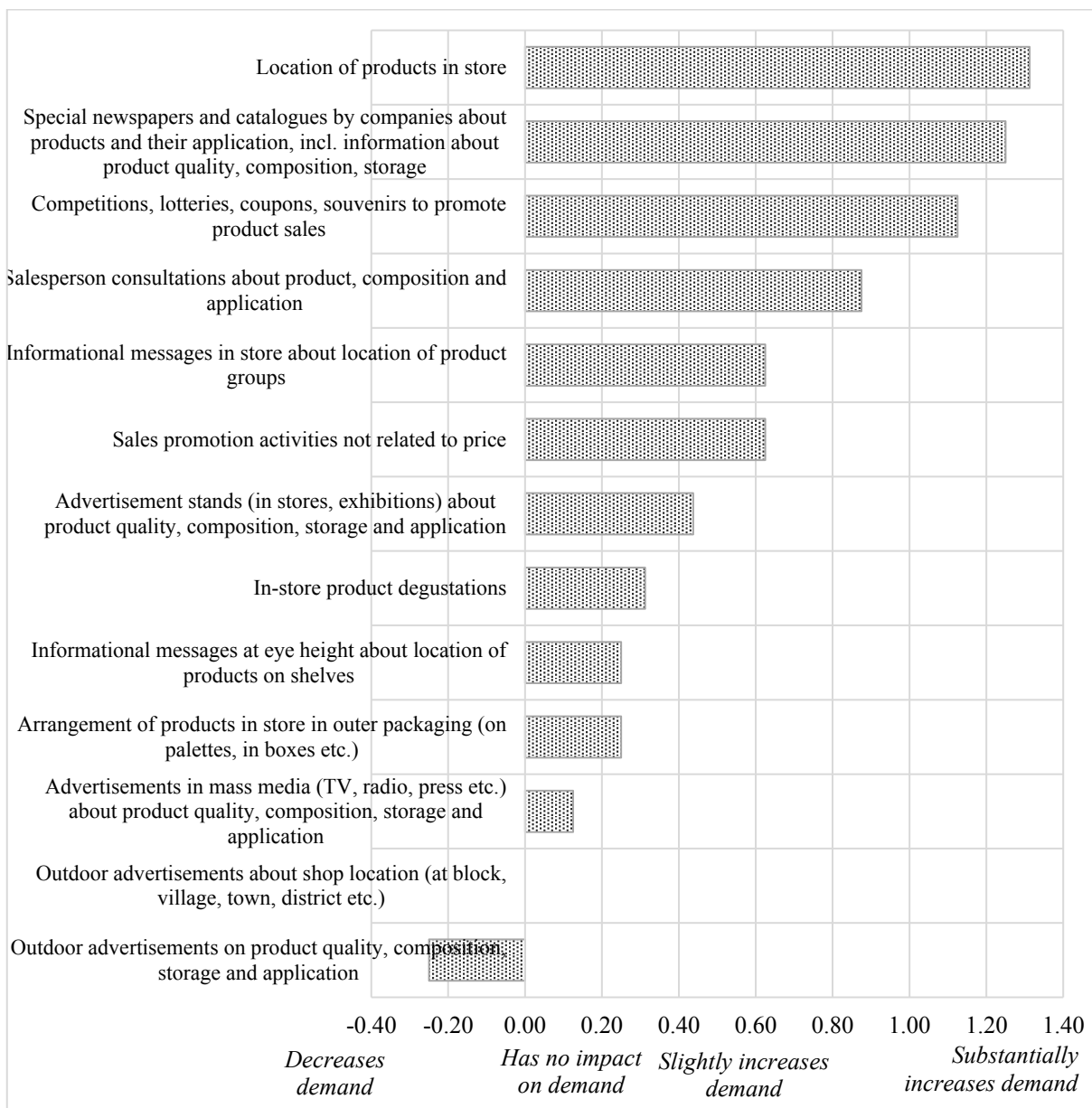
Source: created by authors in MS Excel based on the summary reated by authors.

Fig.1. Core elements of integrated marketing communications and their impact on demand,

expert evaluation average scores

Regarding tools describing IMC merchandising, such as outdoor advertising of product quality, ingredients, storage and use, and mass media advertising (TV, radio, printed media etc.) about product quality, ingredients, storage and use, the authors have come to a conclusion that application of these tools in retail chain strategy would increase awareness of consumers, ensure additional information that would encourage informed purchases. Consumers frequently do not buy products that they need. Sometimes a decision to buy something is made due to an external factor. It could be charity when one has to buy a specific product to have a portion of product value donated for particular charity purposes. The same impulses are characteristic of uninformed purchases and might occur because consumers lack information about products and they get the missing information from acquaintances, friends, relatives etc. therefore purchases are made on the basis of "henchman effect" principle. Yet the "henchman effect" in making uninformed purchases may be a short-lived benefit in company's activity, because consumer is going to look for new products until complete information is found and confidence in his choice is reached.

The authors would recommend the retail chains to tell in their outdoor advertising and mass media advertisements (TV, radio, printed media, internet etc. communication channels) about product quality, composition, storage and application, to use it as an IMC tool not only to raise awareness of consumers that would naturally increase loyalty to certain products and the company, but also to promote recognisability of a retail chain, and to deliver information about product availability to consumers. The author recommends to implement mass media advertisements together with manufacturers, because the latter one is capable of providing detailed information about the product's special values to consumers and other market participants. Her recommendation to state authorities, when providing support to entrepreneurs and promoting entrepreneurship opportunities in Latvia, is to conduct studies on product quality, ingredients, storage and application, to publish reports on study results which would only strengthen knowledge of consumers about such important product features.

A pre-requisite of merchandising is product availability and factors motivating a consumer to choose. Therefore authors have added tools like product quantity and availability in shop shelves during evenings to the set of IMC merchandising tools. Food stores have a tendency to have reduced quantities of products with close expiry date in late hours in comparison to morning hours. The authors believe it is connected with the laws and regulations of Latvia stipulating that companies are responsible for utilisation of the expired products (Bormane, S. et al., 2018). Therefore it can be concluded that companies are not interested in providing products in such quantities to maintain the same level of offer as in the morning. It owes to the fact that an increased risk of unsold products remains and they would have to destroy them after expiry of term. If food shops conducted research on consumer purchase habits in certain time of a day, it would allow to determine demand for certain product groups with more precision avoiding also excess or lack of products.

Taking into consideration that a modern consumer is interested in the availability of local products, the company must take care of locally produced product location in shelves, location of offered local brand (private brands) products in shop shelves as well as location of imported and GMO products (or products containing GMO ingredients) in shop shelves. Emphasizing locally produced products and placing them at the level of the eyes, and supplementing the shelves with informative signs with specified organic product location in the shop at the same level, the company would promote their availability and sales. Meanwhile if GMO products were placed in separate shelves, supplemented with informative signs at the level of the eyes, pursuant to the laws and regulations of the Republic of Latvia, daily consumption habits could be changed gradually in favour of locally produced goods.

Printed media recently has been putting a huge emphasis on the public health, specialised food, social groups, sets, eating habits, culture and other factors affecting consumer behaviour in the market and aspects that capture their attention. Therefore zero lactose, gluten-free, vegan and vegetarian products will become more and more popular and segment the public into consumer groups. The companies must think of a balanced offer by embracing all social groups. Therefore authors, when looking at sustainable IMC merchandising tools, emphasize also tools like information signs indicating at zero lactose and gluten-free product availability and vegan products (containing no animal products) at the level of the eyes.

In order to provide product information to consumers and to achieve sustainable goals, the authors believe that companies must provide a detailed information about product content, human health impact and recycling of product packaging and impact of total amount of waste on public health and environment, on internet, including web pages, and it would affect not only consumer behaviour but also promote and protect environment and health. The authors predict that there might be a risk that not all consumers can access all communication channels, therefore the same information about product quality, ingredients and public health impact, product packaging, packaging's environmental impact, product storage, packaging recovery and recycling as well as management etc. should be presented in outdoor advertising, mass media advertisements (TV, radio, printed media etc.), shop's brochures, advertising stands and elsewhere. Not only such information would boost consumer competence, but also shape company's image as a promoter of public welfare. All mentioned merchandising measures can be implemented through cooperation between the companies and producers, because only an integrated, well-considered activity for all parties involved in sales — producer, transporter, distributor, seller and also end consumer — could lead to a sustainable development.

Sales promotion measures like competitions, lotteries, coupons, souvenirs that would promote sale of environmentally friendly, organic products in the market, can be used by the companies to attain immediate, short-term effect. Therefore authors offer to use this tool for sustainable IMC as an opportunity to present products that are given as a gift after a purchase, in competitions and lotteries, offered also in product tasting at the shop, that are either organic or manufactured in Latvia. Gratitude gifts for consumer purchases aimed at boosting consumer loyalty, in authors' opinion, would be more efficient if it was, for example, an organic tea bag or spice mix instead of a rubber article manufactured in China that the consumer would throw out in the first rubbish bin near the exit. A food store is basically a place where a consumer comes to buy food products to consume in his diet, while food is an integral part of a daily life and can be considered as basic need of humans and also a source of enjoyment. Food is the last thing the consumer would refuse from, the last product he would save his money for. Authors also mark that the food is particularly a product bought by adults therefore, for example, giving toys as gifts for a purchase, in authors' opinion, is inefficient merchandising tool, while a sample of organic product could promote not only loyalty but also advertise a particular product in order to boost its future sales.

According to the results of the survey of leading specialists (see Fig.2) companies' demand is slightly increased by such IMC promotion tools as product quantity and availability to consumers in shop's shelves during late hours, location of imported products in shop's shelves and location of products manufactured in Latvia in shop's shelves. The authors conclude that even though enterprises have not prioritised products manufactured in Latvia in their marketing strategy to promote their sales, they understand and evaluate a need for them and also consumer demand for them. Locations of imported products in shop shelves are linked with a fact that some retain chains have included in their marketing strategy basically different selected products or delicacies that cannot be produced in Latvia, for example, marine products, fruit, nuts, wines etc. that are specific import products. Therefore location of import products in shop shelves, in experts' opinion, is an IMC merchandising tool for sustainability that slightly increases demand.

The results of the survey of leading specialists witness that marketing communication applied by companies do not have IMC merchandising tool for sustainability such as advertisements in mass media (TV, radio, printed media etc.) about product storage, package recovery, recycling and utilisation, outdoor advertising about product storage, package recovery, recycling and utilisation etc. outdoor advertising about impact of product packaging on human health, environment as well as advertisement stands informing about packaging's damage to environment and human health. Also shop assistant consultations about organic aspects of products, safety of packaging, utilisation possibilities etc. in shop's brochures, informing about product and its package's impact on environment, as well as competitions, lotteries, coupons, souvenirs that would promote sale of environmentally friendly products in the market are non-existing in consumer-oriented communication of the companies.

The authors conclude that, in order to create a sustainable consumption, companies in their communication with consumers should emphasize product packaging's damage to the environment, adverse effect of waste generated from the product packaging or product waste thrown into garbage on human health, thus promoting the level of awareness of consumers and shift in their mind-set and behaviour.

The results of the survey of leading specialists show that food retail chains in closest 3 years plan to apply IMC merchandising tools for sustainability, presented in Fig.2, in their marketing strategy.
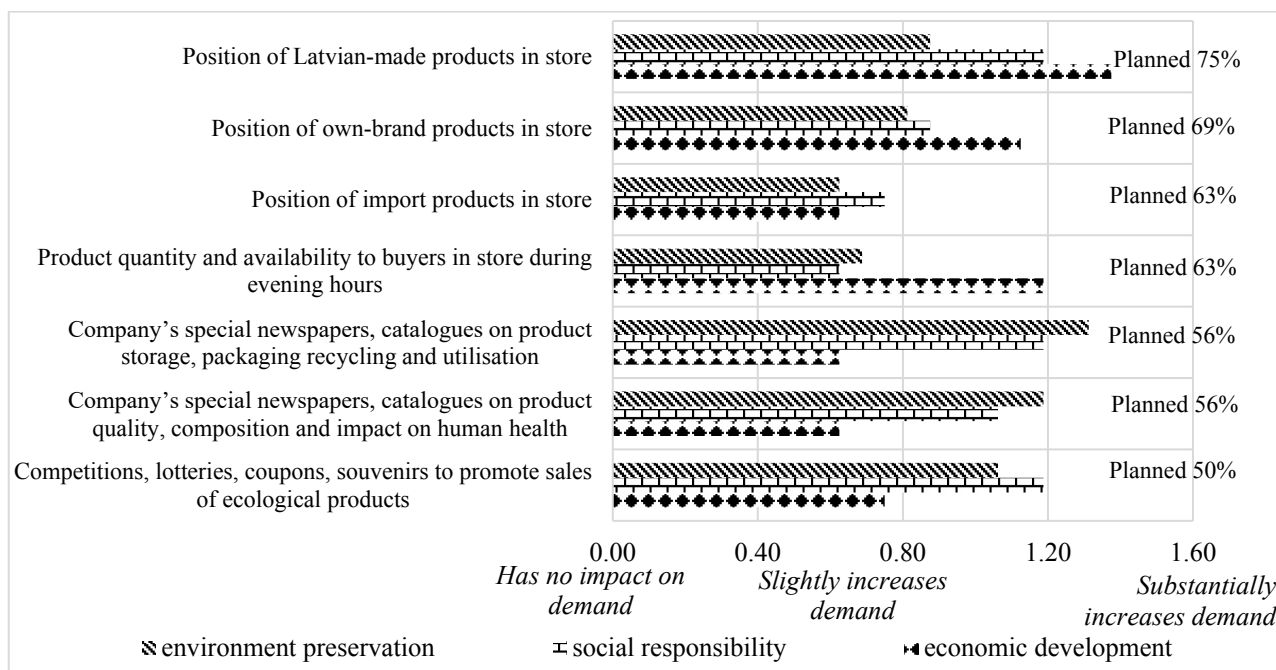
Source: created by authors in MS Excel based on the summary

Fig.2. Promotion elements of integrated marketing communications and their impact on sustainable development

The authors conclude that the food stores are aware of today's social problem, namely that consumers cannot really get good, qualitative product, for example during late hours. Products with rather short validity term are restricted in quantities in shops during certain periods in order to avoid risk of excess products and their destruction. However such marketing strategy leads us to a situation where no milk or fresh vegetables etc. are available during late hours. It reveals that a system regulating waste management, incl. treatment of food products with expired term and related laws and regulations do not support public and companies thus influencing general development of the state. As the author had mentioned earlier, the companies try to reduce number of products close to the expiry of their term and do not accumulate reserves in certain shop branches only because the law puts entire responsibility on the shops to destroy the products, thus

creating costs and loss. By improving this policy, for example, the shops could sell their waste to the state at a lower price and the latter would channel them to charity. Such practice is introduced, for example, in Helsinki: residents who receive state support can get free of charge products with last day expiry term in a specially designated places on a daily basis. These products are available to everyone, and social help is especially used by the poor, homeless and other social groups.

On the basis of the results of the survey of leading specialists, the authors see positive trends in expert opinions regarding companies' brochures, catalogues etc. reflecting information about product storage, recovery, recycling and utilisation of the packaging etc.

Authors conclude that arrangement of waste management system at the national scale would promote economic development of the country, environmental protection and raise a level of public welfare.

Experts are not unanimous in their opinion regarding IMC merchandising tools such as advertisement stands (in shops, exhibitions) reflecting information about product quality, ingredients and impact on human health, competitions, coupons, souvenirs that would promote sale of environmentally friendly products, organic product tasting in a shop, company's information in internet, including also home page revealing product ingredients, impact on human health, containing informative indications of vegan products (containing no animal products), informative signs at the level of consumer eyes about zero lactose and gluten-free product availability; one part is ready to pay attention to these IMC tools while the other part is not.

It is related to general marketing strategy of shops; some are ready to pay a special attention to such social groups as vegetarians, vegans, kosher etc. These retail chains who are not ready to focus on separate social groups follow a principle that it is not possible to focus on all groups, because consumer dietary habits depend not only on their affiliation to a specific social group, but also culture and traditions, therefore retail chains believe they do not need to distinguish certain groups among others that do not have special shelves in shops. Authors conclude that, unfortunately, due to increasingly problematic public health we encounter conditions like gluten intolerance, milk and its components intolerance, protein etc. and it implicitly obliges the shops to include in their offer also products that could satisfy the needs of said consumers. Therefore authors recommend retail chain enterprises to consider the offer and to include in it also products that would satisfy the needs of one portion of public having intolerance to certain food products.

Figure 3 reflects IMC merchandising tools for sustainability that the companies do not intend to apply in their marketing strategy in next 3 years.
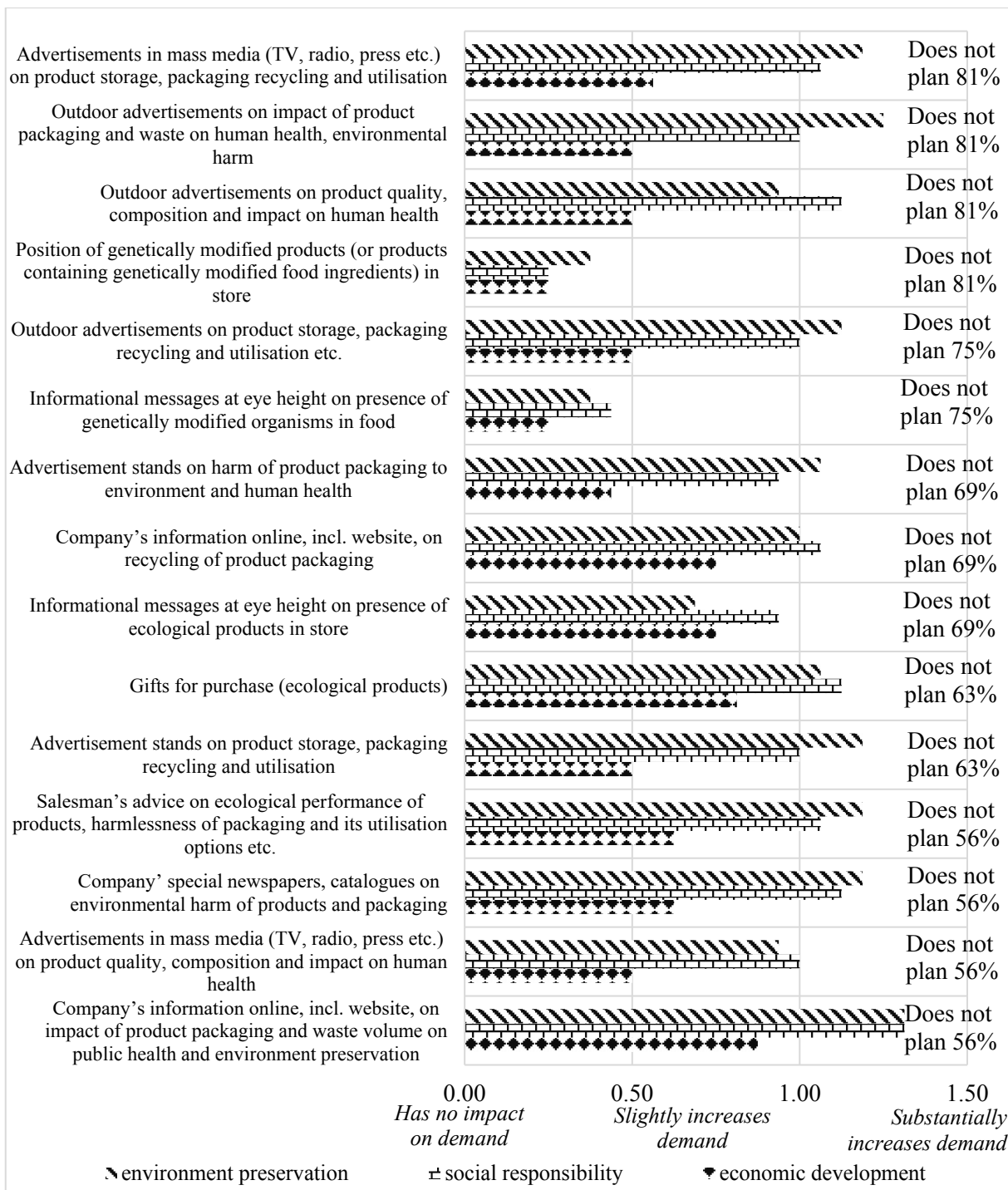
Source: created by authors in MS Excel based on the summary

Fig.3. Promotion elements of integrated marketing communications and their impact on sustainable development

Authors believe that companies do not want to take responsibility for issues that could be shared with the state. The state should inform the public about processing of product packaging, volume of waste, waste sorting and utilisation opportunities, consequences, trends etc. Latvia does not have government policies that would focus on raising public awareness regarding environmental damage, supported by data from various studies, analyses etc. of impact of this damage on human health as well as advice to public what to do to take care of environment and not to deteriorate public health level. Authors admit that such studies are taking place, yet not all consumers are aware of them. Study results

should be made more available, they should be communicated through channels such as TV and radio programs, outdoor advertising, newspapers, journals etc.

Despite the fact that, judging from expert assessment, the companies do not plan to include said IMC merchandising tools for sustainability in next 3 years, they have appreciated this IMC merchandising tool for sustainability for its capacity to promote economy, social responsibility and environment protection. Data in Fig.3 reflect that companies are not ready to invest funds in advertising to communicate information to consumers through different media channels, yet the companies understand and are aware of the role of these IMC tools for sustainability in a sustainable development. Authors also explain that experts' opinion about IMC merchandising tools such as competitions and lotteries to boost sales of organic and environmentally friendly products, the companies' information in internet about product content and impact on human health as well as informative signs in shops at the level of consumer eyes etc. differ. Authors conclude that expert opinions on certain IMC merchandising tools vary, because they should be implemented together with a manufacturer. Retail chains are not interested in investing financial assets to promote certain product that has been manufactured in Latvia or is organic, unless they receive manufacturer's support and the same attitude. Such informative signs in a shop or on company's website, each time informing about positive impact of a certain manufacturer's product on human health, would promote also manufacturer's popularity. The authors recommend retail chains to make a deal with manufacturers and to invite their cooperation and to select sustainable products in their offer.

Conlusions and proposals

1. More and more companies consider the integrated marketing communication to be the major competitive advantage related to marketing, because creation of sustainable integrated marketing communication fosters synergy between the companies' targets and consumer audiences.

2. Advertising and public relations agencies as participants of integrated marketing communications planning, coordination and implementation, play a significant role in the entire communication process, even though customers are considered to be the impetus setting the direction of marketing communication.

3. The notification of consumers during promotion and creation of a need for information and of competence substantially depends not only on the trends of a given market, the industry and the target audience, but primarily on the development of technologies which affects the implementation of integrated marketing communications through communication channels - the Internet, social media etc.

4. Given the increasing number of young generation consumers, the task of marketing communications is no longer to popularise products or brands, but to present through a story with an active involvement of the consumer in the story-telling process.

5. Food retail companies should cooperate with product manufacturers to ensure sustainable product offer, including also products that satisfy that part of society who has certain product intolerances.

6. Latvia lacks state level approach focused on consumer awareness of waste impact on the environment and human health, providing data from researches, analyses etc. as well as advice to the public regarding steps to take to preserve environment and prevent deterioration of public health. Study results should be made more available, they should be communicated through IMC channels such as TV and radio programs, outdoor advertising, newspapers, journals etc.

7. Companies do not plan to apply some of IMC merchandising tools for sustainability in their marketing strategy during next 3 years; nevertheless they have considered these IMC merchandising tools for sustainability as capable of promoting economy, social responsibility and environment protection, showing companies' understanding and awareness of the role of IMC merchandising tools for a sustainable development.

8. Purchases incited by various surrounding stimuli may be a short-term benefit of businesses. Consumers will constanty seek new products as long as they do not obtain full information and confidence in their choice and benefits from the purchase (product composition, usage, functions etc.).

9. The use of integrated marketing communications in making consumers more aware of products may foster loyalty towards specific products and recognition of the company, build the consumer understanding of right and healthy food.

10. In order to clearly identify the factors that lead consumers towards purchases, research is needed as well as consumer surveys aimed towards finding out the impact of integrated marketing communications upon generating the need and consumers' buying decisions.

11. The **hypothesis** proposed at the outset of the study, namely that application of IMC in merchandising increases consumption of sustainable, organic products and hence also sustainable lifestyle, was verified.

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IS AVAILABILITY OF FINANCIAL INSTRUMENTS A CHALLENGE FOR MICRO-ENTERPRISES?

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Abstract. Availability of financial resources to enterprises is essential for business development. In particular, micro and small business performers have experienced financial constraints over the past years. Despite numerous financial instruments designed in the EU to facilitate access to external financing for enterprises, a popular opinion about financial constraints still prevails, especially as regards micro-enterprises and business start-ups. The study aims to explore the practical aspects of the availability of financial instruments for micro-enterprises in Latvia based on data from banks and JSC "Development Finance Institution Altum". In order to clarify, whether financial instruments are available or not, a study was carried out based on two opposing views obtained *via* two separate surveys: a survey of 147 Latvian entrepreneurs and a survey of 9 financial experts. The study looked at the knowledge of financial instruments in micro-enterprises and the associated awareness on their availability. The survey of entrepreneurs displayed that 75 % of the respondents were not aware of the available financial instruments, while 5 % of the respondents were not willing to apply for external funding. Importantly enough, the survey of experts revealed not only the existing financing constraints for micro-enterprises, but also helped to identify the specific factors that hinder access to finance. Many sources speak about lack of availability or constraints on financing, particularly for start-ups and micro-enterprises. The study shows that the situation is somewhat ambiguous. The "lack of availability" might be explained through unwillingness of companies to borrow or insufficient awareness of the financial instruments available.

Key words: *Availability of finance, financial instruments, micro-enterprises*

JEL code: D83, G29, L29

Introduction

The objective of the study was to investigate the availability of funding through the existing financial instruments for micro-enterprises in Latvia. In this study micro-enterprises have been seen as solely those micro and small-sized business performers and start-ups that comply with the European Commission's definition of micro-sized enterprises (European Commission, 2003). Micro-enterprises defined as such within the EC's classification system represent the most prevalent type of business entities in Europe. They represent 93 % of all European businesses and taken together form a major employer, generating 30 % of total employment (European Commission, 2017a). Throughout the European Union, 99 % of all the newly established companies are micro or small enterprises (Kraemer-Eis H. *et al.*, 2016). Therefore, our study has been looking into the availability of financial instruments not only for those micro-enterprises already established and operating, but also for the newly founded companies or "start-ups" in Latvia (hereinafter referred to as MEs). Statistical data show that by the end of 2016 there were 169 thousand companies in Latvia with 9 employees or less, accounting for more than 94 % of the total number of economically active businesses (Central Statistical Bureau …, 2017).

For many years EU has been assessing access to financing based on company survey data. The European Central Bank (ECB) survey (European Central Bank, 2014) reported that 15% of MEs considered access to finance as a pressing problem in the euro area in 2014. Over the past few years companies have been indicating towards improvement in the

accessibility of financing, and many companies no more see it as the primary and most critical obstacle for their business performance. ECB (2017) pointed out that only for 9 % of European MEs access to financing had been the dominant problem in 2017. However, the share of enterprises that saw access to financing as their most important problem remained higher among MEs than among their larger sized peers (Kraemer-Eis H. *et al.*, 2017). It is not clear, though, to what degree these positive changes relate to Latvian MEs. It has also been found that insufficient state aid has negatively impacted access to financing for businesses (Kraemer-Eis H. *et al.*, 2016; Kraemer-Eis H. *et al.*, 2017).

EU has established a number of state-aid based instruments to overcome shortages in financing for supporting companies that in earlier years used to experience difficulties in accessing external financing sources or were even denied access to them. In line with the EU Regulation "financial instruments" are EU measures of financial support provided on a complementary basis from the budget in order to address one or more specific policy objectives of the Union. Such instruments may take the form of equity or quasi-equity investments, loans or guarantees, or other risk-sharing instruments, and may, where appropriate, be combined with grants (European Commission, 2012).

The loans issued to MEs by the Latvian commercial banking sector and the amounts released by JSC "Development Finance Institution Altum" were totalled up to estimate the financing amounts received by Latvian MEs.

Opinions were sought for a comprehensive assessment of the availability of financial instruments for MEs both on the lender, as well as on the borrower side. A survey of financial experts helped to clarify their views on this account. An online survey of Latvian entrepreneurs helped to identify MEs' awareness and knowledge of dedicated funding in the form of financing instruments. The results revealed some ambiguity in the broadly prevailing opinion that small businesses and start-ups suffer from lack of available financing. Problems for MEs in accessing financial instruments derive from a number of factors, including biased assumptions and attitudes on the part of the entrepreneurs towards the funding made available to them and lack of awareness or willingness to take up the dedicated funding created through state aid.

The study has been constructed to find out whether access to financing instruments has in practice proved challenging to MEs in Latvia.

The complementary research methods applied included review of literature sources, statistical data analysis, a study of the financial instruments offered in EU and Latvia, graphic research and logical constructive research.

Research results and discussion

1. A brief literature review

There have only been a few authors who have studied the availability of financing instruments to MEs, as well as the factors affecting such availability. Usually insufficient collateral is mentioned as one of the main obstacles in accessing financing for the smaller companies in general and micro-enterprises in particular (e.g. Bruhn-Leon B. *et al.*, 2012; Kraemer-Eis H. *et al.*, 2017).

Researchers (Masiak C. *et al.*, 2017a) in a study on financing for micro-firms in Europe acknowledged that the financial needs of MEs differ from those of the firms in other size classes. Even though the central mission of the European Funds has been to improve access to financing for SMEs, including MEs, through extensive assistance from intermediaries, the specific financing models appropriate for MEs remain underdeveloped. Empirical results show that generally European MEs tend to use internal financing, and are less prone to use state-aid based products (incl. financing instruments).

A survey (Kraemer-Eis H. *et. al,*, 2017) indicated that the share of enterprises that sees access to financing as their most important problem remains higher among MEs than among their larger sized peers. This survey emphasized two factors that had a negative impact on the availability of external financing: the general economic outlook and the lack of access to public financial support, such as guarantees.

Regular studies in the EU (carried out, for example by the ECB, EIB and OECD) provide a deeper and more detailed assessment on access to financing for companies, in particular micro-enterprises and business start-ups. ECB, for example, in its surveys on assessing the factors having an impact on the availability of external financing in the euro area have made inquiries concerning the general economic outlook, firm-specific outlook, the firm's own capital, the firm's credit history and the willingness of banks to lend (European Central Bank, 2014). They have also taken into consideration the company's own approach when estimating, for instance, "enterprises' expectations regarding the availability of financing". ECB has extended the scope of the company survey inviting respondents to provide an assessment of their "external financing gap" and "financing obstacles". The 2017 report implies the "external financing gap" indicator shows that availability of external financing is generally perceived to increase faster than needs, and that the prevalence of financing obstacles has been slightly declining in the countries of the euro area (European Central Bank, 2017). This survey also showed which financial resources were relevant to MEs. Bank overdrafts were seen as relevant by 32 % and bank loans by 12 % of MEs, whereas grants or subsidised bank loans (involving, for example, support from public sources in the form of guarantees or reduced interest rates on loans) were seen as relevant by as few as 3 % of the surveyed MEs, with use of own funds reaching 10 %. Equity capital (including shares or other forms of equity provided by the owners themselves or by external investors among them venture capital or business angels), on the other hand, was not at all seen as relevant to MEs. In fact, the survey shows the low popularity of the financial instruments offered to MEs in EU, whereas the real causes for the lack of popularity remain uncovered.

Lawless M. *et al*. (2015) showed that the size class (i.e. measured by number of employees) of an enterprise is positively related to the use of different financing instruments. Micro-firms, consequently, use financing instruments to a lesser extent than larger companies. Other authors (Masiak C. *et al*., 2017b) have stated that the uptake of specific EU financing instruments differs depending on enterprise size. A deeper analysis of the differences in the financing patterns of micro-firms in Europe and other SMEs reveals that micro-firms are mostly internally-financed and are more likely to use short-term debt than small firms. Furthermore micro-firms are less likely to use state-aid based financing instruments. MEs have been shown to experience difficulties in receiving grants, subsidized loans or access to other financing instruments. In turn, recently established enterprises more often tend to use mixed funding from various sources or state subsidized funding. Enterprises established less than 2 years ago are likely to use internal funding.

With regard to the poor access of MEs to public funding, the authors (Masiak C. *et al*., 2017b) pointed out that there is a prevailing uncertainty associated with the lack of awareness of public funding programs, or *vice versa* the programmes do not meet the requirements of micro-enterprises, for example, due to the associated administrative burden.

Tucker, J. & Lean, J. (2003) found that the majority of firms in UK were not aware of non-bank sources of financing. The lack of awareness of financing sources outside the banking sector might be due to lack of information about alternative sources in most small businesses. Most of the small businesses reported they were completely satisfied with the resources available in the commercial sector. The authors drew the attention of policy makers to the fact that several major financing difficulties reported by companies derived from information asymmetry and general awareness issues. These difficulties affected both the providers of financing and the beneficiaries themselves.

Another research (GLI Finance, Ltd, 2015) showed that better awareness of the availability of financing would have a positive economic effect. This study reports that increased awareness of an alternative sector where financing could be

obtained would help the small and medium-sized enterprises in UK to understand their financial capabilities, provide adequate funding for them and materialize their economic growth potential, which would in the case of UK add up to £20 billion by 2020.

Surveys on UK SMEs have been carried out to investigate the relationship between bank credit availability and awareness of government initiatives (Calabrese R. *et al*., 2017). The survey provided evidence that the SMEs that had better knowledge of the funding scheme conditions were less likely to have their financing requests rejected.

Other authors (Mason C. & Kwok J., 2010) indicated, that availability of external financing for enterprises might be constrained by weaknesses on the demand-side. They identified a lack of investment-readiness on the part of most of the businesses. The research revealed that business owners were unwilling to look for external financing. Those who wanted to obtain funding did not understand the investor requirements, being unable to "market" themselves and their business to potential investors, such as business angels or public sector venture capital funds. The authors point out that improving access to financing for SMEs is not just a matter of supply.

Still other authors (Irwin D. *et al*., 2014) have described an initiative of the United Kingdom's Government to use loan funds for supporting newly established and small companies in financial difficulties when they are unable to raise investment from other sources. Funds received higher numbers of loan applications. At the same time, the applicants were but little aware about the borrowing conditions set by the funds. The research shows that what the potential entrepreneurs really need is effective advice and support to improve their readiness for investment which would help them to obtain the necessary financial support.

2. EU financial instruments and ME focused financing in Latvia

EU support financing consists of EU budgetary funds that are allocated to Member States and specific regions for fulfilling the economic development and social growth strategies for over a span of seven years. Currently, these strategies are part of the European 2014 ¬ 2010 Plan. However, the Member States are to decide which support and financial investments should be seen as applicable to the strategies they implement, since the EC Regulations allow for flexibility, as MS design their programmes and select the most suitable financing instruments (European Commission, 2014). An important condition for designing financing instruments and implementing them in MS is that they may not compete with the finance products of the regular finance market operators, for example, banks or leasing companies. As a rule, financing instruments are developed for companies that would mostly be rejected by the traditional lenders because of the high risk they pose. Mostly, these would be small innovative companies, hi-tech companies and start-up projects, as well as companies in the initial stages of business development. These are companies with insufficient collaterals, inappropriate financial indicators or companies with no credit histories. Such companies are driven to look for other forms of financing, EU support through its financing instruments proving a solution.

In Latvia businesses can make use of a range of financing instruments offered for enterprises starting from the pre-seed, seed-, and start-up-phase (loans, business angel financing, microfinance, early stage venture capital) to the growth and development stage (formal venture capital funds, mezzanine funds, guarantees).

In line with the Partnership Agreement (Cabinet of Ministers…, 2014), EU has planned to support Latvia financially with 4.418 billion euros which together with national financial support will amount to an investment plan in Latvian economy worth 5.192 billion euros over the period of 2014 ¬ 2020. This means that in this period Latvia is going to rank fourth from the top among the net beneficiaries of European Funds among all the EU Member States (Ministry of Finance…, 2015). From these funds 7 % or 348.5 million euros have been planned for the programme within the thematic priority "SMEs competitiveness", with additional 550 million euros for the thematic priority "Research and Innovation"

(European Commission, 2017c). But apart from obtaining these significant EU funding resources for Latvia, there are practical considerations that lead us to ask whether the support has been made available for a sufficiently broad segment of entrepreneurs. The abovementioned programmes have been planned with the aim to support 4 495 enterprises and additionally 368 start-ups. Thus, the direct support planned from the European Funds provides for less than 3 % of all the MEs that are active in Latvia.

To reach out for the entrepreneur, financing from the EU funds is distributed among financial intermediaries (banks, leasing companies, guarantee funds, financial institutions and other financial intermediaries), that in turn make them available to entrepreneurs with the help of financing instruments. The principal intermediaries in Latvia are Joint Stock Company "Development Finance Institution Altum" (hereinafter referred to as Altum) and venture capital funds. Altum established as a 100 % state-owned JSC offers EU funding through financing instruments, such as loans, credit guarantees, investments from venture capital funds, etc. It supports companies at various stages of development, when financing is not available from other sources (Altum, S.a.). Altum develops and implements state aid programs to compensate for market failure that cannot be solved by the private sector in the area prioritized by the Government.

The banks are the key financing entities in the private sector in Latvia. Until 2014 access to financing for companies, especially in their start-up phase, was restricted in Latvia as the loan amounts issued by commercial banks to entrepreneurs dwindled after 2008 (Cabinet of Ministers…, 2014). OECD (2013) found that the banking sector had performed poorly on issuing loans to businesses in the post-crisis years. Changes since 2014 were reviewed to establish whether there has been any change in the Latvian banks' attitude towards lending to business entities in general and MEs in particular. Lending by Latvian commercial banks has been benchmarked with lending by Altum. Funding amounts and their growth trends have been analysed for enterprises in relation to their size class.
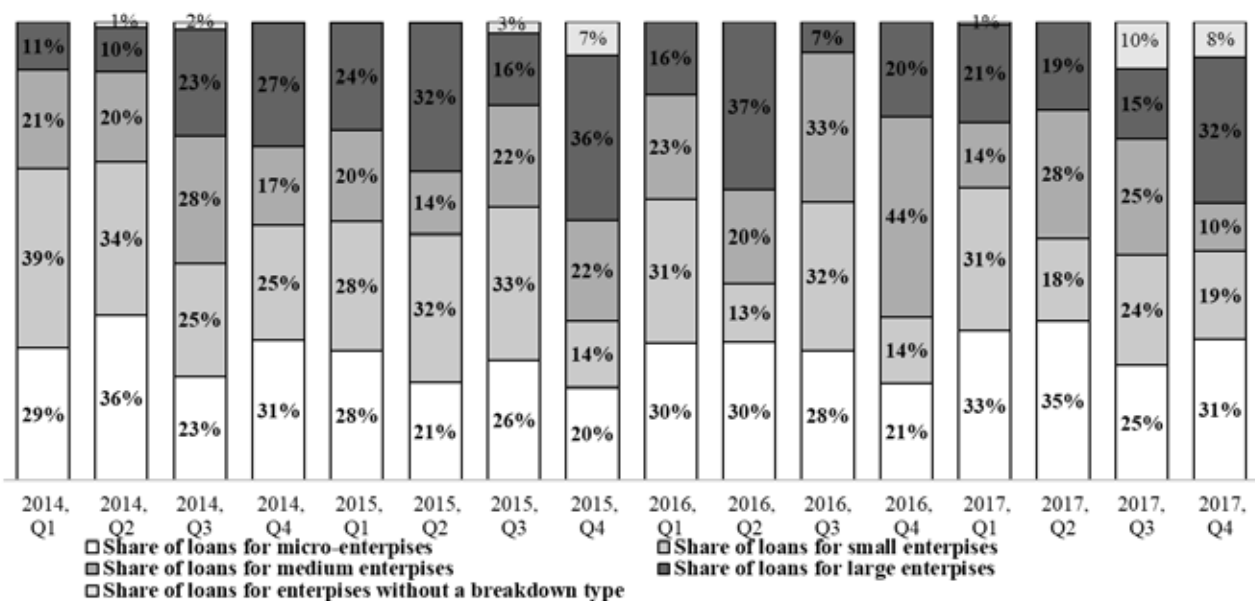
Source: author's construction based on FCMC data

Fig. 1. **The share of loans newly allocated and granted to enterprises by Latvian commercial banks by company size class over 2014 - 2017 (in percentage)**

Figure 1 shows the share of the total amount of loans assigned and granted by Latvian commercial banks to all enterprises in breakdown by enterprise size class over the period 2014 ¬ 2017 (FCMC, 2018). The share of bank loans assigned and granted to MEs increased to 35 % in Q2 of 2017 after having significantly declined in 2015 (when the share of loans to MEs in Q4 was as low as 20 %).

When analysing the changes in the total share of loans assigned and granted to MEs over the period of 2014 - 2017, this share notably varies between 20-35 % of the total amount assigned for all companies. Changes in the amounts assigned show that from 2014 onward banks have on the average been affording 100 million euros to MEs on a quarterly basis (with the exception of Q2 2016). This trend, by remaining relatively stable, may point to a continuously prudent approach in handling the risks posed by loans to ME.

Figure 2 demonstrates a declining ME loan portfolio since the end of 2014, pointing to greater caution exercised by banks between 2014 and 2016 when lending to MEs (FCMC, 2018). The ME loan portfolio demonstrated steep growth in 2017, surprisingly superseding loan portfolios for other size class companies. This might mean a change in bank lending policies in favour of MEs and point to improved access to financing, particularly in the ME segment in Latvia.
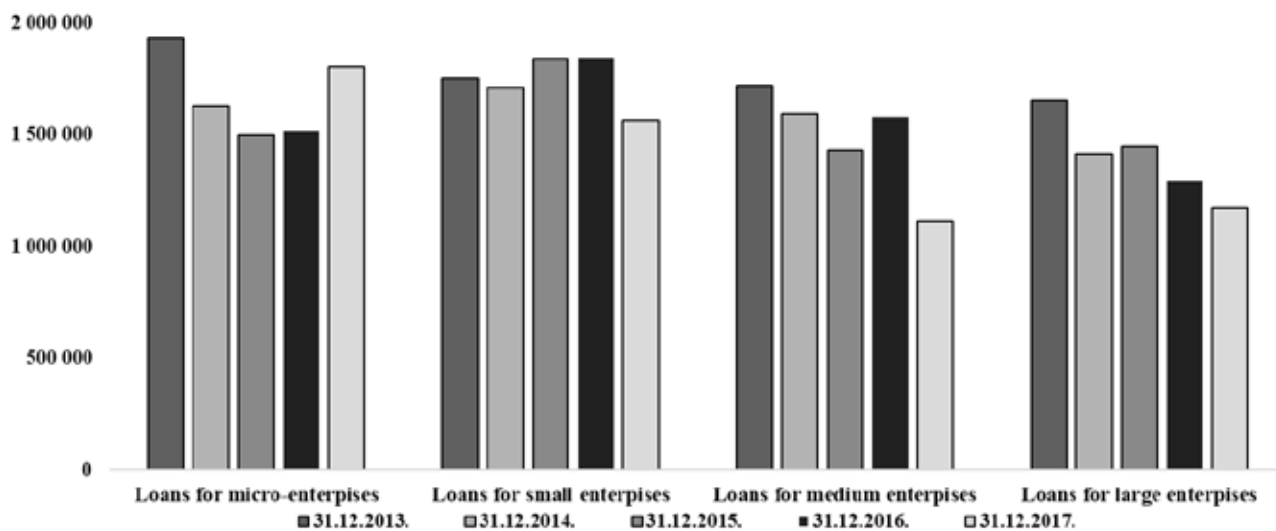
Source: author's construction based on FCMC data

Fig. 2. **Loan portfolio of Latvian commercial banks to enterprises by company size class over 2014 - 2017 in Latvia (in thousands of euro)**

According to a survey conducted by ECB (ECB, 2017), MEs have signalled improvement in the availability of funding from external sources. They have also indicated some improvement in the availability of bank loans. Thus, the willingness of banks to support MEs with loans has grown in Latvia, the same as in the rest of Europe.

Altum data on financing amounts also point towards better availability of financing for MEs.

Figure 3 shows the changes in Altum's loans portfolio for MEs which has altogether been larger over the period than the portfolios for other size class enterprises. Also, the percentage share of the loans to MEs has increased. However, the ME loans portfolio of Altum is only about 0.1 % compared to the ME loan portfolio of commercial banks by end of 2017, measured by volume.

Notably, promotion of start-ups forms a significant business segment for Altum. As of June 30, 2017, start-ups were granted loans amounting to a total of 39.9 million euros for 2 207 new business start-up projects (Altum, 2017). For a better idea of the share of start-ups that have received financing from Altum, it may be helpful to note that the number of new business enterprises registered in Latvia was 10 210 in 2017 and 11 206 in 2016 (Lursoft Ltd, 2018).
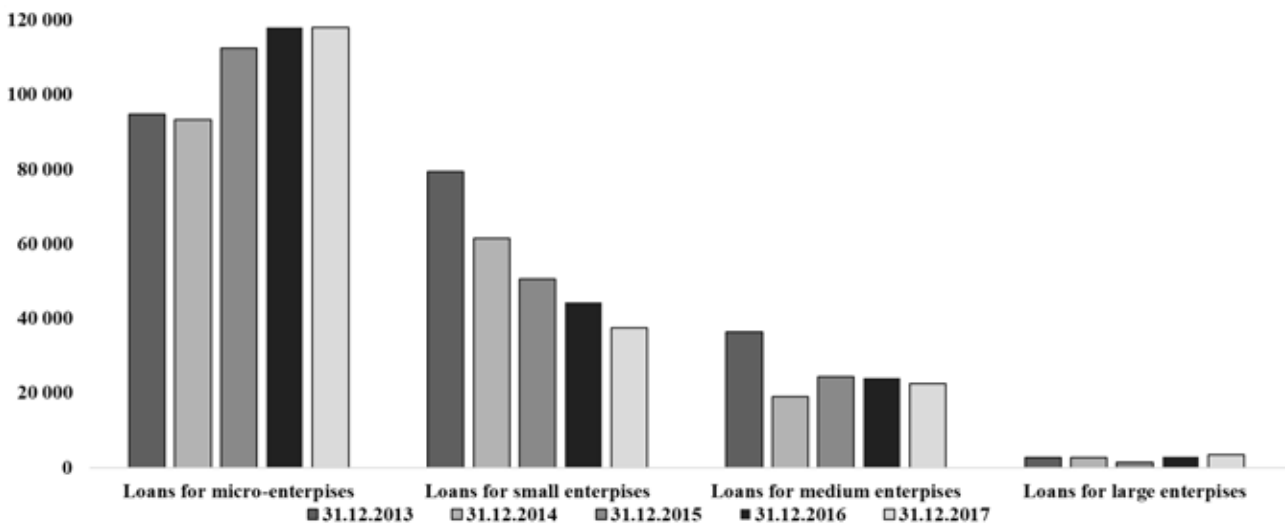
Fig. 3. **ALTUM's loan portfolio for enterprises by company size class over 2014 - 2017 (in thousands of euro)**

Another important instrument improving access to finance is credit guarantees. Credit guarantee schemes "are widely used across economies as important tools to ease financial constraints for SMEs and start-ups" (OECD, 2013) in order to alleviate market failures in SME financing. Guarantee programmes help to reduce bank credit risks related to lending directly to the ME segment, in particular. Credit guarantees are an appropriate financial instrument for MEs that have no sufficient collateral or credit history or lack experience in preparing financial statements for banks. In practice it means that in the presence of a credit guarantee a ME with any of the above mentioned shortcomings becomes eligible for a commercial loan. In Latvia, credit guarantees are offered by Altum.
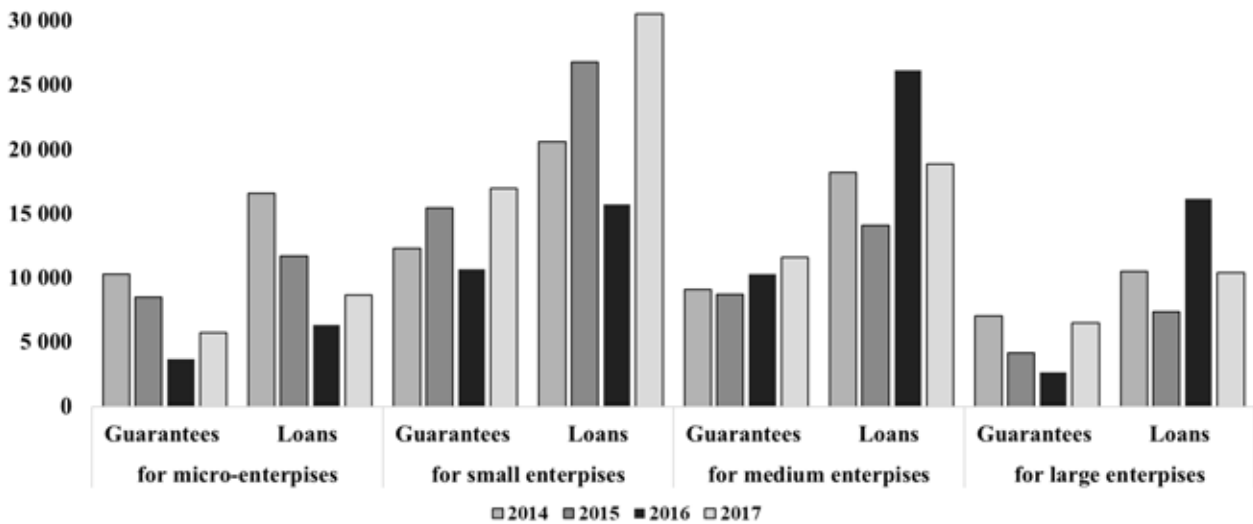
Fig. 4. **ALTUM's guarantee portfolio and the matching amount of commercial bank loans issued by company size class over 2014 - 2017 (in thousands of euro)**

Figure 4 demonstrates that the guarantees issued to MEs for the total amount of 5.7 million euros made them eligible to commercial loans of 8.6 million euros in 2017. Though this is more than in 2016, the amount, however, is significantly lower than in 2014 or 2015. Although guarantees are a very useful risk mitigation instrument for banks issuing loans, they are less popular with MEs than with enterprises of other size class. Notably, availability of Altum guarantees for MEs

accounted for as little as 8 % of the quarterly average loan amounts issued to MEs by the commercial banking sector in 2017.

Venture capital financing is also made available to MEs *via* Altum. According to a statement covering 6 months of 2017, Altum's investment portfolio in venture capital funds totals 57.0 million euros with 192 projects financed from the funds (Altum, 2017). Enterprises in start-up and early growth phases were funded by a seed capital fund which in cooperation with Altum has supported 91 projects for the amount of 5.0 million euros. The rest of the amount, financed by 4 venture capital funds and 4 expansion capital funds, has been made available for companies in their growth and development phases.

Altum is making every effort to develop new financing instruments for business start-ups. Three acceleration funds for investments in businesses at the seed and start-up phases with earmarked public funding of 30 million euros topped up with private funding to 38 million will become operational in 2018 (Altum, 2017; Altum, S.a.). In 2017 a joint pilot project has been launched by Altum together with the Latvian Business Angels' Network on co-financing business ideas for supporting micro and small business (Altum, 2017). It is a new locally developed financing offer, expanding availability of financial resources for MEs, by sharing the financing risk between Altum and private investors. The funds allocated for its implementation are 3 million euros (Altum, S.a.). In the project framework, Altum was granted 450 thousand euros for 8 start-ups in 2017.

3.   Research results

Surveys of financial donor representatives and Latvian entrepreneurs were conducted to clarify the views of the donors, as well as the potential or actual beneficiaries on the availability of financing and, in particular, on financing instruments in Latvia.

The donors were represented by 9 experts who had to answer eight questions forwarded to them in an electronic template. The survey aimed at clarifying the research question of how financing options and availability of financial instruments for MEs were evaluated. Opinions were shared by financial resource holders and representatives from Altum (2 staff members), a HE institution (1), the Latvian Business Angels' Network (1), UniCreditLeasing, LtD (1), the Venture Capital Fund ZGI Capital (2), bank "Citadele" (1) and a private expert (1). A summary of responses and opinions together with the respective numbers of respondents who voiced them shows the following:

- • ME managers are not ready to meet the specific requirements of the funders (8).

- • MEs lack good projects; they have an unstable business environment and insufficient knowledge and skills to obtain financing (6).

- • For a ME project to be financed, there needs to be a team with experience and knowledge, as well as a highly motivated leader (3).

- • Refusal to finance a ME project is in most cases due to absence of a team for carrying out the project, inappropriateness of the business model or an unrealistic cash flow plan (3).

- • Access to financing is but one among many other factors for new project development on the part of MEs (1).

- • Many MEs are not aware of the available funding, including through financing instruments (7).

Notably, apart from revealing the financing constraints for MEs, the survey also helped to identify the factors that hinder access to financing for entrepreneurs, the most relevant among them being lack of awareness about the available of funding sources among the ME managers, unmet funding requirements and insufficient knowledge and skills to obtain financing. These answers indicate that many MEs and entrepreneurs at the start-up phase are not ready to obtain finance, including *via* financing instruments.

To clarify perceptions about the availability of finance another research was carried out *via* an online survey of Latvian entrepreneurs. Various channels were used to reach the respondents through about 1000 contact addresses, including five associations and networks of entrepreneurs and start-ups, some web sites and private contacts. The surveying period was from April, 2016 to November, 2016 and resulted in 147 completed questionnaires. From the 22 questions, 17 sought to find out about the respondents' funding needs, funding goals, awareness of the types of financial instruments available and willingness to borrow. Another 5 questions were added to identify existing and potential MEs among the respondents.

The responses showed that most of the respondents (91 %) were established micro-enterprises, whereas 9 % were still on their way to business activity. Of all respondents 87 % indicated that they had experienced a need for finance to business activity over the past 3 years (q2). Only 27 % of the respondents gave a positive response to the question "Do you know what financial instruments for the support of entrepreneurship are offered in the EU in Latvia?"(q3). The question was further detailed by a list of financing products for the respondents to indicate the ones they recognized as part of the EU offer. Most of the surveyed entrepreneurs knew such financial instruments as loans (93 %), guarantees (79 %) and venture capital investment (80 %), but also erroneously ticked off credit lines (69 %) and leasing (62 %).

Only 17 % of the respondents answered in the positive to the question "Have you been gained any of the financing instruments available in EU for your company or future business development needs?"(q4). The survey did not indicate any of the constraints frequently mentioned in literature, such as "loans not available", "insufficient collateral or guarantee", "excessively high interest rate or price" and similar. The remaining 83 % of the respondents came up with the following reasons on why business owners did not use financial instruments:

- Lack of awareness about how to access financing instruments (75 %);
- Insufficient preparedness (i.e. self-assessment) to request financing (16 %);
- No need of financing and unwillingness to expose the company activities to external control (5 %);
- Belief that a company has to develop on the basis of its own resources (3 %);
- Bureaucratic burden and fear of having their business ideas stolen (1 %).

Only 13 % of the respondents gave a positive response to the question "Have you gained a financial instrument from Altum's offer for the development of your current or future business?"(q5). From the respondents who had not made use of any proposals by Altum, 76 % stated that they knew nothing about the development finance institution's proposals. There were 7 % who stated that they did not wish to turn to Altum for financing. Another 6 % stated they already had a known financing source, whereas 4 % were still in a planning stage to use Altum's offer. There were 2 % who had submitted a loan application to Altum and were looking forward to becoming clients. The percentage of respondents who knew about Altum corresponds to the total number of respondents who knew what financing instruments were.

Analysis of the entrepeneurs' responses shows that the survey results closely resemble the survey results of SKDS (2015) revealing insufficient knowledge among businesses about venture capital funds. The SKDS survey with 750 respondents displayed that 38 % of managers had heard about the financing of venture capital funds, while 59 % did not hear about this proposal, 3 % in turn answered it hard to say. Micro-entrepreneurs who are not aware of venture capital funds also show poor knowledge of "financing instruments".

The results of the survey may be compared to the EC business data survey SAFE (European Commission, 2017b) results on how MEs evaluate access to finance and their willingness to use the financing instruments offered. In response to "How important have the following problems been for your enterprise in the past six months?"(q0) MEs ranked "access to finance" as the least important of the 7 types of problems offered for selection. Grants or subsidised bank loans were seen as relevant sources of financing (q4b) by only 28 % of MEs that had used them in the past or were considering their

use in the future. Also equity capital was perceived as a relevant source of financing (q4j) by as few as 10 % of the MEs that had used it in the past or were considering its use in the future.

It is important to take note of the responses to the question "If you need external financing to realise your growth ambitions, what type of external financing would you prefer most?"(q20). The majority of MEs gave preference to "bank loans" (64 %), whereas "loans from other sources" were selected by only 14 %, and "equity investment" by only 6 % of the respondents.

When questioned on what they see as the most important limiting factor for obtaining finance (q22), most MEs (40 %) responded by indicating that there were no obstacles, whereas 5 % pointed out that financing was altogether not available. The reasons traditionally mentioned, i.e., "insufficient collateral or guarantees" and "excessively high interest rates or prices" where each perceived as relevant by 15 % of MEs.

Entrepreneurs were also asked to evaluate, whether "access to public financial support, including guarantees" had improved, remained unchanged or deteriorated over the past 6 months (q11b). Only 6 % of the surveyed MEs perceived improvement, whereas 12 % thought that access had deteriorated. Another 30 % of MEs perceived the public financial support as "not applicable". Unfortunately the SAFE survey does not uncover the reasons why "public financial support, including guarantees" (i.e. financial instruments offered in the EU) might be perceived as "not applicable". The SAFE survey for entrepreneurs also made it possible to select an answer indicating that the financing source was "not relevant to enterprise". However, the survey did not uncover the reasons why financing would be "not relevant".

In practice, most entrepreneurs know the conditions of traditional financing institutions, for example, banks, in relation to sufficient collateral, stable financial indicators and a positive credit history. Thus, entrepreneurs tend to make self-assessments and decide whether to apply for some appropriate type of financing. If the entrepreneur assesses the situation as such that does not meet the requirements of known financing institutions, in most cases he would assess this situation as one where "financing is unavailable" or "not relevant". At the same time there are diverse financing instruments that are offered in EU and in Latvia particularly, that entrepreneurs are not aware of, or do not dare to apply for, even if they have heard of them.

Conclusions and recommendations

1. Latvia being an EU Member State has access to significant financial resources from EU funds for business support. However, for many MEs in Latvia availability of financing instruments remains a challenge. The current financing volumes with the help of financing instruments show that the latter hold a low profile with MEs.

2. A company's inability to obtain external financing is frequently interpreted as financial constraints, while the situation may actually be due to a number of other reasons. This is particularly common in Latvia, although there are sufficient financial resources in the market and a range of financing instruments are offered.

3. The unavailability of financing instruments for MEs in Latvia is determined by a number of crucial factors:

•   Lack of awareness about financing instruments;

•   Lack of understanding of the variety of financing instruments and the requirements of financial intermediaries;

•   Lack of knowledge and skills to access financing instruments.

4. The attitude of MEs that are not interested in using financing instruments stems from their unwillingness to expose themselves to debt liabilities and interference in the company's activities, or else they perceive their own funds as sufficient.

Sometimes the goodwill of policy makers and their efforts to support micro-business do not reach the addresses due to very simple reasons, such as insufficient awareness or discouraged attitude of entrepreneurs. Therefore these findings imply some recommendations:

1. Policies promoting financing instruments may be more effective by complementing strategies to improve MEs literacy on obtaining finance. Information measures should enhance entrepreneurs' awareness of the diversity of financial instruments, their characteristics and differences from traditional sources of finance.

2. Responsible institutions entrusted with EU funds should publicize more information about the benefits of financial instruments as well as their suitability for the needs and objectives of entrepreneurs.

3. In order to increase the availability of financial instruments, in-depth studies on MEs needs and financial instruments' compliance with these needs should be conducted.

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TOURISM ENTERPRISE COOPERATION: CAN BENEFITS BE FINANCIALLY PROVED?

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Abstract. Success of destination development can be seen as very complex system of cooperation that consists from many organisations, enterprises, activities and connections between them. Tourism organisation and enterprise gains from participation in tourism cooperation networks quite often are studied from qualitative outcomes avoiding quantitative financial quantitative gain analyses.

The aim of the study is to analyse quantitative benefits of one tourism cooperation network members using financial indicators before and after joining network. A research hypothesis is that tourism enterprise financial outcomes like turnover, gross profit and net profit are increasing after joining tourism cooperation networks. The research methodology involves analyses of financial outcomes from tourism enterprises that are part of one regional tourism cooperation network of Latvia analysing 24 enterprise and organisation data from year 1996 till 2016. Statistical analyses software EVIEWS was used for analysing panel data of tourism enterprise financial outcomes using dummy variable as being part or not being part of tourism cooperation network in particular year. Research findings show increase of tourism enterprise net profits after joining tourism cooperation network. Main results and findings are intended for tourism researchers, tourism cooperation networks and tourism enterprises for the financial benefit analyses.

Introduction

Current market environment can be characterized primarily by an increase in regional, international and global competition that is forced by growth of customer expectations as well as rapid changes in technology development. In such situations a big part of enterprises and organisations are moving towards the development of collaborative systems, alliances to allow them to improve their competitiveness that has been studies already by classic economists like A. Marshall and M. Porter and continued in more recent studies (Negrusa, Rus, Sofica, 2014). Individuals, organisations and firms are not isolated, independent actors separately contributing their piece to the total value created for customers; they are parts of value chains and networks through which value is co-created and co-delivered (March, Wilkinson, 2009, Reid, Smith, McCloskey, 2008), therefore individual firm's performance depends on different external environment factor influence.

Generally collaboration networks of formally independent firms are an interesting subject for more detailed study because in current turbulent environment they claim to be able to build competencies, exploit complementary resources and redesign strategies faster than firms can change independently (Mouritsen, Sof, 2006). Global tourism is a fragmentary structured heterogeneous industry with experienced customers which creates additional importance for collaboration network development. Thus success of tourism destination development can be seen as very complex system, that consists of many organisations, enterprises, activities and connections between them that need to function on base of win-win approach with mutual benefits for sustainable and long term functioning. Obviously the ultimate goal of

private tourism enterprises and organisations is not only development, but also efficient financial performance, gaining profits and demanding shorter or long-term approach to financial returns for the money and resources invested.

Theoretical background

From entrepreneurial point of view cooperation can be defined as "association of a number of persons for their benefit engaged in collective action in the pursuit of common wellbeing in some industrial or business processes". In this way the entrepreneurial approach highlights common benefits, that partly are tangible and easy to perceive, still the biggest part of these benefits are not only intangible, but even quite often not easy to verify and to measure in financial terms.

After studying Silicon Valley collaboration approach, author of the book "The Power of Collaboration: Powerful Insights from Silicon Valley to Successfully Grow Groups, Strengthen Alliances, and Boost Team Potential" the author T. S. Spitzer (2017) developed her definition of cooperation: "being able and willing to blend our ideas and efforts into "communal brain" to create better results by working together than we could on our own".

For inter-organisational cooperation networks as particular form of cooperation researchers generally apply the terms 'network', 'networking' and 'clusters' referring to intangible linkages social structure and cooperation between entities, such as individuals, government organizations, non-government organizations (NGOs) and businesses (Thipsingh, 2015). Inter-organisational networks are formed by a group of organisations that engage in exchanging and sharing different resources and capacities in order to achieve a common mainly strategic purpose (Dias, Franco, 2018). Inter-organisational relationships of such cooperation networks display following characteristics (Vante, Taylor, 2000, Ford, Gadde, Hakansson, Snehota, 2003, Fyall, Garrod, 2005):

- at least three parties, that quite often in network literature are indicated as actors, must have common relationships,

- partners have some degree of independence, but at the same time depending on the type of network these is a degree of restriction of the enterprise freedom,

- management of the network is organised according to the strategic interests of the partners,

- an enterprise or an organisation can be part of more than one network at the same time.

Outlining tourism related academic literature there is a need to conclude that it is filled with specific terms that have been proposed to describe various manifestations of collaboration still not defined nor researched in details.

There are several approaches to the forms of cooperation in tourism industry. Authors will mainly develop a set of main types of cooperation that mainly is grounded on World Tourism Organisation (UNWTO), Canadian Tourism Commission CTC) and studies of Alan Fyall, Brian Garrod, following types of cooperation networks can be considered as a basic group used in tourism industry:

- consortium,
- strategic alliances,
- cooperative marketing networks,
- partnerships,
- destination networks,
- public-private partnerships,
- value chain relationships,
- organization networks,
- associations,
- joint ventures,
- outsourcing.

These terms include partnerships, alliances and consortia, all of which are becoming increasingly common in the literature of tourism management and marketing. Often, a particular term is preferred in dealing with a given sector of the industry. Hence collaborative relationships among hotels are often described as consortia, while in the airline industry they are usually called alliances, in the context of tourism destinations, the term partnership is typically preferred (Fyall, Garrod, 2005).

Particularly as a specific form of tourism industry cooperation, authors will underline cooperation types that are related to destination networking that mainly are formed based cooperative ties between the private tourism enterprises and different local authority organisations. For the characterisation of cooperation for destination development the term partnerships is as the most widespread networking denomination. Partnerships are based on collaborative efforts of autonomous stakeholders from organizations in two or more sectors. These stakeholder interests are mainly focused on tourism development that emerges in an interactive process using shared rules, norms and structures at an agreed organizational level, and over a defined geographical area to act or decide on issues that are related to tourism development (Fyall, Garrod, 2005).

Tourism partnership structures (UNWTO, 2003) can be formed with the private sector, so called private-private partnerships, with the help of the public sector, that can be called public-public partnerships. The divide between the public and private sectors are becoming increasingly nebulous (Fyall, Garrod, 2005), encouraging organisations that were previously isolated from one another to begin working collaboratively. Tightening budgetary constraints, combined with political and public pressure for greater accountability, as key incentives for collaboration in the tourism industry.

Cooperation partnerships also represents an already made 'bridge' between the traditional 'bureaucratic' production and the public sector (Fyall, Garrod, 2005) as well as the 'marketing culture' of the private tourism sector. However, in many instances it is the lack of a marketing culture, in the public sector, that has motivated collaboration with private-sector organisations, for the aim being to gain access to core competencies in marketing and related activities. Private sector generally has a greater commitment to a market orientation, which it can exchange for access to the public sector's political and economic resources, that cannot be obtained on the open market. It is recognised in tourism industry that public-private sector cooperation and partnerships among private enterprises constitute a rising trend in competitiveness (UNWTO, 2003).

Strategic alliances generally are long term agreements for achieving common objectives that may involve both smaller and larger organisations that have complementary resources or expertise. They are determined as strategic cooperation (UNWTO, 2003 Reid, Smith, McCloskey, 2008), because the objectives are of critical importance to the overall business and market development strategy of the partners. Strategic alliances can be defined as a manifestation of inter-organizational cooperative strategies that entail the pooling of skills and resources by the alliance partners in order to achieve one or more goals linked to the strategic objectives of the cooperating firms (Fyall, Garrod, 2005). Some researchers see strategic alliance as a particular 'horizontal' form of inter-organisational relationship in which two or more organisations collaborate, without the formation of a separate independent organisation, in order to achieve one or more common strategic objectives (Evans, 2007). That was favored at the beginning in the formations of alliances, that nowadays have transformed in global networks encompassing different tourism enterprises.

Clusters are geographic concentrations of interconnected companies or institutions that manufacture products or deliver services in a particular field or industry (Negrusa, Rus, Sofica, 2014), thus tourism clusters consists of a group of resources and attractions, business and institutions directly or indirectly involved in tourism, concentrated in a particular geographic area (Fundeanu, 2015). Borkowska-Niszczota (2015) specifies different tourism organisations and enterprises comprising tourism product providers, tourism organizations, tourism intermediates, business environment institutions,

local authorities and the local governments, educational establishments, universities, R & D institutions, expert facilities as well as supporting enterprises of tourism entrepreneurs of other industries.

Table 1

Characteristics differentiating clusters and determining their typology (classification) (Borkowska-Niszczota, 2015)

Features of the clusters	Description
The degree of self-awareness of the cluster	acting; latent; potential
The duration of operation	"younger clusters" of 1-3 years, "the older clusters" four years and more
The size, number of members (potential power)	dense clusters; rare clusters; large clusters (over 61 entities); medium clusters (29 to 60 entities); small clusters (up to 28 members)
Territorial scope (the focus of the cluster)	the cluster is rooted regionally; depending on the location of interrelated entities forming the cluster, we distinguish the following clusters: local, supralocal, regional and supraregional, national, supranational (cross-border, international)
The structure of the cluster	clusters should bring together the following categories of participants: business entities, supporting entities, educational and research and development institutions, the local authorities;
Form of initiation of the business activity	as part of a grassroots initiative (through the private sector entities); as a part of the top-down initiative (through the units outside the corporate sector); the mixed initiative
Funding of the initiative at an early stage of the cluster development	private financing by the cluster members (membership fees) and with the public funds under clusters' development support programs
Involvement of the coordinator (broker of the cluster)	having a broker or without a broker; the broker is responsible for organizing and facilitating contacts between the cluster members, supports the development by providing access to resources, assistance in contacts with the environment, creates favourable conditions for the entities in the cluster;
Organizational and legal form of activity	agreement consortium, association, foundation, company, cooperative, business organization, the agreement of members (partnership agreement)
Cluster's development phase or cycle of life	nucleus stage; stabilization; maturity; transformation; decline / nucleus; growth; mature; declining
The cluster development model	Italian model; Danish model, Dutch model; American model
The number of horizontally related sectors	narrow and wide (the number of areas of activity in the cluster)
The purpose of functioning	purposes are the result of needs and circumstances; they are usually diverse; the directions and dynamics of cluster development processes depend on the clearly defined objectives and their implementation
The effects of co-operation and the degree of activity	marketing activities, raising the competence of the members or preparation of joint market offers; the level of activity can be measured by the number of completed projects (or the number of joint products)
The ability to create jobs	clusters with growing, stable or declining employment
Competitive position	global, national, average, poor
Measurable benefits from the operation	determine the strength, the position of the cluster, its development abilities with regard to attracting further entities, mainly business (e.g., improving qualifications of the employees, attracting customers, increase in sales, implementation of innovation, cost reduction)
The importance of technology / the innovation capacity	clusters of high, medium, low technologies / highly or lowly innovative clusters

Borkowska-Niszczota cluster differentiating typology can be considered as very structured and well summarised set of cluster characterisation.

Although clusters constitute independent structures developing under the objective market relations in the favourable location conditions, their development is strongly affected by the initiatives popularizing the idea of clustering and the possibility of co-financing the clusters' creation projects with the resources coming from the EU structural funds (Borkowska-Niszczota, 2015).

In order to transform destination in well-functioning system, the relationships between industry players need to be based on win-win approach for mutual benefits for sustainable and long term functioning.

Network role arises from economies of specialization – relations and networks are the means by which the benefits of division of labour and specialization are realized by accessing, combining, recombining and coordinating the activities, resources and outputs of people and firms specializing in different parts of the overall process of value creation and delivery (Wilkinson, 2008). Another important set of reasons for network existence is in shaping the dynamics and evolution of business through their impacts on innovation and learning, when knowledge and ideas diffuse through business systems via the relations and networks connecting economic actors enabling member potential (Wilkinson, 2008, March, Wilkinson, 2009). Cooperation network importance is connected with the list of benefits that can be achieved with such cooperation partnerships – networks provide competitive advantage that cannot or would be difficult to achieve for a separate enterprise or organisation. The motivation for involvement in networks can be either associated with gain of flexibility in our rapidly changing environment; to develop skills and resources for commercial success or achieve operating efficiency (Cravens, Piercy, 1994).

Even thou the range of tourism cooperation objectives is quite broad, they could be grouped in six broad categories (UNWTO 2003, Reid, Smith, McCloskey, 2008):

- product development, such as promoting sustainable development and responding to competition;
- research and technology, such as joint research on common markets;
- human resources, such as setting service and quality standards;
- marketing and sales, such as improving awareness of a destination and accessing new markets;
- infrastructure, such as promoting intermodal transportation linkages;
- improved access to financing.

There are three groups of benefits that networks can offer – learning and exchange; business activity; and community. Following learning and exchange benefits - knowledge transfer education, communication, development of new values, and facilitation of development of SMEs can boost advantages for business activity and community (Morson, Lynch, Johns, 2004). Business activity advantages combine cooperation activities based on marketing, purchasing or production operations, increased entrepreneurial activity, inter-trading within the network, enhanced product quality and others, but benefits for community foster common community purposes, remain of income into the local community, increase community reinvents. Another cooperation advantage is additional flexibility of enterprise. Quick access to information and established group of partners give immense competitive advantage in the age of new economy.

Learning process as a benefit can include sharing the know-how in production, distribution, and other business activities, development of innovative policies for the industry development, sharing of perceptions, responding dynamically to a changing environment and learn from the cooperative process itself.

As a frequent argument for additional cooperation benefits is that cooperation can help to avoid the long-term costs of adversarial conflicts (Bramwell, Lane, 2000) between interest groups. Adversarial conflicts can be wasteful as stakeholders entrench their mutual suspicions, improve their confrontation skills and play out similar conflicts around each subsequent issue.

The scope of gains generated by destination cooperation networks including clusters comprise interrelated benefits both for network participants and the regions of their functioning (Borkowska-Niszczota, 2015) providing the opportunity to increase collective markets and capacities, thereby increasing revenue and overall opportunity (Nordin, 2003, Laing, Lewis, 2017).

Generally there is a lack of measure of benefits from researchers and network community (Morson, Lynch, Johns, 2004), most of all stated advantages are qualitative that are not easy to measure in quantitative way.

Methodology

As options for cooperation network financial benefit analyses methods could include time series, cross section, as well as panel data. In panel or so called pooled or longitudinal data (Heij, de Boer, Franses, Kloek, van Dijk, 2004), the cross-sectional data is researched over time, using additionally time dimensions and can be related to heterogeneous data of firms and their development over time, additionally panel brings more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency. Panel allows including dynamics of change and complicated behavioural models of companies and organisations.

The aim of the empirical research is to analyse quantitative benefits of one tourism cooperation network members using financial indicators before and after joining network. A research hypothesis is that tourism enterprise financial performance indicators, such as turnover, gross profit and net profit, are increasing after joining tourism cooperation networks. Current research is carried out as preliminary testing on panel data analyses application exploring cooperation network influence on member financial performance not taking into account other relevant internal and external influence factors that would be relevant future research task in case of successful outcome of panel data method application.

The research involves analyses of financial outcomes from tourism enterprises that are part of one regional tourism cooperation network of Latvia analysing 24 enterprise and organisation data from year 1996 till 2016. Statistical analyses software EVIEWS was used for analysing panel data of tourism enterprise financial outcomes using dummy variable as being part or not being part of tourism cooperation network in particular year.

To test the application of panel for cooperation network financial success analyses, authors chose one regional tourism network. In the first stage information on tourism cooperation network members were gathered – companies and organisations, field of activity as well as year of joining to cooperation network. In the list of companies for further study were left those that had more than 2 years of previous activity in order to have sufficient data for pre-network and post-network comparison. In the next stage the balance sheets of companies and organisations were gathered using Lursoft data base of enterprises of Latvia, companies missing balance sheets were eliminated from gathered data. In the third stage 3 financial indicators like turnover, gross profit/loss and net profit/loss were imported in panel data.

Analysis and findings

The researched cluster consists of 40 members. other associated members out of which 24 members are corresponding to 2 methodological requirements – operations prior joining network and availability of officially introduced balance sheet.

Table 2

Researched tourism cooperation network description based on Borkowska-Niszczota (2015) cluster typology

Features of the clusters	Analysed cluster description
Industry	Tourism
Country of registration	Latvia
The degree of self-awareness of the cluster	acting network
The duration of operation	"the older cluster" four years and more
The size, number of members (potential power)	medium clusters (29 to 60 entities)
The number of members	40 full partnership organisations, plus associated partners
Territorial scope	Regional
The structure of the cluster	inter-organisational network comprising business entities, local public entities
Funding of the initiative at an early stage of the cluster development	private financing by the cluster members and with the public funds under clusters' development support programs
The number of horizontally related sectors	wide with different of areas of activity in the cluster
The purpose of functioning	purposes are the result of needs and circumstances; they are usually diverse; the directions and dynamics of cluster development processes depend on the clearly defined objectives and their implementation
The effects of co-operation and the degree of activity	marketing activities, raising the competence of the members, preparation of joint market offers
The ability to create jobs	clusters with growing, stable or declining employment
Competitive position	National
Measurable benefits from the operation	improving qualifications of the employees, attracting customers, increase in sales, implementation of innovative projects, cost reduction
Year of network formation	2012
Number of network member organisations	40
Number of network member organisations corresponding requirements of analyses, including:	24
accommodation establishments & catering	12
tourist attractions	7
tourism information and excursions	3
rehabilitation	2

Source: author's description based on Tourism Cooperation Network information

Data of each tourism cooperation network member consists of balance sheet and cash flow financial indicators from all years of operation, starting even with year 1996 and continuing till last officially available data of year 2016 (Lursoft). Financial outcomes further were grouped in pre-network period and post-network period financial parameters.
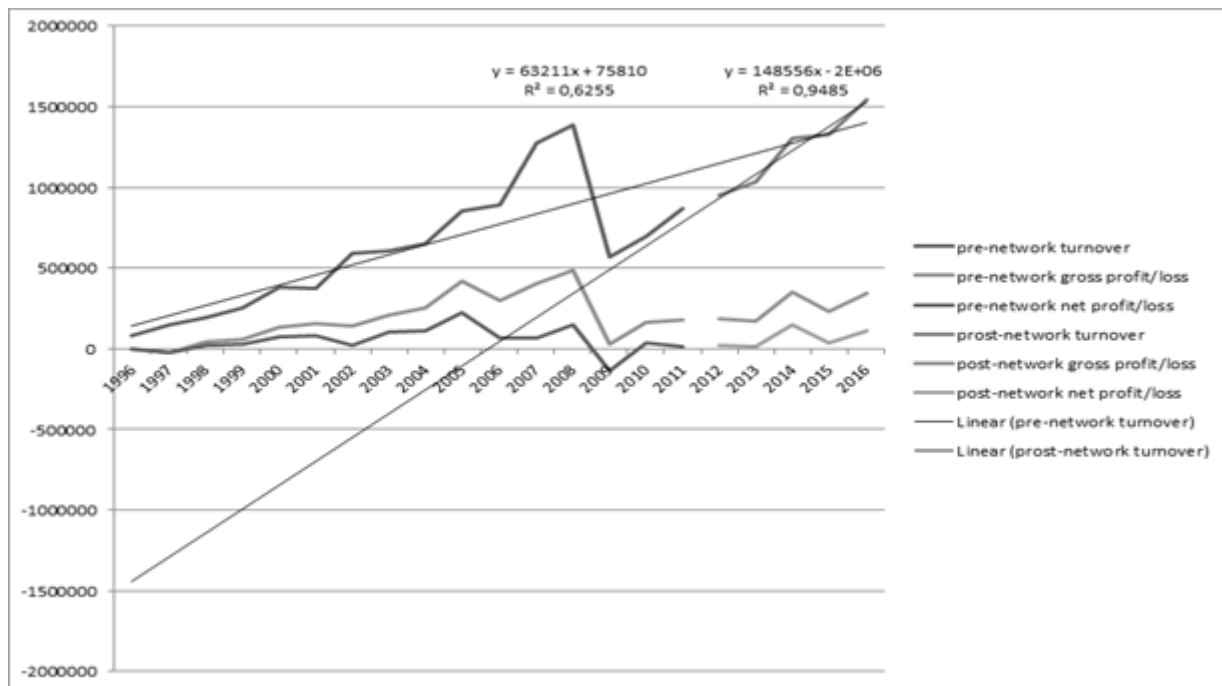
Figure 1. **Example of one tourism cooperation network member financial performance indicators in pre-network and post-network stages from 1996 till 2016 (turnover, gross profit, net profit in Euros)**

Source: author's calculations based on Tourism Cooperation Network Member list and Lursoft data

The analyses panel data of network member financial parameters such as turnover, gross profit/loss and net profit/loss comprised 1113 result indicators.

Fist indicator for analyses was chosen turnover as one of cooperation network benefit is increased entrepreneurial activity on local and international level; broaden marketing activities, access to new markets, etc. Table 3 presents regression's with dependent variable *Turnover results*.

Table 3

Cooperation network member turnover increase after joining cooperation network (n=24)

Research method	Panel Least Squares
Dependent variable	Turnover
Sample time	1996-2016
Sample periods included	21
Cross-sections included	24
Dummy variable: D=1 for period after joining network	
Differential coefficient	-17 899.44
Standard error of the differential coefficient	13.052.10
p-value	0.1711
R square = 0.793	
R square adjusted = 0.778	
p-value (F-statistic)	0.0000

Source: author's calculations based on Tourism Cooperation Network Member list and Lursoft data

As it can be seen in the Table 3, unbalanced panel data regression model is statistically significant (p-value of F-statistic is small), but coefficient of dummy variable is not statistically significant. It allows us to conclude that results did not show significant changes in turnover of members after joining network.

Participation in cooperation networks create benefits for members in their purchasing of necessary components by decreasing costs, efficiency of production operations, more efficient distribution and inter-trading within the network members. Such network benefits could result in an increase of member's profit.

Gross profit as financial metric reveals the proportion of money left over from revenues after accounting for the cost of goods sold. Table 4 shows unbalanced panel data regression estimation results for gross profit.

Table 4

Cooperation network member gross profit increase after joining cooperation network (n=24)

Research method	Panel Least Squares
Dependent variable	Gross profit
Sample time	1996-2016
Sample periods included	21
Cross-sections included	24
Dummy variable: D=1 for period after joining network	
Differential coefficient	8 146.027
Standard error of the differential coefficient	3234.415
p-value	0.0122
R square = 0.535	
R square adjusted = 0.494	
p-value (F-statistic)	0.0000

Source: author's calculations based on Tourism Cooperation Network Member list and Lursoft data

As p-value of dummy variable is less than 0.05, with confidence of 95% we can conclude that there are significant, positive changes in gross profit of members after joining network, on average increase was about 8146.03 EUR after joining tourism cooperation network.

Organisation and enterprise net profit represents the amount of money remaining after all operating expenses, interests, taxes and stock dividends have been deducted from their total revenue. Table 5 shows unbalanced panel data regression estimation results for net profit.

Table 5

Cooperation network member net profit increase after joining cooperation network (n=24)

Research method	Panel Least Squares
Dependent variable	Net profit
Sample time	1996-2016
Sample periods included	21
Cross-sections included	24
Dummy variable: D=1 for period after joining network	
Differential coefficient	23 760.40
Standard error of the differential coefficient	10224.84
p-value	0.0207
R square = 0.377	
R square adjusted = 0.332	
p-value (F-statistic)	0.0000

Source: author's calculations based on Tourism Cooperation Network Member list and Lursoft data

Panel data regression model estimates indicated net profit increase by 23760.40 EUR in average after joining a tourism cooperation network. As p-value of dummy variable is less than 0.05, with confidence of 95% we can conclude that there are significant, positive changes in net profit of members after joining network, such average net profit increase shows gained efficiency of network member enterprises and organisations. Panel data regression of net profit indicates the most positive changes from all researched financial performance indicators of members after joining a cooperation network. Research hypothesis is confirmed partly as only some financial performance indicators - gross and net profit /loss - indicated increase after joining tourism cooperation networks with appropriate level of significance.

Conclusions and suggestions

1. Benefits from enterprise cooperation have been studied in various researches mainly discussing the qualitative and quantitative benefits.

2. As qualitative cooperation benefits quite often are mentioned sharing the quick access to industry information, know-how in business activities, development of innovative policies for the industry development, responding dynamically to a changing environment and decrease in costs of competition related outlays.

3. There is a lack of measured gained benefits from cooperation networks, as in most research stated that advantages are qualitative and are not easy to measure in a quantitative way.

4. Researched cooperation network indicates a possibility to apply panel analyses for one case of cooperation network evaluation using financial benefits of member organisations after joining network.

5. Research hypothesis is confirmed partly as only some financial performance indicators - gross and net profit /loss - indicated increase after joining tourism cooperation networks with appropriate level of significance. Panel data regression indicated net profit increase by 23760.40 EUR in average per actor after joining tourism cooperation network. Such average net profit increase shows efficiency growth of network member enterprises and organisations.

6. Financial performance indicator increase gives possibility for tourism cooperation network management to communicate cooperation network benefits to their members additionally to all intangible benefits that are used as motivational tools currently.

Also a study comprised all tourism cooperation network member financial outcomes that were officially introduced to state revenue authorities, carried out network member economic performance and financial benefit measure research has several limitations. Additional study is required where other methods of economic benefit measure could be applied in order to conclude on the most appropriate model.

Research did not include all relevant factor analyses to analyse the participation in tourism cooperation networks to proof particular financial performance indicator influence on enhanced network member economic performance. Current research has been carried out as preliminary testing on panel data analyses application exploring cooperation network influence on member financial performance but not taking into account other relevant internal and external influence factors that would be relevant in a future research task in case of a successful outcome of panel data method application.

There is a need for several different type cooperation network member financial performance analyses using panel data in order to conclude on panel data method applicability as well as testing panel data for other financial indicators as profit margin. Future studies could comprise broader range of actors and the next research step could be suggesting all tourism cluster member of Latvia financial performance analyses.

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HOW COMPANY PERFORMANCE AFFECTS SUPERVISORY BOARD ACTIVITY: EVIDENCE FROM THE POLISH TWO-TIER BOARD MODEL

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Abstract. This study is conducted in the Polish system of corporate governance, which is characterized by its concentrated ownership structure of public companies, the absence of market for corporate control based on hostile takeovers and a two-tier board model. Its main aim is to determine the relationship between company performance and supervisory board meeting frequency. Company performance is measured by both the accounting measure of performance (ROA) and market measure of performance (Tobin's Q). The sample consists of 356 companies and 1,611 observations of Polish companies listed on the Warsaw Stock Exchange between 2008 and 2015. Data was hand collected from annual reports and reports of the supervisory boards. These were analysed by Poisson regression. The results showed that supervisory board frequency increases as a result of deteriorating company performance when measured by ROA. In contrast, there was no significant relationship between company performance measured by Tobin's Q and supervisory board meeting frequency. The results suggest that in the Polish system of corporate governance, supervisory boards of publicly listed companies pay more attention to accounting measures of companies and, due to the features of this system, accounting measures seem to be better for the assessment of companies and their management boards.

Key words: *corporate governance, corporate boards, company performance, Poland.*

JEL code: G34

Introduction

In recent years, in the finance literature, considerable attention has been given to corporate boards. This attention was initially motivated by corporate frauds in such companies as Enron, WorldCom, Tyco, Marconi, Bremer Vulkan and others. In each of these cases, questions were asked about the role of corporate boards, and the opinion of these bodies was always negative. Hence, in the literature, it was underlined that corporate boards are not able to effectively control executives (Soltani, 2014; Stiles and Tylor, 2002). In response to this, not only were further changes in company law introduced, but also codes of good practices in corporate governance were developed. These activities were also supported by numerous research and scientific studies (e.g. du Plessis and Low, 2017; Zattoni and Cuomo, 2008)..

In Poland, there were no such spectacular corporate scandals, even though, in the case of bankruptcies of such Polish public companies as Alma Market, DSS, Hydrobudowa Polska, IG Group, Krosno, Irena and many others, some commentators and researches asked if their supervisory boards were appropriately active and able to effectively perform their controlling function. Following on from this, a growing stream of literature on Polish corporate boards appeared (e.g. Aluchna, 2015; Gad, 2015; Kołodkiewicz, 2013). Nevertheless, it seems that our knowledge on corporate boards is still underdeveloped. Hence, this study will contribute to the relevant literature.

This paper attempts to fill two gaps in the literature. Firstly, most previous studies on boards of directors have been conducted on the Anglo-Saxon systems of corporate governance, i.e. in a system with dispersed ownership and a one-tier board model. Little still is known about the structure, role and activity of these bodies in countries where ownership is concentrated and where the board model is a two-tier one. Secondly, previous studies in Poland were mostly focused on

the relationship between board size or the characteristics of board members (e.g. gender diversity) and company performance. The lack of knowledge about the relationship between board activity and company performance has led to the main aim of this study, which is the determining of the relationship between company performance and supervisory activity. Certain previous research considers meeting frequency as a proxy for the level of monitoring activity delivered by corporate boards. This study follows this research and considers supervisory board meeting frequency as a proxy for its activity.

Board meetings frequency and company performance

Certain previous studies on the role of corporate boards and their processes were based on agency theory. The concept of this theory states that there may be a conflict of interest between top managers (agents) and shareholders (principals) due to differences in their interests (Eisenhardt, 1989; Jensen and Meckling, 1976) as both parties tend to focus on their own interests. Shareholders are eager to get a high return on their investment from their shares in a company, whereas managers seek to obtain high remuneration and maintain their position. The principal-agent conflict gives rise to agency costs. These costs arise because shareholders face problems in monitoring management. To reduce agency costs, various mechanisms, including corporate boards, are designed. Generally, monitoring the actions and decisions of management is the primary focus of the board from an agency perspective. Some authors considered also meeting frequency as a proxy for the time directors have to perform their duties and for the level of monitoring activity delivered (Greco, 2010; Vafeas, 1999). From this point of view, the more frequent the meetings, the more detailed the control of the managers, and the greater company performance and shareholder wealth (Arosa et al., 2013).

In view of these, there were some studies on the relationship between company performance and board meeting frequency (i.e. board activity). The first study on this was conducted by N. Vafeas (1999) on a sample of 307 large companies from the Forbes list in the period between 1990-1994. He noted that corporate boards meet more often in response to worsening results in earlier periods. What's more, companies whose boards meet more frequently are less valued by capital markets.

A similar study was later carried out by I.E. Brick and N.K. Chidambaran (2010). They examined the relationship between company performance measured by Tobin's Q and ROA, board meeting frequency and their controlling function (measured by a ratio including the number of meetings and the presence of outside directors). The sample was composed of 5,528 observations of companies listed on the American Stock Exchange. This research showed that board meeting frequency and the fulfilling of the controlling function are statistically and positively related to the values of Tobin's Q ratio (both as an endogenous variable and exogenous variable). The relationship with ROA looked somewhat different, where there was no impact of the controlling function on ROA (as an endogenous variable), but when the ROA was treated as an exogenous variable, such a relationship existed. I.E. Brick and N.K. Chidambaran drew the conclusion that the performing of the controlling function helps corporate boards mainly to identify investment opportunities. In addition, these studies showed that special events, such as mergers and acquisitions, can increase the supervisory activity of the boards.

There were also many other studies conducted on a one-tier board model which examined the relationship between board activity and company performance. Most of these treated company performance as an endogenous variable. For example, C.G. Ntim and K.A. Osei (2011) conducted research on 169 companies from South Africa and found a statistically significant relationship between board meeting frequency and company performance. Later, T.N. Sahu and A. Manna (2013) studied a sample of companies from India. Their research also assumed board meeting frequency as an exogenous variable. They recognized that this frequency had a positive effect on company performance measured as net

sales, net profit, EVA and MVA. They concluded that a larger number of meetings helps in making decisions and eliminating inconsistencies between the opinions of board members.

Other results were obtained by R. Horváth and P. Spirollari (2012), who employed a sample of large US companies from 2005 to 2009, but their analysis did not find that board activity is related to company performance. In contrast to these studies, in the models analyzed by G. Greco (2010), which examined a sample of 179 companies from non-financial companies listed on the Italian stock exchange, the endogenous variables were both board meeting frequency and audit committee meeting frequency, while the exogenous variable was lagged ROA. However, this study also did not find a statistically significant relationship between the values of ROA and both proxies for board activity.

Nevertheless, according to agency theory, if company performance drops, supervisory boards tend to safeguard shareholders' interests and are more active. In view of this, and also the balance of arguments in the literature, the first hypothesis is:

Hypothesis 1. There is a negative relationship between company performance and supervisory board activity.

There are also arguments that under certain circumstances accounting measures and market measures of performance can affect corporate governance in different ways (Munisi and Randøy, 2013). This may also apply to board activity. M. Conyon and L. He (2014) argued that in developing countries accounting measures are more informative for shareholders than market measures. In addition, P. Urbanek (2010) indicated that in the Polish system of corporate governance with concentrated ownership, top managers are primarily evaluated through accounting measures of performance. Generally, dominant shareholders in systems of corporate governance with concentrated ownership are not so sensitive to price fluctuation, because the expected period of return on their investment is longer than the expected period of return on investments of dispersed minority investors. Since their representatives control supervisory boards, it can be assumed that supervisory board activity is more sensitive to accounting measures of performance than market measures. Accordingly, the second hypothesis is:

Hypothesis 2. Supervisory board activity in Polish companies is more sensitive to accounting measures of performance than market measures of performance.

The Polish system of corporate governance

The relationship between different measures of company performance and supervisory board activity is better understood in the context of the Polish system of corporate governance. This system is characterized by the concentrated ownership structure of public companies, the absence of market for corporate control based on hostile takeovers and a two-tier board model (Aggestam, 2004). According to various pieces of research, the median of the largest blockholders in Polish listed companies ranges from 42% (Jerzemowska et al. 2015) to 45.8% (Tamowicz and Przybyłowski 2006).

The Polish board model is a two-tier one, with corporate boards consisting of two separate boards, i.e. a management boards and a supervisory board. Management boards consist of one or more inside members. In accordance with the Code of Commercial Partnerships and Companies of Poland (CCPC), the members of the management board may be appointed and dismissed by the supervisory board, unless the articles of association provide otherwise. A member of the management board may also be dismissed or suspended from his activities through a general meeting. Supervisory board are composed of only outside directors, and consist of three or more members in private companies, and five or more members in public companies. The members of management board are not allowed to be members of supervisory boards and vice versa. Hence, CEO duality is also forbidden.

Both boards have separate responsibilities. Management boards are only responsible for running the company. They are powerful and real decision-making boards, which are responsible for the formulation of strategy and for running company operations. According to the CCPC, the special duties of supervisory boards include consideration and approval of the management board report on the operations of the company and of the financial report for the previous financial year, with regard to their conformity with the books, as well as with the actual state of affairs, and proposals of the management board concerning the division of profits or the financing of losses, as well as submitting to the general assembly annual written reports on the results of such an evaluation.

Research results

1. Research sample and variables

The sample consists of Polish companies listed on the Warsaw Stock Exchange between 2008 and 2015. The adoption of this period was as a result of the availability of data. Data was hand-collected from annual reports and reports of the supervisory boards. The sample involves only non-financial companies. Financial institutions are excluded due to their unique financial structure and the special accounting rules which apply to the financial sector. Observations with missing data are also excluded. This gave an unbalanced initial panel sample of 356 companies and 1,611 company-year observations.

The following model has been used for testing the hypothesis:

$$Y_{it} = \alpha_i + \beta\, X_{it} + \gamma\, Z_{it} + \varepsilon_{it}$$

where: the Y_{it} vector contains a dependent variable, i.e., a proxy for supervisory board activity (supervisory board meeting frequency); X_{it} represents the independent variables, i.e., ROA and Tobin's Q; Z_{it} consists of control variables, that is, managerial ownership, institutional investors ownership, state ownership, supervisory board size, management board size, supervisory board diversity, management board diversity, the number of supervisory board committees, company size, company leverage, industry, year dummy variables, and ε_{it} describes random disturbance. The model was analyzed by Poisson regression.

The number of meetings held by the supervisory board was used as a proxy for the intensity of board activity. (Vafeas, 1999; Brick and Chidambaran, 2010). Similarly, these studies exclude actions taken by written consent.

To measure company performance, both accounting and market measures are employed. The accounting measure is a return on assets (ROA), which is calculated as the ratio of the net profit divided by the total assets of the company. ROA examines the profitability of a firm in the recent past. It is used to assess a firm's operating performance relative to investments made without considering whether the firm used debt or equity capital to finance the investments (Stickney, 1996). The market measure is Tobin's Q, In this study it is calculated as the ratio of the total market value of the company, i.e. the market value of equity plus the book value of total debt to total assets (Del Brio et al. 2006; Brick and Chidambaran 2010). J. Wolfe and A.C.A. Sauaia (2003) stated that Tobin's Q is a statistic that might serve as a proxy for the firm's value from an investor's perspective. Tobin's Q essentially measures the market's perception of the company's future prospects, though M.A. Salinger (1984) indicated that it reflects the present value of all future profits and contains an adjustment for risk. To catch that poor performance takes some time to affect meeting frequency, both performance variables are measured as lagged ones.

The choice of control variables is motivated by their potential relevance and the available literature. In this study, managerial ownership is calculated as the fraction of shares owned by all management board members (Himmelberg et al., 1999). It is worth mentioning that Polish listed companies are required to reveal in their annual statements the

proportion of shares held directly and indirectly by management board members, but not the proportion held by other top managers who are not board members. Top managers who are not members of the board have a duty to disclose their shares only when they exceed the 5% threshold. Hence, similarly to H. Short and K. Keasey (1999) and M. Lasfer (2006), the shares owned by top managers who are not members of the management board are omitted. However, this variable is calculated as direct and indirect voting rights at the general meeting and counted as a decimal number (Bohdanowicz, 2014).

Institutional investor ownership is measured as the percentage of shares owned by institutional investors. This includes Polish and foreign banks, insurance companies, brokerages, open-ended pension funds, open-ended and closed-ended investment funds, venture capital and private equity funds. Only blocks of institutionally-held shares which exceed the 5% reporting threshold are calculated. This variable is calculated as voting rights at the general meeting and counted as a decimal number. Similarly, state ownership is calculated as the percentage of shares owned directly and indirectly by the government. Moreover, all ownership variables are calculated based on direct and indirect voting rights at the general meeting and measured as decimal numbers.

Board size is commonly defined as the total number of directors (Florackis and Ozkan, 2009), but since a two-tier board model is being studied, it has to be measured using two variables, i.e., the total number of directors on supervisory boards and the total number of directors on management boards. Moreover, we are witnessing a growing body of research on board diversity and its influence on both company performance and various board processes (Campbell and Minguez-Vera, 2008; Nielsen and Huse, 2010; Terjesen et al., 2009), with board diversity employed to control the impact of supervisory board activity. As a proxy for board diversity, the percentage of women on the supervisory board and the percentage of women on the management board is used. These variables are also calculated as decimal numbers.

Since the establishment of board committees helps to improve corporate governance by delegating particular tasks from the whole board to smaller groups of board members (Spira, and Bender, 2004; Koładkiewicz, 2011), the number of supervisory board committees is employed as another control variable.

In view of the fact that company size is associated with board activity, total assets at the end of the company's prior fiscal year may be used as a control variable and a proxy for the scale of the company. As is commonly done, this is transformed with a natural logarithm (Brick and Chidambaran, 2010; Kang et al., 2003; Kochhar and David, 1996). To show company leverage, debt ratio is used. This is calculated as the ratio of total liabilities to total assets. Company age is measured as the number of years since the IPO (Boone et al., 2007).

The industry is calculated as a dummy variable which takes the value of 1 if the company belongs to an industrial sector and 0 if the company belongs to a service sector (Kowalewski et al., 2008). The allocation of companies to these two categories is based on the Warsaw Stock Exchange classification of sectors. Moreover, year dummy variables are also employed.

1. Descriptive statistics

The first table below provides a breakdown of the supervisory board meeting frequency in the sample during the period studied. The mean number of supervisory board meetings over the whole sample period is 6,2253. This mean decreased slightly from 6.8657 in 2008 to 5.9783 in 2014, but then increased in 2015 to 6.0264. In addition, the median decreased from 6 in the period 2008-2011 to 5 in the period 2012-2015. The mode was stable at 4 during the period studied. However, the results show that the average numbers of meetings of Polish supervisory boards are lower than the average number of meetings of boards of directors in a similar study by N. Vafeas (1999), where this was 7.45 meetings, and G. Greco (2010), where this was 9.27 meetings. These differences arise from the difference in functions of unitary

boards in a one-tier board model and supervisory boards in a two-tier board model. B. Tricker (2009) pointed out that unitary boards perform four functions i.e. accountability, strategy formulation, policy making and supervising executive activities, while supervisory boards mainly concentrate on supervising executive activities.

Table 1

Breakdown of the supervisory board meeting frequency between 2008 and 2015

Year	Mean	Median	SD	Mode	Min.	Max.	N
2008	6.8657	6	3.3408	4	1	21	134
2009	6.4940	6	3.1263	4	2	20	168
2010	6.2737	6	3.2491	4	1	22	179
2011	6.2374	6	3.2410	4	1	26	198
2012	6.2956	5	3.6214	4	1	19	203
2013	6.0136	5	3.3084	4	1	22	221
2014	5.9783	5	3.3459	4	1	20	230
2015	6.0264	5	3.2741	4	1	24	265
All	6.2253	5	3.3288	4	1	26	1,598

Source: author's calculations based on data extracted from annual reports.

The second table describes the mean, median and standard deviation of the other variables in the study between 2008 and 2015. The mean of the return on assets is 0.0167 with a standard deviation of 0.1668. The approximation of Tobin's Q has a mean value of 1.1814, with a standard deviation of 0.6638.

Furthermore, the mean of managerial ownership is 0.2153, but the median is only 0.0442. Generally, managerial ownership is, on average, lower than, for example, that reported by Greco (2010) for Italian companies, but higher than that reported by N. Vafeas (1999) and N. Ozkan (2007) for U.S. and U.K. companies respectively. The data suggests that although managerial ownership in some companies is very low, there are also companies with a very high concentration of ownership in the hands of management board members.

The mean level of institutional ownership is 0.1287, with a standard deviation of 0.1688, and the median is 0.0719. The mean value is smaller than, for example, the mean level of institutional ownership reported by M. Nekhili and H. Gatfaoui (2013) for French companies, which was 0.2025. But the mean is higher than that reported by J. Oehmichen et al. (2012) for German companies, which was 0.1039. Moreover, the mean value of state ownership is 0.0399 with a standard deviation of 0.1456 and the median is 0. This variable seems to be an important variable in Poland, since the state still controls some large companies which are vital to the Polish economy.

The mean supervisory board size is 5.7796 and the mean management board size is 3.0801. These results show that the size of most management boards in the sample is greater than 1, which is the minimum size according to Polish company law. As reported, the mean is more than 3, while the median is 3. In contrast, the median of supervisory board size in the sample is only 5, which is the minimum for supervisory boards of Polish listed companies. The mean of supervisory board size is 5.7796.

The average number of supervisory board committee's amounts to 0.7598. Moreover, more than half of the companies in the sample have no board committee, i.e. median is equal 0. By contrast, N. Vafeas (1999) reported that the average number of standing board committees was 4.29 in his research.

The average number of female directors on supervisory boards is 0.7430, with a standard deviation of 0.9237. Similarly, the average number of female directors on management boards is 0.3166, with a standard deviation of 0.5697. The median for both variables equals 0. This reveals the low number of female directors on supervisory and management boards in Poland.

The mean value of the leverage variable is 0.4751, with a standard deviation of 0.2473. The mean company size (natural logarithm of total assets) is 19.5385, with a standard deviation of 1.6804. And finally, the mean company age is 8.8696 and the median is 8. These numbers reflect the relatively short history of the Polish capital market.

Table 2

Descriptive statistics

Variable	Mean	Median	Standard deviation
ROA	0.0167	0.0329	0.1668
Tobin's Q	1.1814	1.0120	0.6638
Managerial ownership	0.2153	0.0442	0.2737
Institutional investors ownership	0.1287	0.0719	0.1688
State ownership	0.0399	0	0.1456
Supervisory board size	5.7796	5	1.3283
Management board size	3.0801	3	1.4525
Number of supervisory board committees	0.7598	0	1.0191
Number of female directors on supervisory boards	0.7430	0	0.9237
Number of female directors on management boards	0.3166	0	0.5697
Leverage	0.4751	0.4597	0.2473
Company size	19.5385	19.3561	1.6804
Company age	8.8696	8	5.5601

Source: author's calculations based on data extracted from annual reports.

2. Poisson regression

The third table delivers the results of Poisson regression for the sample. The data are presented in four separate models. In the first model, the variable which represents company performance is ROA, in the second one it is lagged ROA, in the third one it is Tobin's Q and in the fourth one it is lagged Tobin's Q.

The results reveal that the interaction between supervisory board activity and company performance measured by ROA is negative and significant ($\beta = -0.2067$, $p < 0.001$). Similarly, supervisory board activity is significantly and negatively related to lagged ROA ($\beta = -0.1961$, $p < 0.01$). However, there is no significant relationship between this activity and company performance measured by both Tobin's Q and lagged Tobin's Q. These results show that meeting frequency of supervisory boards is related to accounting measures of performance, but there is no evidence that they are related to market measures of performance.

Some relationships between dependent and control variables are also identified. Managerial ownership is significantly and negatively related to supervisory board activity in four models ($\beta = -0.2212$, $p < 0.001$ in the model with ROA, $\beta = -0.2214$, $p < 0.001$ in the model with lagged ROA, $\beta = -0.2390$, $p < 0.001$ in the model with Tobin's Q, $\beta = -0.2461$, $p < 0.001$ in the model with lagged Tobin's Q). These findings support the point of view that managerial ownership is detrimental to supervisory board activity. This is consistent with findings by N. Vafeas (1992), C. Mendez and R. Garcia (2007) and G. Greco (2010).

Institutional ownership is significantly and negatively related to supervisor board activity in two models - that is in the model with lagged ROA (β = -0.1105, p < 0.1) and the model with Tobin's Q (β = -0.1106, p < 0.1), but the level of significance is low. Furthermore, state ownership is significantly, but positively correlated to supervisory board activity in all four models (β = 0.4996, p < 0.001 in the model with ROA, β = 0.4981, p < 0.001 in the model with lagged ROA, β = 0.4968, p < 0.001 in the model with Tobin's Q, β = 0.5117, p < 0.001 in the model with lagged Tobin's Q). It shows that in companies with higher state ownership, supervisory boards meet more often.

Additionally, management board size is significantly and negatively related to supervisory board activity in all four models (β = -0.0445, p < 0.001 in the model with ROA, β = -0.0449, p < 0.001 in the model with lagged ROA, β = -0.0466, p < 0.001 in the model with Tobin's Q, β = -0.0447, p < 0.001 in the model with lagged Tobin's Q). Hence, the more numerous the members on management boards, the less frequent supervisory boards meet. This relationships is different than predicted.

The number of supervisory board committees was related to supervisory board meeting frequency significantly and negatively in three models, i.e. with the lagged ROA (β = -0.0215, p < 0.1), Tobin's Q (β = -0.0206, p < 0.1) and lagged Tobin's Q (β = -0.0226, p < 0.1). The level of significance is low, but this may show that supervisory board committees perform certain tasks on behalf of the full board, hence the reduced need to meet so frequently.

The relationship between company size and supervisory board activity is positive and significant in all four models (β = 0.0983, p < 0.001 in the model with ROA, β = 0.0974, p < 0.001 in the model with lagged ROA, β = 0.0967, p < 0.001 in the model with Tobin's Q, β = 0.0937, p < 0.001 in the model with lagged Tobin's Q). This relationship is in line with the relationship noticed by I. Brick and N. Chidambaran (2010). It shows that supervisory boards of larger companies meet more frequently due to the more complicated processes which they need to monitor.

In addition, the number of female directors on supervisory board is significantly and positively related to supervisory board activity in all four models (β = 0.0614, p < 0.001 in the model with ROA, β = 0.0630, p < 0.001 in the model with lagged ROA, β = 0.0627, p < 0.001 in the model with Tobin's Q, β = 0.0573, p < 0.01 in the model with lagged Tobin's Q). Similarly, the number of female directors on management boards is significantly and positively related to supervisory board activity in all four models (β = 0.0554, p < 0.01 in the model with ROA, β = 0.0565, p < 0.01 in the model with lagged ROA, β = 0.0562, p < 0.01 in the model with Tobin's Q, β = 0.0671, p < 0.001 in the model with lagged Tobin's Q). Hence, the more female directors on supervisory or management board, the more frequently supervisory boards meet.

Moreover, leverage is significantly and positively associated with supervisory board activity, but only in the model with lagged Tobin's Q (β = 0.0875, p < 0.05). However, it seems that the frequency of supervisory board meetings may be higher in more leveraged companies. This is consistent with agency theory and its assumption that these companies bear higher agency costs (Jensen and Meckling, 1976). Due to these higher costs, supervisory board members have to be more engaged in fulfilling their controlling function.

In addition, year dummy variables affect supervisory board activity in all four models. Supervisory boards met more frequently immediately after a financial crisis (not presented in the table).

Table 3

Poisson regression

Independent and control variables	Dependent variable: Supervisory board activity			
	Model 1	Model 2	Model 3	Model 4
ROA	-0.2067*** (0.0613)			
Tobin's Q			0.0059 (0.0158)	
ROA (t-1)		-0.1961** (0.0758)		
Tobin's Q (t-1)				-0.0023 (0.0145)
Managerial ownership	-0.2212*** (0.0431)	-0.2214*** (0.0431)	-0.2390*** (0.0434)	-0.2461*** (0.0453)
Institutional investors ownership	-0.1041 (0.0649)	-0.1105† (0.0649)	-0.1106† (0.0650)	-0.1093 (0.0673)
State ownership	0.4996*** (0.0671)	0.4981*** (0.0669)	0.4968*** (0.0673)	0.5117*** (0.0697)
Supervisory board size	-0.0039 (0.0095)	-0.0023 (0.0095)	-0.0026 (0.0095)	0.0009 (0.0098)
Management board size	-0.0445*** (0.0082)	-0.0449*** (0.0082)	-0.0466*** (0.0082)	-0.0447*** (0.0084)
Number of supervisory board committees	-0.0192 (0.0117)	-0.0215† (0.0117)	-0.0206† (0.0117)	-0.0226† (0.0121)
Number of female directors on supervisory boards	0.0614*** (0.0114)	0.0630*** (0.0114)	0.0627*** (0.0114)	0.0573** (0.0188)
Number of female directors on management boards	0.0554** (0.0181)	0.0565** (0.0181)	0.0562** (0.0182)	0.0671*** (0.0117)
Leverage	0.0198 (0.0450)	0.0414 (0.0459)	0.0638 (0.0436)	0.0875* (0.0430)
Company size	0.0983*** (0.0037)	0.0974*** (0.0037)	0.0967*** (0.0038)	0.0937*** (0.0039)
Company age	-0.0028 (0.0020)	-0.0025 (0.0020)	-0.0023 (0.0020)	-0.0013 (0.0022)
Industry	-0.0029 (0.0213)	-0.0017 (0.0213)	-0.0069 (0.0213)	-0.0063 (0.0219)
Year dummies	Yes***	Yes***	Yes***	Yes***
Akaike information criterion	4.9028	4.9031	4.9073	4.8937

Note: † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; ***$p < 0.001$. Standard error is given in brackets.

Source: author's calculations based on data extracted from annual reports.

To check relationships between company performance and supervisory board activity, additional tests were performed. There was checked if the change in performance triggers increased supervisory board monitoring activity. But Poisson regression analysis showed that the change in ROA and Tobin's Q turned out insignificant in all models.

Conclusions

This study attempted to investigate the relationship between company performance and supervisory board activity. A proxy for the level of monitoring activity delivered by supervisory boards was its meeting frequency. The research was based on the sample of 356 companies and 1,611 company-year observations in companies listed on the Warsaw Stock Exchange between 2008 and 2015. Poisson regression showed that there is a significant relationship between both ROA and lagged ROA and supervisory board meeting frequency, but there is no significant relationship between Tobin's Q, lagged Tobin's Q and change in Tobin's Q and this frequency.

These results highlight that the supervisory boards in Poland become more active in their supervision of companies and meet more frequently if company performance decreases. This is in line with agency theory and supports Hypothesis 1. E. Fama and M. Jensen (1983) argued that boards of directors play an important role in the corporate governance system, are important mechanisms of corporate governance and devices which mitigate agency problem. Moreover, this is also clearly supported by M. Mizruchi (1983) that the company board is the ultimate center of control. As the ultimate centers of control, supervisory boards tend to respond to all issues of companies.

Nevertheless, it needs to be underlined that the relationship between company performance and supervisory board activity was valid only for the accounting measure of performance. This is consistent with previous findings which concluded that in systems of corporate governance with concentrated ownership, including Poland, accounting measures of performance seem to be more informative, especially for dominant shareholders, since these owners benefit from having private control, which reduces their propensity to be under the pressure of the capital markets (Conyon and He, 2014). Hence, it also supports Hypothesis 2.

As with all empirical studies, the results of this study are not without limitations. These limitations indicate the future directions of research on supervisory board activity and its association with company performance. Firstly, this study employs only two measures of performance, that is ROA and Tobin's Q. Future research should also scrutinize how supervisory board activity is related to other measures, e.g. ROE, ROCE, P/E or Cash Flow per Share. Secondly, this study tests only the main effects between dependent and independent variables. Future research should also be focused on the moderating effects, e.g. how state ownership impact the relationship between company performance and supervisory board activity, and take into account the specificity of the Polish system of corporate governance. Thirdly, this research examines the relationship between supervisory board activity and company performance lagged by one year. It is possible that supervisory boards can react on a poor performance in a different time, e.g. in a half year period. Alternative operationalization could extend our knowledge on this issue. However, future research should deliver in-depth knowledge on the relationship through the employment of more sophisticated models and the incorporation of moderation in terms of statistical interactions, e.g. with dimensions of CEO power (ownership power, structural power, expert power and prestige power).

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THE ASPECTS OF FINANCIAL SUSTAINABILITY IN THE CONTEXT OF LATVIAN BANKS

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Abstract. The research focuses on the analyses of bank sustainability that encompasses internal and external factors essential for effective management of financial and other resources. Competitiveness as part of sustainability cornerstone is also examined in this paper in the context of specificities of Latvian banks.

The aim of the research is to describe main aspects that relate to banking sustainability in the context of the Latvian banking sector which is characterized by considerable market participant density and variability of business models, thus making competitiveness a significant contributing factor.

The analysis presented in the paper employs both qualitative and quantitative methods. The qualitative part focuses on the content analysis that was carried out by means of a literature review, market analysis and examination of relevant documentation (i.e. banking prudential regulation), but quantitative part focuses on the analysis of the statistical data and respective calculations.

Various aspects that relate to sustainability of banks are shown through selected factors, which are deemed to be significant in the context of Latvian banks. The research outlines the main aspects that describe bank sustainability in the tailored view of Latvian banks. One of the main innovations of this paper is the analyses of dual business models that comprise the Latvian banking sector – one emphasizing servicing local, the other – foreign customers. The second business model is currently in flux, transforming into different composition due to extensive regulatory interventions and measures to prevent money laundering and terrorism financing and to enhance the effectiveness of internal control systems. These changes are anticipated to only strengthen the importance of competitiveness as one of the cornerstones for sustainability in Latvian banking sector given the density of market participants, their market shares and client bases.

Main aspects that relate to sustainability of a bank are recognized from extensive information analyses, but competitiveness needs to be analysed as an additional aspect in the context of Latvian banking sector. The overview of available information allows concluding that sustainability can be also analysed using frameworks different from the widely employed green resource allocation method.

Key words: *bank sustainability, competitiveness, Latvian banking sector*

JEL code: G21, G3

Introduction

Sustainability has commonly been referred as an effective allocation and usage of natural resources (Galphin, T., Whittington, J.L., Bell, G., 2015; Sinakou, E., Pauw, J.B. *et al*., 2018; Saunila, M., Ukko, J., Rantala, T., 2018), but when analysing sustainability from the perspective of the business actions it is apparent that only environmental, social and economic dimensions are not enough to sufficiently explain this term. The banking business differs in more than one way from other enterprises and therefore the analysis of the sustainability aspects requires different approaches. Such approaches have been applied in previous research in this field – for example it is proposed (McPhee, W., 2014) that

sustainability actions affect the whole enterprise and that sustainable business models should be more than just setting plain statements and goals to achieve in certain aspects. New holistic actions and behaviours of the enterprise itself towards the business decisions are those that encompass sustainable businesses regarding the type and aims the business has. The sustainability is broader aspect than previously believed and should be adequately described as its importance is set to increase in the coming years.

In banking business the effective attraction of financial and other resources is the key aspect that describes sustainability (Ramnarain, T. D., Pillay, M. T., 2016). As banks generally allocate financial resources in the financial system and serve as financial intermediaries they also engage in different business activities which have not much in common with the issues of environment as banks do not produce any service or product that directly links it with natural resource consumption. To acknowledge this difference the models chosen for the analysis in this field need to be able to better describe sustainable banking business that is oriented to long-term decisions.

The aim of this research is to investigate the aspects that characterize sustainability in the banking sector in a broader and more comprehensive manner than it is done when following the traditional view regarding environment and social aspects. The paper also puts a special emphasis on the specificities of the Latvian banking sector which encompasses two different business models – servicing of local and foreign clients – the second of those currently being in flux due to the regulatory strengthening in the field of anti-money laundering and terrorism financing (AML/CFT). The recent regulatory actions taken by the Latvian banking supervisor – the Financial and Capital Markets Commission (FCMC), which have resonated beyond the local borders in the international media, have increased uncertainty surrounding the market participants' future business actions which requires for adjusting previously known sustainability factors. Therefore the aim of this research is to describe the main aspects that relates to sustainable banking business in Latvia given dual banking business models that characterises the local banking sector and recent changes initiated by the proactive actions taken by banking supervisor that are expected to have significant impact on some of the Latvia's banks as a result increasing the importance of certain aspects, such as competitiveness, when evaluating sustainability of banks and possible business model changes.

The analysis of this changing environment may help to better understand the importance and meaning of sustainability in the banking business and to bring forward important adjustments to the traditional view on the factors that contribute to sustainable banking business.

The research aims to fill the gap in the analysis of the Latvian banking sector that relates to the insufficiently defined sustainability aspects as the local banking business starts its transformation to a more sustainable businesses model. The analysis used for this purpose encompass the content analyses of research papers that explain sustainability aspects from various perspectives, analysis of other information sources such as various publications, analyses of the specificities of Latvian banking sector, its latest trends, transformations and related factors that could help to explain challenges of ensuring the banking sustainability, and also information from bank public disclosures and available statistical data were assessed. Additionally, the case study method is used by tailoring the sustainability model for Latvian banking business models taking into account their specificities. Finally, the graphical analysis is used to effectively demonstrate the outcome of the analysis of the statistical data and the calculations that were done during the research process.

Further research in this field is needed – as this paper mainly focuses on qualitative methods such as the content analyses, and a quantitative study could be done to complement the conclusions of this research and add to the broader theoretical base in this field. That could be done by applying empirical model using correct proxies for the relevant aspects established in this paper that describe the tailored sustainability model for Latvian banks.

1. Financial sustainability in theory

Although the meaning of sustainability is well known from the theoretical aspects employed in the academic studies, it is not so commonly used in the terms of effective management of financial and other resources. Many researchers use this term to describe the effective allocation of green or similar type of resources (Yip, A.W.H., Bocken, N.M.P., 2018; Sobhani, F.A., Amran, A., Zainuddin, Y., 2012). In the context of banking it has mostly been used to define aspects that relate to bankers own preference to act 'green'. For example, the international movements (such as The Sustainable Banking Network, etc.) that encourage banks to maintain their business in a way that encompasses adapting economic decisions linked to environmental and social sustainability such as limited recourse allocation, climate changes and other. Another example would be the bankers usage of green bonds that result in overall lower profits (at least in short term) as this sector is still developing and still under a lot of questioning, but higher public perception from a reputation perspective can prove helpful as sustainable banking business attracts certain segments of clients (Hale, T., 2017), or banks own decision (for example, Swedbank AB) to reduce carbon emission or other negative factors that may influence the climate which basically is business decision with the same aim.

But this term should not always be constrained to the allocation of natural resources. Aras, G., Tezcan., N. and Furtuna, O.K. (2018) propose a multidimensional sustainability model that encompasses five aspects that taken together aim to explain sustainability – economic dimension that contributes to national and global economy, environmental dimension that describes natural resource allocation, social dimension that relates to all social aspects such as human resources and human rights, governance dimension that relates to strategies, policies and the management of those, and also finance dimension that describes funding and financial growth aspects. In that research it is proposed that not only economic, environmental and social aspects describe sustainability, but also governance structure and financial factors are those that supplements proper evaluation of sustainability of any institution.

In some research papers sustainability has been associated with effective management of enterprises' own resources, such as financial or other (staff, clients etc.) and external resources directly linked to nature (Ramnarain, T. D., Pillay, M. T., 2016). Nevertheless, a more detailed categorisation is advised as the types of enterprises vary (banks, common enterprises, and other institutions) - they not only have different business decisions to make, but also aims, available resources and environment in which they perform their activities. In this paper the Author limits the analysis of sustainability only to commercial banks due to data availability issues and specificities regarding other banking sector entities.

Ramnarain, T. D. and Pillay, M. T. (2016) described that in general sustainability, at least in banking business and from the view of the services they provide, can be described by six "C's" - these aspects are clients, culture, compliance, compensation, costs and capital. They conclude that the classical meaning of sustainability should be adjusted given that in the finance and banking industry sustainability means effective execution of the business in a long-term.

Ramnarain, T. D. and Pillay, M. T. (2016) use framework that describes core banking strategy which is basically synergistic coordination of banks own resources. The Author views this framework as very valuable as it abstracts from traditionally accepted environmental view to corporate governance view. In such view the client satisfaction is defined as one of the core aspects in every sustainable banking decision. This seems reasonable as some clients may prefer a bank that offers the green bonds or invest into saving the climate, while other, of course, may still give preference to a bank that offers the best prices for banking products regardless of their actions in the environmental field. Therefore it gives ground to believe that sustainability for banks first and foremost stems from corporate decisions. A client means profit for every client oriented business so it is very important to keep the satisfaction of clients at the high level.

Furthermore, Ramnarain, T. D. and Pillay, M. T. (2016) mention that culture and compliance are very important aspects of sustainable banking. This is valid argument as business conduct requires sound and prudent risk culture in every bank and strong corporate values that relate to code of conduct in the banks (European Banking Authority (EBA) guidelines on corporate governance, 2017). Strong culture in banks leads to high ethical and professional standards that have the aim to reduce risks to which the institution is or might be exposed. Risk culture basically has the same aim, but it takes into account institution's risk strategy (risk appetite, risk tolerance and risk management) that has high impact on the business activities. The international standards for corporate governance in banks are developed by the responsible authorities such as EBA, Basel Committee on Banking Supervision (BCBS), European Central Bank (ECB) and others in the form of guidelines that have to be complied with. Therefore the aspect of compliance is very important to account for when describing sustainable banking.

In order to ensure that the applicable regulations and guidelines are followed, banks have to establish the compliance function as part of their internal control framework. This requirement is stipulated in the Capital Requirements Directive (CRD IV) (Directive 2013/36/EU, 2013) and Regulation (CRR) (Regulation (EU) no 575/2013, 2013) from the European Commission and is internationally promoted by the Bank for International Settlements (BIS) that stipulates this framework globally (BCBS guidelines on the corporate governance principles for banks, 2015). If the bank does not comply with the rules then it cannot operate in the market. While these aspects usually are not strongly related to the environmental aspects, they are crucial for banking business.

The compensation or remuneration packages are an important aspect in relation to the sustainable banking. Ramnarain, T. D. and Pillay, M. T. (2016) mention that banks must decrease the overall compensation packages in order to ensure long-term success and therefore achieve sustainability. This is also the view taken in the EU regulation as the CRD IV and CRR links remuneration with sustainability, sets strict rules on bonus cap restrictions (currently 100% restriction for variable remuneration to not exceed fixed remuneration – 200% with shareholders' approval), requires to pay-out certain amount of variable remuneration in financial instruments, adjust *clawback* and *malus* arrangements, defer certain amount of variable remuneration etc. – all these requirements aim to limit individuals risky behaviour and stipulate long-term interests of the institutions that promote sustainability (EBA guidelines on sound remuneration policies, 2015).

These provisions regarding the remuneration aim to require banks to ensure, when making decisions on compensation, that they are consistent with the long term interests of the institution and dos not encourage excessive risk taking. Therefore the staff that has a significant influence on the risk profile of the institution cannot be remunerated with high amounts of variable remuneration. The aim of this legislation in the Europe is to reduce short-term incentives that are not compatible with a long-term sustainable banking business.

Ramnarain, T. D. and Pillay, M. T. (2016) also outline costs as for various reasons (i.e. tax) the equity financing is more expensive than the debt financing. This can lead to decreases in innovation as capital requirements are important aspects that shape the business planning in banks.

In the Authors' view costs are very important aspect in the banking business that has recently only gained in prominence as the low interest rate environment and the reduced business opportunities in the post-crisis period force banks to look critically at their revenues and expenditures in order to survive in - as some regard – oversaturated EU banking market. This accounts for novel characteristics as new segments arise on the back of the technological advancement (for example, *FinTech* companies), any services that can be provided less costly and more efficiently by other channels are growing faster than traditional banking products that are facing disruption from those new financial market segments (Vilner, Y., 2017). Compliance costs, capital costs and the regulatory burden restricts the banks from

advancing swiftly from the technological perspective. Therefore in the Author's view another cornerstone of sustainability is competitiveness that becomes more important every year.

The aspect of competitiveness varies depending on the environment in which the bank operates and the type of the bank in question. For example, national banks or development banks have different aims and they provide different services therefore they do not have any competitors to speak of. Also if the country has specific internal factors, for example, closed market, that somewhat protects the market participants, then the competitiveness aspect might not be as important for the sustainability of banks in that environment.

Latvia, similarly to other small and open economies, that are a part of a larger international banking market, provides limited resources and business activity options when it comes to banks. Given national specificities and the fact that the local market participants predominantly are not large banks (ECB report on financial structures, 2017), the competition for clients is always high on the banks' agendas considering relatively dense market structure.

Altogether, only by paying heed to theses aspects and factors banks can evolve into sustainable businesses and make sound decisions that have long-term incentives. Furthermore, the sustainability in the banking sector in many cases has very little connection to the environment and natural resources.

2. Specificities of the Latvian banking sector

Latvia is a small open economy located on the Eastern border of the European Union that has developed a specific financial market structure to establish itself as a gateway between West (Europe, USA) and East (Commonwealth of Independent States (CIS) countries) (O'Donnell, J., Gelzis, G., 2018). Historically this structure start to evolve since the renewal of independence in 1990 – 1991 and gradually the dual business model segmentation of the banking system started to crystallize (Jakobsons, A., Schaub, W.C., 2014; Eglitis, G., Forgo, B., Krastev, R. *et al*., 2014).

Over the years the number of banks in the Latvia has varied, but the competitiveness aspect has remained quite constant. After measuring the banking market density by the Herfindahl-Hirschman Index (HHI) the Author has concluded that Latvian banking market can be characterised as lightly-to-moderately concentrated, (Fig. 1). HHI between 1500 and 2500 can be described as moderately concentrated, but markets with HHI measured 2500 and higher are highly concentrated according to the proposed methodology of United States Department of Justice (2015).
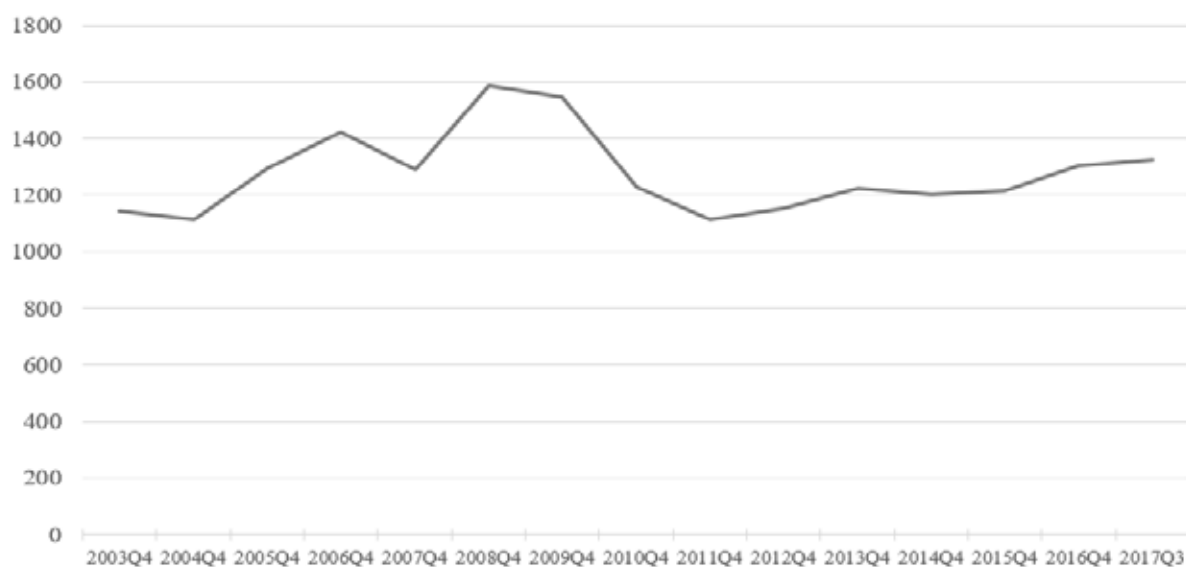
Source: author's own calculation based on the statistical data of the FCMC and individual bank financial statements

Fig. 1. **Market concentration index (HHI) by bank asset size in Latvia**

As the market concentration appears to be low, it can be assumed that Latvian banking market is dense. Therefore the competition between the banks should be an aspect to take account when designing sustainable business plans. But this aspect is only true for banks that are small and equal to each other by asset size, as HHI takes into account the market share. The FCMC statistical data of market shares show that the five largest banks accounted for 73.3% of the banking sector assets by the end of 2017 (the FCMC, 2018) therefore the majority of banks have relatively small market shares. Fig.2 shows that a number of Latvian banks that concentrate mostly on non-residential clients is very similar by asset size and that large banks form a cluster that holds mostly banks with business oriented to residential clients.

It is important to note that data of only 16 Latvian banks that hold a licence was analysed in this paper as the FCMC has issued a Regulations for the Preparation of The Public Quarterly Reports for Credit Institutions (2006) that holds a set of requirements for the public quarterly reports for disclosing certain statistical data which promotes the transparency of the activities of credit institutions, and that is applicable only to licenced credit institutions and branches of foreign credit institutions that are registered within the Republic of Latvia, thus branches of Member States do not have the requirements to disclose the relevant data. Therefore the data availability is an aspect that has to be taken into account when considering the conclusions of this paper.

Furthermore, credit unions were not included in the analysis of this paper as it is a relatively insignificant segment of the total financial market of Latvia[*], and their business activities and decisions differ from banking business decisions given different nature and requirements for the membership of those unions (The Association of the Latvian Credit Unions, 2018).
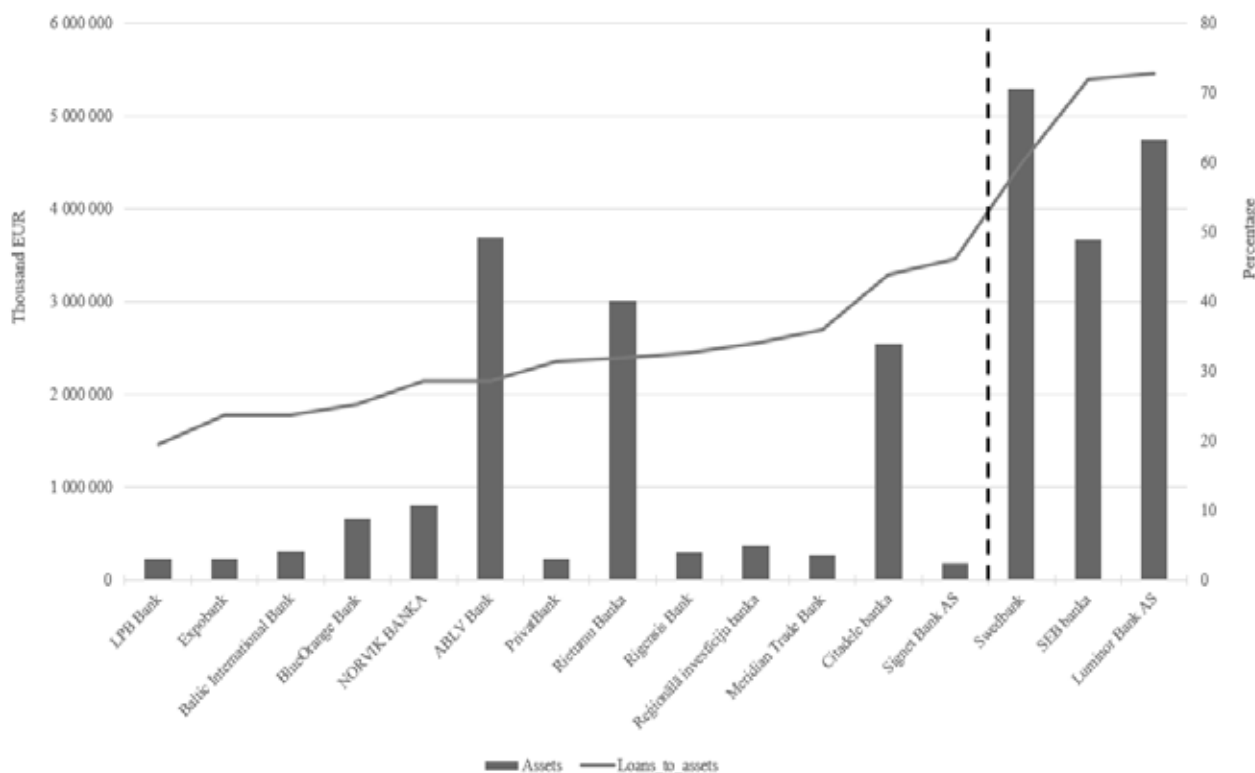
Source: author's own calculation based on the statistical data of the FCMC[†]

Fig. 2. **Latvian individual banks by asset size and loans to asset ratio as of 2017Q4**

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[*] Total assets of the credit unions as of 2017Q4 was accounted for 0.0293 billion euro comparing to 28.4 billion euro of total assets for the banks in Latvia according to the statistics of the FCMC, 2018.
[†] Due to insufficient deposits the ABLV bank was announced to start liquidation process in 23 March 2018 by the FCMC.

In recent scandals regarding banking business model choices that are deemed to be unsustainable for the whole financial system of Latvia (The Economist, 2018), it becomes apparent that the struggle in the segment of banking business that is oriented mostly on serving non-residential clients will lead to strong competition for remaining clients and available financial resources.

2.1. Banking sector of dual business models

The specificities of the Latvian banking sector can be explained not only by the history, but also by the geographical location and political affiliation. Latvia is a member of the European Union and a member of Eurozone that guarantees regulated banking market and therefore is very appealing for clients from CIS and other non-European countries, and for many years their money was welcomed in the country. However as the risks associated with these businesses were accounted for, the regulator – the FCMC – required more capital and stronger risk management framework (especially for the liquidity risk).

These requirements were implemented to ensure that deposits that are attracted from non-residents do not flow away unexpectedly, which could threaten the stability of the bank, and for systemically important banks the financial system as well (the FCMC, 2012) given the fact that most non-residential deposits are short-term or on demand (Pelane, A., 2017). It is worth noting that in the recent past Latvian banks, government and other stakeholders proposed the possibility for the Latvia to become a regional centre of finance. This idea was also stipulated in the National Development plan of Latvia for years 2014-2020 to promote financial services export and international competitiveness on the back of already gained experience in this field (Delfi project Latvia 2020, 2017).

For banks this business model presents the option to earn superior profits and for Latvia as a country it presented an opportunity to establish an internationally well know status of a country that offers services to any customer from any country – export of financial services (the FCMC, 2018). After joining the European Union in 2004 the offer got even more appealing to non-residential customers as gaining a residence permit now became an option (Collier, M., 2018).

As traditional banks started to concentrate more on their core activities and banks servicing foreign clients shed their local, less profitable ventures, the market gap between these two types of banks started to widen. Finally the foreign client servicing oriented banking business model has recently come to sudden stop as Latvia fail to ensure sufficient management of the relevant risks of this business and the banks could not meet the high international AML/CFT standards. After the USA imposed sanctions on ABLV bank in early 2018 the whole segment of Latvian banking sector that oriented on non-residential clients has suffered a serious reputational damage (Reuters, 2018).

As only 3 banks that are oriented to residential clients (Fig.2) currently operate in Latvia, the sustainability aspect for the rest of the banks in the market is growing more important. The Author concludes that currently only Luminor, Swedbank and SEB are banks oriented to residential clients as their loan portfolio compared to total assets is sufficiently high (more than 50%) (Fig.2). Other banks are assumed to be oriented to non-residents.

Similar approach has been suggested by Jakobsons, A. and Schaub, W.C. (2014) who divided Latvian banks in two groups – one that primarily works with residential clients or so called Nordic (Scandinavian) banks, and other that primarily deals with non-residential deposits (clients). They used similar approach – loans to deposit ratio as an indicator that correlates the same way that loans to asset ratio does (Fig.2 data compared with the FCMC statistical data of loans to deposit ratio). Also the same approach for dividing banking businesses by using loans-to-assets ratio was used in the research carried out by Bojāre, K. and Romānova, I. (2017) regarding the factors that affect the profitability for both types of business models of banks in Latvia that were proven to be different from each other.

This division also strongly correlates with Collier, M. (2018) proposed list of non-resident client oriented banks. However, as the Latvian banking sector is currently undergoing a significant transformation, the market structure is also due for a significant change.

2.2. Banking business model transformations

Due to the recent global financial crises, geopolitical sanctions and regulatory requirement strengthening (AML/CFT among others) the viability to use Latvia's banks as a bridge between CIS countries' non-resident clients who offers cheap money with unclear origin and the regulated market of the European Union is now starting to fade as the national regulator aims to limit non-residential deposits from around 40% of total deposits to approximately 5% (LETA, 2018; Coppola, F., 2018). Taking into account that the market is small and provides limited local opportunities to allocate financial resources and that there are already 3 large banks that focus their businesses on residential clients, the changes in the market are bound to occur in a segment of banks that mostly works with non-residential deposits.

After extensive sanctions to several banks over the past years for AML/CFT breaches, generally to a segment of banks that mostly works with non-residential deposits, the remaining banks will struggle for survival. It is likely that some banks will merge, some will leave Latvian banking market due to inability to generate sufficient profits from remaining clients or due to the inability to find any clients at all. Therefore it can be assumed that aspect s relating to the competitiveness and client attraction and retention will grow in importance for banking sustainability in the Latvia.

3. Aspects of the sustainable banking in Latvia

In the context of Latvian banks, taking into account their specificities regarding business model changes, the sustainable banking can only be evaluated if the competitiveness is assessed along with other aspects when looking at sustainable business options for the banks that are oriented to non-residential clients. Therefore the Author proposes to adjust the model that was described by Ramnarain, T. D. and Pillay, M. T. (2016) and concludes that sustainable banking in the Latvia encompasses 7 basic aspects – clients, competitiveness, compliance, costs, compensation, capital and culture (Table 1).

Table 1

Aspects of sustainable banking in the Latvia

Aspect	Description
Clients	The clients and their resources generate most of the profit for the banks so this aspect is important and very basic for every client oriented bank. To ensure stable pool of clients for the bank it needs to value the clients' needs very highly. Market research, public relations campaigns, etc. – are all oriented to attract certain clients and establish long-term client flow that ensures bank's needs.
Competitiveness	Constant need to compete with other market participants highlights this aspect as among the most important to ensure sustainable banking business. Continued competition for "good" clients is significant part of banks core competences and business models. Especially in small open economies where resources (deposits and clients) are very limited, but where the open economy permits other institutions from other countries to offer bank like products and services often for lower prices. The *FinTech* companies also should be accounted for as they are growing and starting to replace traditional banking services with innovative and less costly ones. The awareness of market structure and its participants, its latest trends and overall price level for banking products and services is a core aspect for every banks' decision.
Compliance	Constant changes in the regulatory framework that banks need to comply with makes this aspect a key element to account for when planning or maintaining sustainability. The enhancement of the compliance function and independent Chief Compliance Officer (CCO) in the bank promotes sustainable banking business from the regulatory perspective. In Latvia the regulatory requirements are tailored given banks riskiness and business decisions, but also the sustainability plans, as certain actions promote more risks and are unsustainable in long-term business.
Costs	Banks have to take into account various types of costs from regulatory (including capital) costs to business decision costs (financial type such as business actions, investment decisions, social type such as consumer protection costs, also wages, etc.). Sustainability considerations in this aspect encompass overall cost reduction in a long-term and effective management.
Compensation	The less banks pay out in remuneration the more free resources are available to invest into business ventures, capital strengthening and other aspects. Sustainable long-term performance of the bank is associated with controlled levels of variable remuneration for which various requirements are made in Latvian legislation. Compensation should be aligned with long-term incentives of the bank and stakeholders interests.
Capital	The bank capital requirements are increasing and for many years this aspect is among the top priorities to consider for banking businesses. Requirements for capital overall decrease the options for banks to be innovative and/or increase their business activities. Sufficient real equity level provides a stable base for the further investments and a path towards long-term sustainability. Capital aspect is separated from compliance aspect as latter encompasses broader sense of overall regulatory requirements that are often more reliant on a prudential judgement, while minimum capital needs in terms of real equity levels have always been outlined as a mandatory requirement, - violation of which can often lead to loss of a banking licence.
Culture	This aspect is the least important aspect in the Latvian banking businesses practices that is taken into account, but still its importance is growing as in recent years the FCMC has amended the Regulation on the Establishment of the Internal Control Framework (2012) that holds requirements for risk culture (risk strategy), ethical standards, code of conduct, corporate values and other similar provisions. But given the recency of these requirements it is apparent that this aspect is still under development and evaluation in the banking market. Banks are busy taking care of business decisions and this aspect is often neglected. Yet the sustainable banking cannot be ensured without sound and effective internal culture that ensures long-term incentives for staff, reputation etc.

Source: author's assumptions based on the analysis of Latvian banking sector and "C" model base proposed by Ramnarain, T. D. and Pillay, M. T. (2016)

These aspects and their importance were determined based on the results of the content analyses of available information. It is worth to note that Table 1 poses aspects that describe sustainable banking which differ to the dimensions that Aras, G., Tezcan., N. and Furtuna, O.K. (2018) pointed out in their research. Dimensions overlap these aspects in many ways and the Author chose the aspects approach instead of the dimensions approach as some dimensions are not

appropriate to be considered for the Latvian banks given the development stage of the country itself and the banking sector in particular, for example, environment and social dimension regarding community and human rights factors are rarely taken into consideration.

Sustainability evaluation policy proposals and conclusions

Sustainability of the Latvian banks mostly rests on the governance, finance and economic dimensions as they are the core aspects that affect the basic business decisions and are influenced by the regulation. Therefore they are accounted for in daily business actions that are not always disclosed publicly by banks, but are considered in the everyday business decisions. Furthermore, since practically none of the Latvian banks has issued any information on the sustainability planning (including social and environmental considerations), the Author has the following propositions to increase sustainability of Latvian banks:

1.   To account for changes in the banking sector that require stricter standards regarding corporate governance aspects (including AML/CFT aspect) which encompasses to plan sustainability in various aspects, but mostly in aspects regarding clients, competitiveness, compliance and costs.

2.   To take into account that for most of the aspects that influence sustainability there are corresponding requirements in the Latvia's national legislation that permits certain options which should be explored.

3.   Acknowledge that for ensuring a sustainable banking businesses the cultural aspects will grow in importance in the coming years, for example, sound and prudent risk strategy that is linked with overall risk culture in the institution, code of conduct and other related aspects.

The Author proposes for future research activities in this area to carry out empirical analysis to quantitatively evaluate the importance of aspects in Table 1. The possible conclusions will supplement the qualitative approach presented in this paper.

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ASSESSMENT OF FUNDED PENSION CAPITAL INHERITANCE OPPORTUNITY IN LATVIA

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Abstract. The second tier of Latvian pension system obliges the participants to contribute 6% of their salary to State Funded Pension Scheme with the aim to provide an accumulation of pension capital through funding and investments. This capital is funded in behalf of a certain individual, but in case of death before achieving the retirement age, the whole amount of accrued capital must be transferred to the first level of pension system as an additional financing of current pensioners' benefits. Thus, successors don't benefit from the really accrued capital of the second tier, as far as pension capital inheritance rights are still not provided in Latvia. The aim of the paper is to estimate an opportunity of funded pension capital inheritance in Latvia and its potential effect on the participants of Latvian pension system. For achieving the aim of the research current experience of pension capital inheritance in the EU countries has been assessed. The potential effect on the participants of the system has been evaluated by means of representative survey. One of the main conclusions of the research is that Latvia is one of few countries in the EU, which does not provide pension capital inheritance in any form. However, Latvian inhabitants consider an inheritance to be a necessary option of State Funded Pension Scheme and a method of influence on some aspects of undeclared work. Therefore, an acceptance of capital inheritance may have a positive impact on the indicators of shadow economy in Latvia.

Key words: *funded pension capital inheritance*

JEL code: H55

Introduction

More than 20 years ago Latvia started to reform its model of pension assurance with the aim to create a sustainable system, which is based on the principles of social insurance, is able to adapt to economic and demographic challenges, stays stable and provides adequate benefits.

Despite the fact, that Latvian pension system is highly appreciated in many international researches and takes the 7th place in Allianz 2016 Pension Sustainability Index, Latvian citizens have a low level of confidence in it. The results of this study also confirm that fact.

Current pensioners are not satisfied with the system because of the low amount of pensions. However, not only demographic and economic situation, but also some political decisions may have an impact on the pension system and its future development. Even if a system is supposed to be formed and developed enough, it is necessary to carry out some parametric correction time after time. Almost every European country fights for the sustainability of its system, constantly searching for new methods of improvement. Such methods are usually assessed in the context of national economy's development, because the statement, that socioeconomic development has an influence on the condition of a pension system and vice versa, is indisputable.

Taking into consideration an existence of pension capital inheritance in many European countries, it is possible to suppose, that an implementation of inheritance may become a measure, which will have an impact on the pension system, as well as on the level of shadow economy also in Latvia.

An effect of pension capital inheritance is not well studied in scientific research. The relevance of the topic is also connected to the proposal of the investment management JSC ''Indexo'' to initiate the inheritance of pension capital at the second level of Latvian pension system. Society's engagement in this initiative has been rather high, the necessary amount of signatures (more than 10000) for the submission of the inheritance proposal to the Saeima has been collected. Therefore it is necessary to find out, what kind of effect the inheritance will have on the certain aspect of shadow economy-envelope wages; as well as on the incentive to accrue pension capital and society's attitude towards the pension system.

The aim of this paper is to estimate an opportunity of funded pension capital inheritance in Latvia and its potential effect on the participants of Latvian pension system. The research is based on the analysis of scientific publications and conclusions of Latvian, OECD and EC experts, on the assessment of the experience of EU countries and on the examination of the opinion of Latvian citizens. For the purpose of opinion estimation the representative survey has been realized.

1. Pension Capital Inheritance as a Universal Method of Impact

Great contribution to the research of Latvian pension system has been provided by Edgars Volskis (Voļskis E., 2007, 2011, 2014). Numerous scientific papers are devoted to the problems of increasing the incentive to accrue pension capital and improving society's attitude towards a pension system (Barr N. and Diamond P.A., 2009; Börsch- Supan A. and Ludwig, A., 2010; Jackson R, 2002; Dedry A., Onder H. Pestieau P., 2016.)

Multi-pillar pension system model was proposed as a solution of a pension system's crisis, that's why the majority of EU countries, which met negative demographic changes, started reforming their systems and introduced the multi- pillar models with an opportunity to accumulate some part of social contributions in a form of real capital (Voļskis E., 2007).

Functionality and aims of every pillar of Latvian pension system have been determined in different ways with the idea to provide system's stability and to decrease demographic and financial risks. However, as the analysis of EU experience shows, time after time it is necessary to implement some amendments based on the general practice.

Pension issues are regularly considered by estimating and improving the Law on State Funded Pensions, as well as by means of scientific research. The Division of Social Sciences and Humanities of the Latvian Academy of Sciences during its concilium, devoted to the topic ''My Pension in Future'', has concluded, that the main problems are (Latvijas Zinātņu Akadēmija, 2017):

1. The absence of confidence in the State: belief in the statement ''I'll not survive till the pension age''; reality doesn't comply with the expectations;
2. Low social insurance contributions (1/3 of socially insured contribute from the minimum salary), thus low savings and small pensions;
3. The microenterprise tax regime disfigures the insurance principles and doesn't provide future social security.

Previous surveys and analysis show, that people don't monitor the amount of their pension capital, they are not interested in that and substantiate this fact with other people's previous experience, frequent legislation corrections and many other reasons.

The world's practice demonstrates that it is necessary to make people to contribute to a pension system. There are a lot of available methods to achieve such a goal:

1. More precise commitment;
2. Automatic enrollment (as UK does), when an individual has to sign out of the system consciously (usually it is not comfortable);
3. Default choice: when certain circumstances are established and an individual chooses the most preferable option.

The last approach builds on the statement, that situation decides more than an individual. If an individual has to do a lot for the enrollment, probably only few will do that and majority not. And vice versa. In other words, it is necessary to form an architecture of choice, which leads to a specific goal.

In Latvia previously mentioned methods don't work efficiently, that's why the following pattern exists: low social contributions- limited savings- insufficient pensions.

Social insurance contributions' avoidance is a foundation of the shadow economy. A negative impact of the shadow economy on the financial stability of pension system has been considered by many experts (Arefjevs I., 2017; Putniņš J.T. and Sauka A. 2017). Different sources of information (Putniņš un Sauka, 2017; Hazans, 2012; VID 2017) show comparatively high level of envelope wages in Latvia. Formal statistics points out, that inadequately wide group of tax payers get minimum wage or insignificantly higher, than minimum. Such individuals cannot pretend to get an appropriate amount of pension benefits. Despite the previously mentioned, Latvian citizens suppose, that their pension will be close to their current income level (SEB, 2016). A low income segment is not able to save. At the same time those, who get envelope wages and have an opportunity to accrue capital, don't form it. That means, that expectations of high pensions are not reasonable (SEB, 2017).

In the context of social security budget envelope wages is a very significant problem. It is a reason for serious activities, which decrease the prevalence of envelope wages. An opportunity to inherit pension capital may have a positive psychological effect on person's responsibility for savings. It may help to achieve the situation, when employee protests against social insurance tax avoidance. This, in turn, will lead to a gradual decrease in the number of envelope wages.

It is worth to mention, that many European countries implement a popular reciprocity method, which may be efficient also in Latvia. It is not possible to assess an instant effect of this method, but the analysis of shadow economy indicators in the countries, which apply it, shows much more lower percentage of informal economy.

An implementation of reciprocity method is connected with the promotion of individual's motivation. Scientific discussions in Estonia suppose the status of funded pension capital to be a direct instrument of the above mentioned method. Savings are valuable only when they belong to a saver and when they are inheritable (Arefjevs I., and Martinovs A., 2017). People don't accumulate even inheritable savings, consequently they avoid savings, which will be lost.

The application of inheritance rights may increase the number of participants and their contributions to pension funds, their responsibility for the level of payments, thus decreasing the level of the shadow economy. Inheritance may be extremely significant for large families, where women cannot be a full-time worker or don't work at all. A husband's pension capital may become a necessary option, when a woman becomes a widow. EU data shows, that the poverty risk for single individuals is higher, especially for women.

Despite the solidarity of generations and personal incentives to participate in pension insurance, reality demonstrates, that not everyone survives till retirement age. Men's mortality indicators are usually higher, than women's are, that's why the statement, that men do not reach the pension age, is reasonable. In Latvia an average life expectancy for men is 10 years lower, than for women. Men's longevity slowly grows, but there are no well-founded reasons to forecast a significant increase. Current situation shows, those men are partially motivated to accrue the pension capital and to avoid the envelope wages. Previously mentioned allows to conclude, that understanding an average life expectancy and beeng responsible for the family makes men avoid social insurance contributions and pension savings deliberately as well as cultivate mistrust.

One of the main motivating factors for the accumulation of pension capital is the value of provided retirement benefits. Figure 1 shows the size of pensions assigned in December 2017.
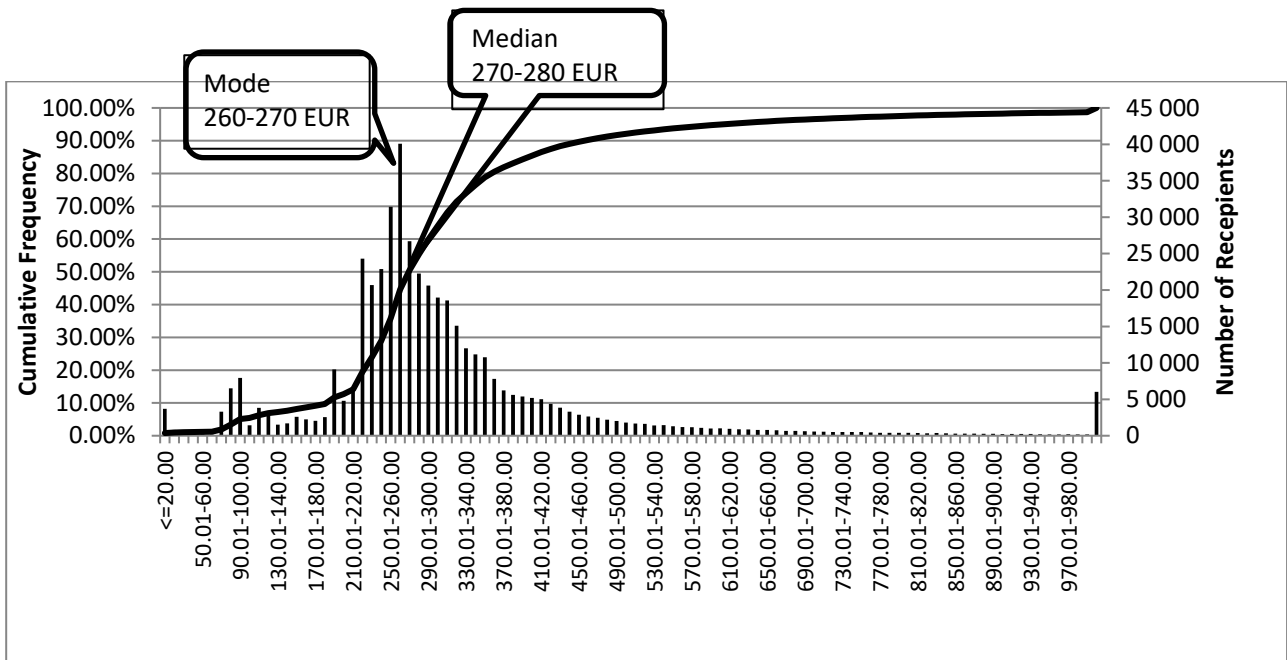
Source: authors' construction based on (VSAA, 2017)

Fig.1. **The size of pensions assigned in Latvia in December 2017**

It is possible to conclude, that the majority of pensioners in Latvia obtain retirement benefits lower than 600 EUR, mode is 260-270 EUR per month and median is 270-280 EUR, hence the most widespread size of pension is 260-270 Euro. From the economic viewpoint the above mentioned indicators establish a logical relationship with the incentive to receive envelope wages.

The attitude towards different factors, which motivate and discourage tax payers to accrue pension capital, has been figured out in the representative survey.

2. Funded Pension Capital Inheritance Influence on the Financial Stability of Pension System

Despite the decreasing size of Latvian population, the amount of social insurance contributors changes mostly positively. In 2012-2014 the amount increased, in 2015 decreased by few thousand and in 2016 rose again. Figure 2 shows the main trends of 2012-2016.
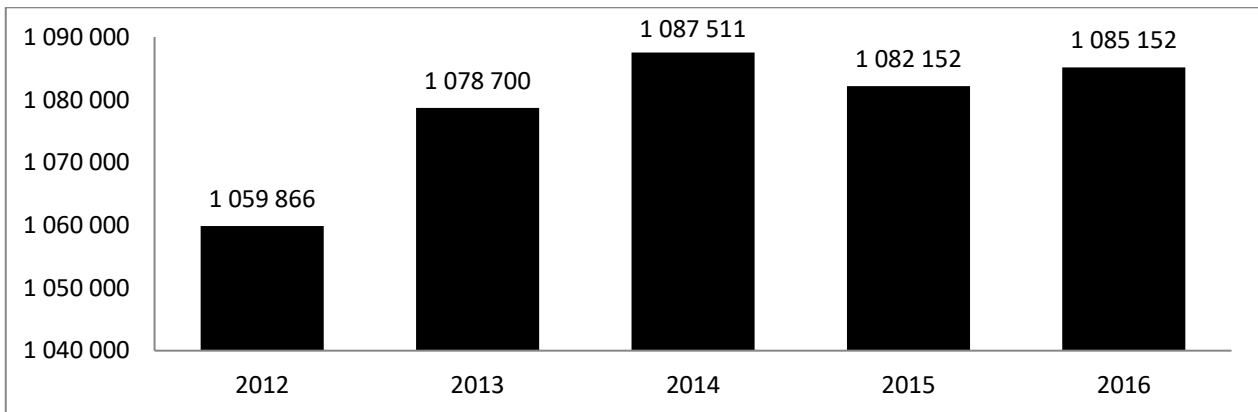
Source: authors' construction based on (VSAA, 2017)

Fig.2. **Number of Social Insurance Contributors in Latvia In 2012-2016**

Figure 3 represents the stable dynamics of growth of the average wages in Latvia.
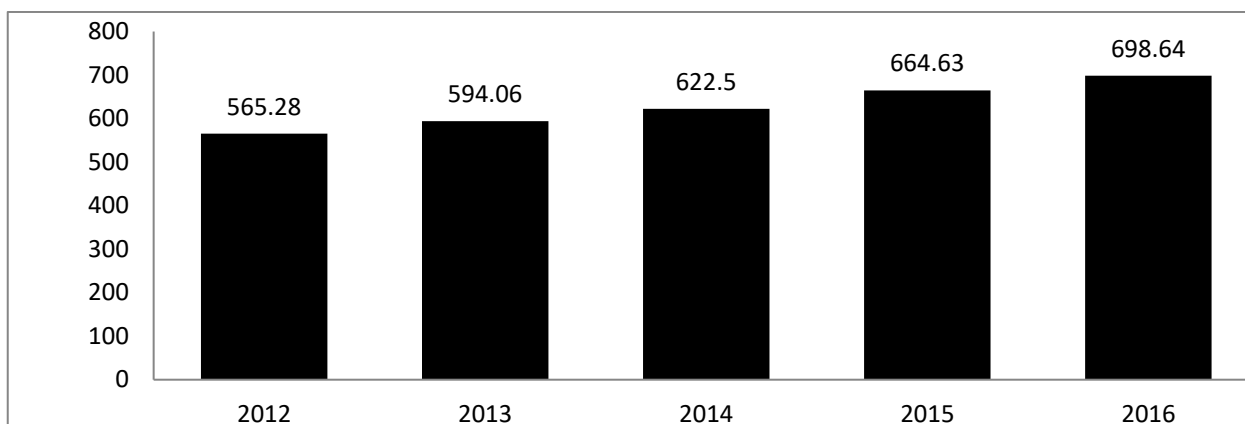
Source: authors' construction based on (VSAA, 2017)

Fig.3. **Average Wage in Latvia In 2012-2016**

Total size of the State funded pension scheme is significant, but most of its participants have comparatively low level of savings. 85% of Funded pension scheme's participants have a capital lower than 5000 EUR, 82% of contributors 50-66 years old also have the size of pension capital under 5000 EUR. Table 1 shows the comparatively low size of savings of the majority of contributors, but individuals 15-34 years old have the higher possibility to accrue more adequate capital, as far as their period of accumulation will be much longer.

Table 1

Participants of State Funded Pension Scheme Divided by Age and Size of Capital on 12/31/2017, in %

Age	Size of capital, EUR			
	Less than 5000	**5000-1000**	**10000-15000**	**More than 15000**
15-19	100	0	0	0
20-34	93.8	5.4	7.8	0.1
35-49	78.1	16.3	3.6	2.0
50-66	82.0	14.4	2.4	1.2
All ages	85	11.7	2.2	1.1

Source: authors' construction based on (VSAA, 2017)

State funded pension capital inheritance may become a universal motivator for improving the confidence in the pension system and for increasing the incentive to pay social insurance contributions, at the same time it will not become a threat for the financial stability of Latvian pension system. Ar present, if a participant of State Funded pension scheme dies before the retirement age, its pension capital is donated to current pensioners, that's why such donated capital is supposed to be a source of revenue for current pension expenditures, which are financed mostly from social insurance contributions.

Taking into consideration the increase of the average wages, growing amount of contributors and contributions and a potential effect of inheritance, it is possible to conclude, that inheritance is acceptable and necessary. The Association of Latvian Commercial Banks (LKA) also agrees with this statement (LKA, 2018). The estimation of LKA represents, that the implementation of inheritance will not have a negative financial impact on Latvian pension system. From the point of

view of LKA, the opportunity to leave a capital to successors will improve confidence in the pension system as well as motivation to pay social insurance contributions and pension awareness in general.

The analysis of the main demographic trends in Latvia allows to conclude, that the amount of participants of the State Funded Pension Scheme will stay stable, that's why Latvian Government may make a positive decision on the adoption of funded capital inheritance.

Table 2

Prognosis of the amount of Participants of State Funded Pension Scheme in Latvia

	2017	2018	2019	2020	2021	2022	2023	2024	2025
Amount of participants	1,266, 131	1,263, 078	1,258, 700	1,252, 043	1,244, 426	1,233, 928	1,223, 260	1,209, 777	1,195, 633
New enrollment	15,000	15,000	15,000	12,500	12,500	12,500	12,500	12,500	12,500
Leaving:	- 16,953	- 18,053	- 19,379	- 19,157	- 20,117	- 22,997	- 23,169	- 25,982	- 26,645
incl. retirees	*- 11,638*	*- 12,704*	*- 13,681*	*- 13,480*	*- 14,469*	*- 17,139*	*- 17,360*	*- 19,928*	*- 20,657*
incl. deceased	*-5,315*	*-5,349*	*-5,697*	*-5,678*	*-5,648*	*-5,858*	*-5,809*	*-6,055*	*-5,988*

Source: LKA, 2018

If the contribution rate to the State Funded Pension Scheme stays 6%, LKA forecasts the following outflow of inherited capital:

Table 3

Inherited Capital Expenditures, MEUR

	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Inherited capital expenditures	6.9	6,9	8,7	8,6	10,0	12,0	13,0	15,8	17,5

Source: LKA, 2018

The authors of the paper agree with the analysis of LKA, which shows that if due to pension capital inheritance the level of the shadow economy will decrease by 1%, revenue of the first pillar of Latvian pension system will be appropriate also without the inherited capital of the State Funded pension Scheme. Taking into consideration the amount of the average wages, the revenue of the first pillar will increase by 10 MEUR, thus the inherited capital expenditures will grow in the balance with the overall economic growth (LKA, 2018).

One more factor, which may soften the negative impact of inheritance, is the increase of the social insurance wage. At present the amount of the average wage and the amount of the social insurance wage are two different indicators. The social insurance wages are usually lower because of the opportunities, provided by the microenterprise tax.

Table 4

Average Wage and Average Social Insurance Wage in Latvia in 2014-2016, EUR

Indicator	2014	2015	2016
Average Wage	765	818	859
Average Social Insurance Wage	622.5	664.63	698.64

Source: VSAA, 2017

Even the first informative report ''On Micro-enterprise Tax Law Implementation and Results'' and later also annuall reports have pointed out, that the object of social insurance contributions for microenterprise employed has been approximately 40% lower, than the minimum wage determined in Latvia. Therefore social insurance contributions of microenterprise workers have not been sufficient even for the provision of guaranteed minimum old age pension (Informatīvais ziņojums, 2016).

If a norm, which determines a minimum object of social insurance contribution for microenterprises at the level of the minimum wage, will be accepted, the general size of social insurance contributions, thus the revenue of the system of social insurance, will increase by 6-7 MEUR. Consequently, this norm will provide additional income also for the pension system.

3. Funded Pension Capital Inheritance in the EU

Every EU country has a privilege to establish its own system of pension provision, that's why European systems are very different and include various combinations of pension financing. Some models are very complicated, therefore it is difficult to classify their components and to compare them with other systems.

OECD, European Commission, the World Bank, IMF and many other experts suppose funding to be a universal solution for ensuring the sustainability of pension system. That's why recommendations of the above mentioned experts for the improvement of pension systems usually comprise an establishment of funded pillars or tiers. Experts also advise to encourage the participants of a pension system to accrue capital and to stay involved in full extent and as long as possible (OECD, 2012; EP, 2015). Different approaches are proposed for achieving the above mentioned goal: tax exemptions, awareness improving and others. All available methods are considered, applied and financed by state. Pension capital inheritance is an element of such activities in many countries.

Every EU country defines the second tier in its own way, therefore not all second tiers are absolutely identical to Latvian one. In some countries the second pillar is state determined combination of options, provided for all participants. Participation may be obligatory or voluntary. In other countries the second tier exists in a form of occupational pension scheme, where employee and employer choose the options of insurance, participation also may be mandatory or voluntary. In such schemes pension capital inheritance is for granted and traditional, contributor makes decisions about the heirs and widow's pensions are also very widespread.

As EU practice shows, pension capital may be inherited in different ways. It may be:

1. paid in cash;
2. transferred in a form of capital to successor's pension capital;
3. paid in a form of different social allowances, for example, widow's pension or survivor's benefits;
4. inherited jointly by distributing capital amongst system's participants of the same age, but not directed to current pensioners.

The authors' study shows, that pension capital inheritance exists almost in all EU countries in some of the above mentioned forms.

Table 5

2nd Pillar Pension Capital Inheritance in Selected EU countries

Country	Paid in cash	Inherited as capital or allowances
Latvia	no	no
Poland	no	yes
Bulgaria	yes	yes
Estonia	yes	yes
Slovakia	yes	yes
Hungary	yes	yes
Sweden	no	yes
Romania	yes	yes
Denmark	no	yes
Lithuania	yes	no
Spain	yes	yes
Portugal	yes	yes
Luxembourg	yes	yes

Source: author's investigation

In the countries, which are not mentioned in Table 5, different kinds of occupational pension schemes exist, so a contributor may make decision if inheritance is actual and necessary.

All above mentioned allow to conclude, that Latvia is the only country in the EU, which provides pension capital inheritance only in one form- as pensions in case of loss of supporter, where the range of beneficiaries is very narrow. Therefore the opportunity of inheritance may be considered and provided wider, as it happens in the EU.

4. An Assessment of Latvian Citizens' Attitude towards Funded Pension Capital Inheritance

During this research the authors have carried out a representative survey of Latvian citizens with the aim to find out their attitude towards different aspects of Latvian pension system. The whole survey will be analyzed and discussed in the next study.

667 surveys have been carried out. This sample provides the representativeness of the survey, as far as its characteristics comlies with the data of Latvian Central Statistical Bureau on citizens' distribution by sex, age, regions and nationality.

A part of the survey has been dedicated to funded pension capital inheritance opportunities. As far as the representativeness requirements have been fulfilled, the survey may be considered as the viewpoint of all Latvian citizens. The results of the survey are the following:

1. approximately half of Latvian inhabitants are fully informed about the pension system;
2. 54% of respondents understand the main principles of 3 pillar pension system;
3. 66% don't know the rate of contribution to the State funded pension scheme;
4. 74% don't know the size of their pension capital;
5. 80.8% are sure, that pension capital accumulation is significant;
6. 78% know, that funded pension capital cannot be inherited;

7. For 94,6% funded pension capital inheritance is significant, for men it is even more necessary- 97%;

8. Only 3% of respondents are sure, that inheritance will not provide any effect, others suppose, that it will decrease envelope wages (78.7%); create incentives to pay social insurance contributions and to participate in pension insurance (72.7%); create motivation to control the amount of pension capital (56%); improve the confidence in the pension system (54.7%).

The opinion of Latvian inhabitants allows to conclude, that the inheritance is substantial, necessary and may have an impact on different negative aspects of the pension system and the shadow economy.

Conclusions and proposals

1. Latvian pension system faces the same problems, as the majority of countries in the EU, that's why it is necessary to invent and implement new methods of improving the incentives to accrue pensions capital.

2. Funded pension capital is inheritable in almost all EU countries in many different forms, usually it is an element of the reciprocity method, that's why it is for granted and traditional. Latvia is the only country in the EU, which provides the most limited inheritance rights, therefore this opportunity may become an instrument of impact also in Latvia.

3. Funded pension capital inheritance may become a universal motivator for the improvement of pension awareness and for increasing the participation in pension insurance, thus for the incentive to pay social insurance contributions.

4. Forecasts show, that the implementation of inheritance will not misbalance the financial stability of Latvian pension system, but setting up the minimum social insurance wage at the level of state minimum wage will provide additional social insurance contributions from Latvian microenterprises, thus increasing also the total revenue of the pension system.

5. The opinion of Latvian citizens allows to conclude, that the inheritance is substantial, necessary and may have a positive impact on different negative aspects of the pension system, such as mistrust, low awareness and avoidance, and on the level of shadow economy in the context of envelope wages and social insurance contributions.

Taking into consideration the above mentioned conclusions, the authors suggest:

1. Latvian Government should estimate the opportunity to implement funded pension capital inheritance rights as a universal method of influence on the efficiency of existing pension system and the system of social insurance in general, as well as on the indicators of the shadow economy.

2. More detailed further scientific analysis and assessment of funded pension capital inheritance's impact on the financial stability of Latvian pension system should be carried out by researchers.

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ENHANCING THE FLEXIBILITY OF VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS FOR MODERN LABOUR MARKETS

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Abstract. Recent studies suggest that vocational education and training (VET) institutions are becoming important stakeholders in the development of competitive labour force at regional and national level in the lifelong-learning perspective. This requires a new level of flexibility both, for VET institutions and respective public administrations, as modern and competitive training programs need to be offered to various target groups – students, the employed and unemployed population. This obliges the VET institutions also to strengthen their entrepreneurship capacity which is a new challenge for many of them.

The aim of the study is to analyse the former opinions of regional public administrators regarding challenges and need for innovative VET developments. Based on this, conclusions have been drawn regarding the compliance of the identified challenges during the time of the survey and the further systemic developments – identified via desk research – that have been implemented to address the challenges.

Methods applied in the current paper: analysis of scientific publications, survey of public administrators. For the analysis of the surveys data - descriptive statistical analysis, cross tabulations, Mann-Whitney U test, as well as multivariate statistical analysis method – factor analysis have been applied. In the survey questionnaire for most of the questions the evaluation the scale $1 – 10$ was applied to evaluate the attitude of the respondents, where 1 – not significant, 10 – very significant.

The research shows that the opinions of regional public administrators represent their foresight ability and understanding of modern labour market developments and the role of VET institutions in the process. It allows to draw the conclusion that the national VET policy developments are in compliance with the regional development needs and the proposed roles among involved stakeholders.

Key words: *vocational education and training, entrepreneurship, labour force, flexibility.*

JEL code: I25; I28; O15; L38

Introduction

Recent studies suggest that vocational education and training (VET) institutions are becoming important stakeholders in the development of competitive labour force at regional and national level in the lifelong-learning perspective. This requires a new level of flexibility both, for the VET institutions and respective public administrations, as modern and competitive training programs need to be offered to various target groups – students, the employed and unemployed population. This obliges the VET institutions also to enhance their capacity for flexible labour market approaches which is a new challenge for many of them. At European level these challenges are clearly articulated in the Riga Conclusions – a medium term VET policy document till 2020.

In Latvia the VET competence centres are becoming important regional players to offer innovative solutions in labour force development. This is a relatively new VET policy priority in Latvia and requires corresponding studies and analysis. However, in a survey performed in 2014 and 2015 among local governments' high level representatives of public

administration in education, the authors of the paper inter alia were investigating also their opinion on strengthening co-operation among various players and implementing more flexible labour market oriented approaches. Since at the time of the survey flexibility towards labour market oriented approaches was a new policy priority, the current study provides a valuable source of analyse to compare how VET policy reforms have developed in these particular aspects.

Since 2015 important VET policy developments have occurred – legal framework for the implementation of work-based learning has been adopted following a comprehensive social dialogue. The role of Sector Expert Councils has been established in the context of VET developments at national level, and the status of VET institutions Conventions as advisory bodies at local and regional level have been formalised. Thus, the approaches that have been in the testing and piloting phase in 2015 when the survey was performed, have developed into norms regulating new labour market oriented approaches in the implementing of VET in Latvia. In the context of the overall positive attitude of the respondents from public administrations regarding closer co-operation with employment sector stakeholders, there is an indication that the importance of closer co-operation among various public stakeholders (e.g. among various ministries and in relation to local governments) has been underestimated. The Progress Reports on the implementation of the National Reform Program of the Republic of Latvia for the year 2016 testify to the crucial role of the Latvia's Sector Expert Councils and VET institutions Conventions as new institutional mechanisms ensuring new level of flexibility and better compliance of VET to the labour market developments both, at national and regional/ local level. Thus, the present study not only analyses the opinions of public stakeholders during the time when the survey was performed, but enables to draw conclusions on the respective policy developments to address the challenges identified during the survey.

Methods applied in the current paper: analysis of scientific publications, survey of public administrators. For the analysis of the surveys data - descriptive statistical analysis (indicators of central tendency or location – arithmetic means, medians, medians and indicators of variability or dispersion – variance, standard deviation, range and standard error of arithmetic mean have been used), cross tabulations, Mann-Whitney U test, as well as multivariate statistical analysis method – factor analysis with rotation *varimax* have been applied. In the survey questionnaire for most of the questions the evaluation the scale 1 – 10 was applied to evaluate the attitude of the respondents, where 1 – not significant, 10 – very significant.

Research results and discussion

The compliance and flexibility of VET approaches to the labour market developments in many countries is being implemented through work-based learning schemes in co-operation with businesses. Work-based learning as a new European VET policy priority has especially strongly emerged since 2015 with the adoption of the Riga Conclusions (endorsed in official meeting of ministers responsible for vocational education and training of the European Union member countries, European Economic Area countries and European Union candidate countries in Riga during Latvia's Presidency of the Council of European Union). Even though the policy concept has greatly been informed by the well-established tradition of dual VET and apprenticeship schemes in countries like Germany, Austria and other, many countries with school-based VET systems, like Latvia, have had to apply innovative approaches to adopt their existing systems to the new work-based learning paradigm. For this reason work-based learning in a country like Latvia can justly be considered as an innovation. This served as a basis for conducting the survey among local public administrators regarding their opinions and co-operation in relation to innovative VET developments. Various countries have different experience in the introduction of work-based learning including promoting work-based learning also through *INDUSTRY 4.0* (Schuh, et al., 2015). In Latvian VET system this aspect is yet little addressed, but the current developments at the Ministry of Education and Science regarding college level programs may potentially have an impact on further developments of work-based learning along the lines of advanced technological developments. Academic researchers

pay attention to all involved partners, including students by developing students' educational experiences through work-based learning programmes (Moise, et al., 2013). Comparison of the work-based learning models and implementation in training institutions are researched in many countries and each country is being seen as having its own specifics: outside Europe, in Malaysia, for example, all involved partners in work-based learning support efficiency of the respective approach (Syamhanim, et al, 2015) including the problems of bilateral relations between educational institutions and industrial committee towards work-based learning in Malaysia (Watisin, et al., 2015). The academic research results have indicated that problems and challenges across countries are alike, not much depending on the countries location on the world map. Academic researchers have paid attention also to the difference in learning culture and learning performance between a traditional clinical placement, a dedicated education unit and work-based learning (Claeys, et al., 2015). Tripartite view on work-based learning in Latvia has been examined by researchers at Riga Technical University (Sitikovs, et al, 2013) as well as multilevel researches at University of Latvia (Buligina, Sloka, 2014; Buligina, et al., 2014; Buligina, Sloka, 2015, Buligina, Sloka, 2016; Buligina, et al., 2016). Teachers are important part of work – based learning', and academic researchers pay attention also to guided work-based learning on sharing practical teaching knowledge with student teachers (van Velzen, et al, 2012). Thus, on the one hand, the survey among representatives of public administration at local and national level in Latvia have indicated potential challenges or problem areas regarding new and more labour market oriented developments (at national and local levels), as for example, work – based learning. On the other hand, the present developments indicate that the initially identified problem areas have not lost their relevance, but certain solutions have been offered in Latvia at systemic level to address these challenges. During the survey the public administrators were asked questions regarding their preferences of the organization of VET process. The implications in the questionnaire were related to the effects of closer co-operation among various stakeholders in improving VET quality. Main statistical indicators of descriptive statistics on evaluations by local government and public administration representatives at national level on aspects of organisation and possible development of vocational education and training - by intensified co-operation with several stakeholders and changes of organisation of vocational education and training are included in table 1.

Table 1

Main statistical indicators of descriptive statistics on evaluations by local government and public administration representatives on aspects of professional education and training

	The training by enterprises is more effective than training by VET institutions	Ministries sufficiently coordinate their activities for jointly addressing education and employment issues	The joint activities of ministries in addressing education and employment issues produce good results	The local governments should more get involved in VET	The planning regions should more get involved in VET	The enterprises should more get involved in VET
N Valid	228	222	222	222	220	219
Missing	21	27	27	27	29	30
Mean	7,43	4,59	4,75	7,22	7,44	8,06
Std. Error of Mean	0,128	0,143	0,139	0,158	0,144	0,131
Median	8	5	5	8	8	9
Mode	8	5	5	9	8 and 9	9
Standard Deviation	1,937	2,127	2,078	2,359	2,141	1,934
Variance	3,753	4,523	4,316	5,566	4,586	3,739
Range	9	9	8	9	9	9
Minimum	1	1	1	1	1	1
Maximum	10	10	9	10	10	10

Source: author's calculations based on Ilze Buligina conducted survey, n=249, Evaluation scale 1- 10, where 1 – not significant; 10 – very significant

Survey data indicate that representatives of local governments and public administration in Latvia in most cases have attributed high evaluations even though almost all evaluation scale was covered by respondents although almost all evaluation scale was covered by respondent evaluations. The highest evaluations by respondents were attributed to the statement "The enterprises should more get involved in VET" with arithmetic mean by 8,06; most often evaluation grade was 9 (mode) and half of respondents gave evaluations 9 or less and half of respondents gave evaluations 9 or more (median). The lowest evaluations were given to "The joint activities of ministries in addressing education and employment issues produce good results" with arithmetic mean by 4,75; most often evaluation grade was 5 (mode) and half of respondents gave evaluations 5 or less and half of respondents gave evaluations 9 or more (median). This indicates to the need for more coordinated actions of the involved ministries during the time of the survey. At the same time – since 2016 with the establishment of the Employment Council (to co-ordinate the activities of the ministries of education, economics and employment) the situation has a tendency to change for better and would require a new survey and analysis to evaluate the role of the Employment Council as an agent for change regarding greater VET system responsiveness and flexibility in relation to labour market demands.

Distribution of evaluations by representatives of local governments and representatives of public administration in Latvia on "The enterprises should more get involved in VET" is included in table 2.

Distribution of evaluations by local government and public administration representatives on statement "The enterprises should more get involved in VET"

Evaluations		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	0,4	0,5	0,5
	2	2	0,8	0,9	1,4
	3	6	2,4	2,7	4,1
	4	4	1,6	1,8	5,9
	5	13	5,2	5,9	11,9
	6	18	7,2	8,2	20,1
	7	14	5,6	6,4	26,5
	8	48	19,3	21,9	48,4
	9	58	23,3	26,5	74,9
	10	55	22,1	25,1	100,0
	Total	219	88,0	100,0	
Missing	System	30	12,0		
Total		249	100,0		

Source: author's calculations based on Ilze Buligina conducted survey, n=249, Evaluation scale 1- 10, where 1 – not significant; 10 – very significant

Data of table 2 indicate that representatives of local governments and representatives of public administration at national level in Latvia have on the average attributed high grades in their evaluation of analysed aspects. In scientific research it is frequently pointed out that work experience has influence on evaluations and decision – making. Cross-tabulations of evaluations of the statement "Are you aware of the implementation of work based learning (WBL) in VET institutions in Latvia" and expert's experiences (in years) in the indicated field of competence are included in table 2.

Cross-tabulations of evaluations "Are you aware of the implementation of work based learning (WBL) in VET institutions in Latvia" and expert's experience in the indicated field of competence

Evaluations	Your experience in the indicated field of competence (years)									Total
	Up to 5 years	5 – 10	11– 15	16 – 20	21– 25	26 – 30	31 – 35	36 – 40	41 – 45	46 and more	
1	0	2	3	1	1	0	2	2	0	0	11
2	1	2	2	2	1	1	1	0	0	0	10
3	1	0	2	1	2	0	0	0	0	0	6
4	2	2	1	1	0	1	0	0	0	0	7
5	2	1	5	1	0	0	1	0	0	0	10
6	0	8	1	3	4	0	0	0	0	0	16
7	1	3	5	5	2	3	0	2	0	0	21
8	0	7	5	5	3	0	5	0	1	0	26
9	2	8	6	11	5	0	0	2	1	2	37
10	5	6	11	14	5	6	3	4	1	2	57
Total	14	39	41	44	23	11	12	10	3	4	201

Source: author's calculations based on Ilze Buligina conducted survey, n=249, Evaluation scale 1- 10, where 1 – not significant; 10 – very significant

The results of cross-tabulations has indicated that there is no correlation between the evaluation grade and experience (in years) of expert: experts from all age groups have similar evaluations. As there were several relevant aspects evaluated by respondents, the authors have seen it important to apply for the respective case: multivariate analysis method for dimensions reduction – factor analysis. Results of factor analysis on expert evaluations on implementation of work based learning in VET institutions in Latvia are included in table 4.

Table 4

Results of factor analysis on expert evaluations on implementations of work based learning in VET institutions in Latvia (Rotated Component Matrixª)

	Component				
	1	2	3	4	5
The training by enterprises is more effective than training by VET institutions	-,027	-,047	-,038	,192	,680
Ministries sufficiently coordinate their activities for jointly addressing education and employment issues	,058	,117	,817	,358	-,005
The joint activities of ministries in addressing education and employment issues produce good results	,052	,155	,821	,354	,052
The local governments should more get involved in VET	-,005	,000	,548	-,109	,681
The planning regions should more get involved in VET	,078	,015	,408	-,001	,671
The enterprises should more get involved in VET	,014	,090	-,024	,051	,629
In the training of a competitive labour force there is a sufficient involvement of sectoral associations	-,041	,079	,211	,898	,022
In the training of a competitive labour force there is a sufficient involvement of employers' organisations	,067	,058	,238	,887	,082
Are you aware of the implementation of work based learning (WBL) in VET institutions in Latvia	-,027	,506	,064	,430	,081
Do you support further introduction of WBL in Latvia when the learner spends a much greater proportion of time in practical training at an enterprise	,218	,177	-,161	-,092	,469
Support to the enterprise during the organisation of the work placement	,772	,062	-,047	,074	,018
Possibility to be flexible in the provision of the theoretical studies according to the employers needs	,241	,598	-,098	,089	,127
Individual consultations for the employers	,409	,591	,375	-,206	,043
Information campaigns in mass media	-,129	,720	,329	,016	,000
Material support by the state to the mentors working with trainees at an enterprise	,730	,210	,069	-,103	-,011
Tax reduction for enterprises involved in WBL	,826	,083	,123	,003	,107
Improved legal framework	,516	,501	-,134	,211	,232
Pedagogical/ methodological support to mentors working with trainees at an enterprise	,276	,688	,046	,049	-,020

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.
Source: author's calculations based on Ilze Buligina conducted survey, n=249, Evaluation scale 1- 10, where 1 – not significant; 10 – very significant

Factor analysis (performed by SPSS) results have indicated that by 7 iterations using Principal Component Analysis with *varimax* rotation and with Kaiser Normalization five complex factors from 18 initial factors) have been calculated which the authors have named in the following way:

I – Legal framework (initial factors: Support to the enterprise during the organisation of the work placement; Material support by the state to the mentors working with trainees at an enterprise; Tax reduction for enterprises involved in WBL; Improved legal framework);

II - Organisational factor (initial factors: Are you aware of the implementation of work based learning (WBL) in VET institutions in Latvia; Possibility to be flexible in the provision of the theoretical studies according to the employer's needs; Individual consultations for the employers; Information campaigns in mass media);

III - Public administration factor (initial factors: Ministries sufficiently coordinate their activities for jointly addressing education and employment issues; The joint activities of ministries in addressing education and employment issues produce good results; The local governments should more get involved in VET);

IV - Non-governmental association's involvement (initial factors: In the training of a competitive labour force there is a sufficient involvement of sectoral associations; In the training of a competitive labour force there is a sufficient involvement of employers' organisations);

V - Social partner's role (initial factors: The training by enterprises is more effective than training by VET institutions; The planning regions should more get involved in VET; The enterprises should more get involved in VET; Do you support further introduction of WBL in Latvia when the learner spends a much greater proportion of time in practical training at an enterprise).

Conclusions, proposals, recommendations

1. Academic research world-wide have indicated similar problems in work-based learning organisation and implementation starting from legal framework till students' attitude and non-governmental organisations' involvement.

2. International exchange of views and findings motivates and inspires the development of work-based learning implementation aspects in countries with traditionally school-based vocational education and training systems.

3. The public administrations at local and national level generally are open to change in the organisation and implementation of work-based learning in vocational education and training and can clearly identify key challenges to improve the education and labour market compliance, including the crucial role of improved inter-ministerial co-operation.

4. The research shows that the opinions of representatives of regional public administration convey their foresight ability and understanding of modern labour market developments and the role of VET institutions in the process.

5. The latest VET developments like strengthened work of Sector Expert Councils and the establishment of VET institutions' Conventions, as well as the establishment and successful work of the Employment Council in Latvia testify to the growing investment of public administration in education and employment coordination. It allows to draw the conclusion that the national VET policy developments are in compliance with the regional development needs and the proposed roles among involved stakeholders.

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IMPLICATIONS FOR TRAINING THE TRAINERS IN WORK-BASED LEARNING - THE BALTIC CONTEXT

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Abstract. Work-Based Learning (WBL) is increasingly becoming part of the Vocational Education and Training (VET) systems across Europe. A crucial element for successful implementation of WBL approaches is the existence of competent WBL trainers in VET institutions and companies. This is still a challenge requiring also focused research to support policy developments.

The aim of the paper here is two-folded; it aims to analyse the background of wider socio-economic and educational-employment aspects behind the challenges of WBL, and secondly, to present research challenges within an ongoing European Union Erasmus+ KA 3 programme project called "TTT4WBL". This project is focusing on development of training of WBL trainers through an innovative 'tandem training' methodology piloted in the Baltic context and considered as a potentially contributing factor to increase competitiveness of the developed labour force. The purpose of the experimentation implemented in TTT4WVBL project within 2017-2020 is to develop and test a professional development model in which tutors from VET schools and enterprises are trained together.

The research related to the experimentation is investigating how the WBL tutors participating in joint training develop their competences related to WBL. The research is still in progress. In this paper, we present the pilot phase results, focusing on how WBL tutors assessed their expertise related to WBL prior to their training. The results are being seen as relevant for subsequent studies in later stages of the project implementation.

The conclusions from the research have a theoretical value regarding the development of joint methodological approaches against varied national VET policy contexts. The practical value of the study refers to the recommendations for education policy makers to improve the quality of training of trainers for work-based learning.

Key words: *work-based learning, training of trainers, competitive labour force*

JEL code: I25; I28; O15; L38

Introduction

Work-Based Learning (WBL) is increasingly promoted in the Vocational Education and Training (VET) systems across Europe and as a part of European youth and employment policies (EC 2013). This is due to seeing work itself as changing but also recognising workplaces as learning environments besides VET institutions and which together can provide the learner diverse opportunities for learning (Mikkonen et al 2017). WBL is nowadays perceived not only as benefitting individual students' learning but also improving more widely the employability of young people through national VET systems and furthermore, as a precondition for developing competitive labour force (Cedefop 2016). This can be interpreted from the many reports describing implementation of WBL in different countries (e.g. EC 2013, 2015). Despite the widely shared willingness to promote WBL in VET, Mikkonen et al (2017) found out in their recent international literature review that there is quite much empirical research done in WBL as such. However, very little of the research done focuses on the question of guiding VET students at workplaces, e.g. what kind of practices are used in

guidance of WBL and who provides the guidance. Consequently, this is followed by a question regarding the competence of trainers and their training also requiring research to support the European level policy developments on WBL in VET.

The research described here aims to study training of trainers for work-based learning through an experimentation in an ongoing European Union Erasmus+ Key Action 3 project "TTT4WBL. It reaches to develop a joint WBL training model to be used in all three Baltic countries. Based on country specific and joint experiences of the Baltic Countries, there is hypothesis with underlying assumptions that a joint training of VET and workplace tutors, called WBL tutors, has many benefits in comparison to separate trainings for VET and workplace tutors. The proposed tandem training approach represents new type of curriculum for professional development of WBL tutors and is aiming at improving pedagogical skills of tutors. The experimentation in TTT4 WBL project will cover all the Baltic countries - Latvia, Estonia and Lithuania but through reflecting against the background of wider socio-economic and educational-employment aspects, it is hoped to contribute further to the European level discussions on WBL developments.

The research is in line with the ideas of the TTT4WBL project designers to promote development of WBL processes and practices. It tries to ensure that the views of 'actors' within their systems are placed at the forefront of discussions. The attached figure 1 displays the research purpose and the process through which the impact of the joint WBL tutor trainings is investigated.
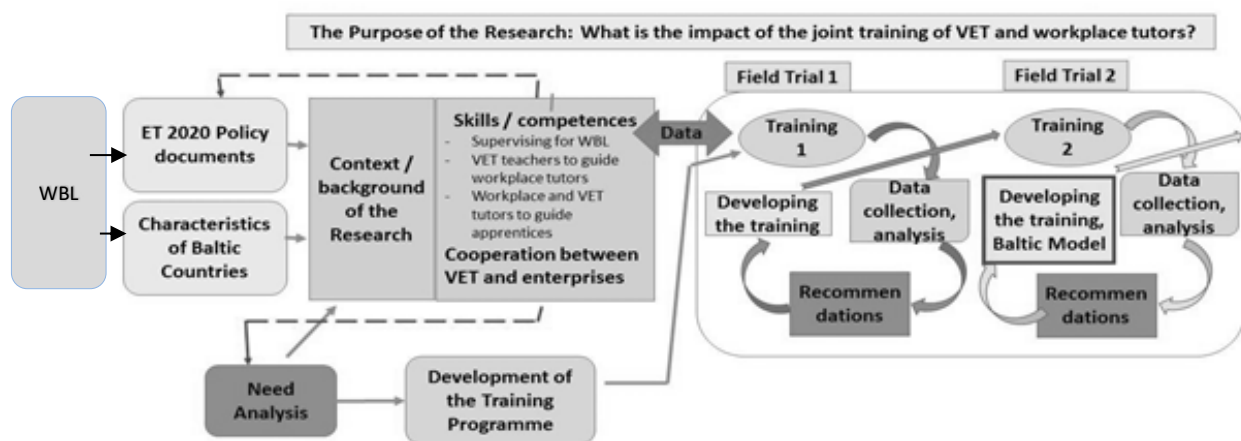
Figure 1: The Research Approach (Kaikkonen, L. Maunonen-Eskelinen, I, & Pakkala, A., 2017)

The starting point taken from the project designers (the hypotheses) would easily have led to consider the classic research design with test and control groups. However, the project was only planned to include the joint trainings instead of having both joint trainings for some WBL tutors as test groups and separate trainings for some other tutors as control group.

For this reason, the research design was formulated as so-called panel design. Like the classic design, the panel design provides repeated observations on a set of variables but it does not demand the set of a control group. A panel study is defined as a study that collects information on the same individuals or sample of persons (a panel) at different points in time aiming to study change over time. So being, the first data collection is implemented before the intervention. The following data collection(s) is done after the intervention, which is further followed with an analysis of how big a change happened in the variable in question. (http://www.oxfordbibliographies.com/view/document/obo-9780199756384/obo-9780199756384-0108.xml;http://methods.sagepub.com/methods-map/panel-studies;
http://www.fsd.uta.fi/menetelmaopetus/tutkimus/asetelma.html. Retrieved19.09.2017.)

The challenge with panel design is that because there are not any control groups, the researcher cannot, however, be sure whether the change happened because of the intervention, or due to some other factor. Most panel studies are designed for quantitative analysis and use structured survey data. However, panel studies may also use qualitative methods for the data collection and analysis.

The main research methods used in the pilot phase of the study described here are desk research and quantitative and qualitative analysis of the empirical data of the surveys from the three Baltic countries' stakeholders. The data is collected from VET school tutors and workplace tutors, i.e. the WBL tutors, with online questionnaires at the beginning of their WBL tutor training. A second data collection will take place in six months after their training. All in all the number of WBL tutors in the entire research will be 800 but in the pilot phase described in this paper, the amount of them was 180 of which 164 responded to the questionnaire. Data was also collected from the 15 WBL trainers through group interviews. Later on, in the second phase of the experimentation and the research, data besides WBL tutors will also be collected from VET students, VET school and company managers through questionnaires in order to get other point of views on WBL development and the work of WBL tutors.

Theoretical background

In their current review of apprenticeship in Germany, England and Finland, Rintala et al (2017) perceive that besides willingness to increase WBL within European employment policies there also seems to be a willingness to standardise the approaches in WBL. They state however, that it is almost impossible to transfer the good practices from a country to another because the education systems in different countries follow such diverse national and cultural logics based on different historical developments in national sociopolitical, economic and educational contexts. In their review, they bring forth that comparison of VET systems – and e.g. WBL as part of it – demands to see relations, responsibilities and societal structures between the state, labour market and economy. Furthermore, it is important to recognise how the roles of educational organisations, enterprises, interest groups and social partners are seen in responding to demand and supply of qualifications in the educational markets. (Rintala, Nokelainen & Pylväs, 2017.)

Consequently, in the developments of WBL there are also diverse ways of seeing it in regards to organising WBL and to responsibilities of its arrangements. On the one hand, WBL is considered as a way to engage young people into their learning in enterprises where they can learn what is relevant, and the arrangements of it is considered to be as the responsibility and control of enterprises. On the other hand, it is considered that young people should learn the skills needed in working-life firstly in educational institutions in order to be professionally competent when entering to working-life. In practice, there occurs diverse approaches mixing differently these two lines. Work-based learning can be seen as a powerful driver for workplace skills and productivity engaging both the learner and the companies (Kis 2016).

European Centre for the Development of Vocational Training (Cedefop) defines Work-Based Learning as an intended and structured learning or training that has direct relevance to the current or future tasks of the learner. Moreover, WBL is considered as a training taking place in a work-based context like in the workplace, in settings simulating the workplace or outside the workplace, but with specific learning tasks that must be directly applied in the workplace and reflected upon afterwards (Cedefop, 2015 b). When talking about 'apprenticeship' within the approach of WBL, it applies to training programmes, in which learners have the status of employees and are paid for their work and which normally feature a contractual relationship between the learner with the training enterprise (Cedefop, 2016).

Having in mind this broad definition it is important to recognise that VET student learning takes place in two different learning environments, that of the workplace and educational organisation, and is challenging them both. This sets

demands on how learning at workplaces is pedagogically lead. According to Mikkonen et al (2017) in workplaces pedagogical practices are various and the concepts when discussed in relation to them are even incoherent. Furthermore, on workplaces the actual guidance is quite often disturbed by weakly defined responsibilities and time resources available for guidance. (Mikkonen et al 2017.) Irjala (2017) continues saying that in different countries the role and competence of WBL tutors overall is seen and organised differently. It is also emphasised that instead of seeing WBL as a process of the learner it could be constituted as learning process of the entire work community, if so enabled through good leadership and management in the company (Irjala 2017; Kis 2016; Mikkonen et al, 2017; Norontaus 2016).

Yet, irrespective the emphasis on who benefits from WBL, there seems to be a commonly shared agreement that young learners need competent guidance in their professional learning. At the European level, this agreement was raised in 2015 as the medium term policy document on VET - the Riga Conclusions (2015) which emphasises promotion of WBL in all its forms and furthermore, promotes the introduction of systemic approaches for training of VET teachers and trainers both in school and work-based settings. ET2020 Working group on VET linked these objectives with guiding principles on i) attractiveness of apprenticeships by raising the quality of VET teacher, ii) support the continuous professional development of in-company trainers, iii) systematic cooperation between VET schools and companies and, iv) support for SMEs. (EC 2015) The issue of competent trainers and their training remains a challenge requiring also focused research to support the European level policy developments

Research results and discussion

The research within the TTT4WBL project is only just started with the pilot phase trials. The WBL-tutors will be requested to assess again in six months after their training their skills as WBL tutors. So only then, it will be possible to see if they experience to have developed themselves. Accordingly, at this point it is not yet possibly to say anything but describe the initial data from the start of the pilot phase of the research and these initial results do not yet allow to draw any conclusions about the feasibility of the proposed 'tandem training'. However, the analysis of the data obtained so far will create a basis for further studies when data from the next piloting phase will be acquired.

The conclusions from the research are expected to have a theoretical value regarding the development of joint methodological approaches against varied national VET policy contexts. The practical value of the study refers to the recommendations for education policy makers to improve the quality of training of trainers for work-based learning.

The present study yields also a wealth of material for further broader research – regarding the development and sharing the Latvian and Baltic (EU regional) approach and experience to policy innovation regarding introduction and implementation of WBL in countries with historically school-based systems. It also provides an example of good practice how resources can be integrated to implement coherent and sustainable policy in compliance with national and EU education and specifically VET priorities.

The characteristics of the target group studied

The empirical data in the pilot phase was received from 164 WBL tutors. Slightly more of them were women (~60%) than men. They represented age groups from 20 to 60 years. Mean age group in Latvia and Lithuania was the group 30-40 years and in Estonia over 50 years.

Table 1

Gender of the respondents

Country Gender	Lithuania		Latvia		Estonia	
	N	Percent	N	Percent	N	Percent
Male	20	38%	30	47%	19	39%
Female	32	62%	34	53%	30	61%

Table 2

Age of the respondents in Lithuania, Latvia and Estonia

country Age in years	Lithuania		Latvia		Estonia	
	N	Percent	N	Percent	N	Percent
20 – 30	3	6%	15	23%	7	14%
30 – 40	15	30%	19	30%	11	23%
40 – 50	17	33%	13	20%	10	20%
> 50	16	31%	17	27%	21	43%

The distribution of VET and workplace tutors was not even across the three Baltic countries, but the overall numbers of the involved VET and workplace tutors was fairly even, 81 workplace tutors and 83 VET tutors. In Latvia and Lithuania, the amount of workplace tutors was approximately 40% and VET tutors 60%. In Estonia the distribution was the other way around, and there were more workplace tutors (70%) in relation to the amount of 30% of VET tutors. The WBL tutors represented several different professional fields.

Table 3

Distribution of VET and workplace tutors per each Baltic country (N =164)

Country Tutors' workplace	Lithuania		Latvia		Estonia		All
	N	Percent	N	Percent	N	Percent	Total
VET tutors	29	58%	39	60%	15	31%	83
Workplace tutors	21	42%	26	40%	34	69%	81
N altogether /country	50		65		49		164

The expertise in various aspects of students' guidance in WBL

The WBL-tutors were asked to assess their own expertise in four diverse aspects of work-based learning, that of their expertise in planning, guiding and assessing of WBL besides in developing WBL in cooperation with VET school or workplace. Of these four entities sums of variables were produced. The results are described in figure 2.

Differences between countries and between workplace and VET tutors in one country were surprisingly small in regard to these four diverse aspects related to WBL. In average the respondents assessed their expertise to be good.
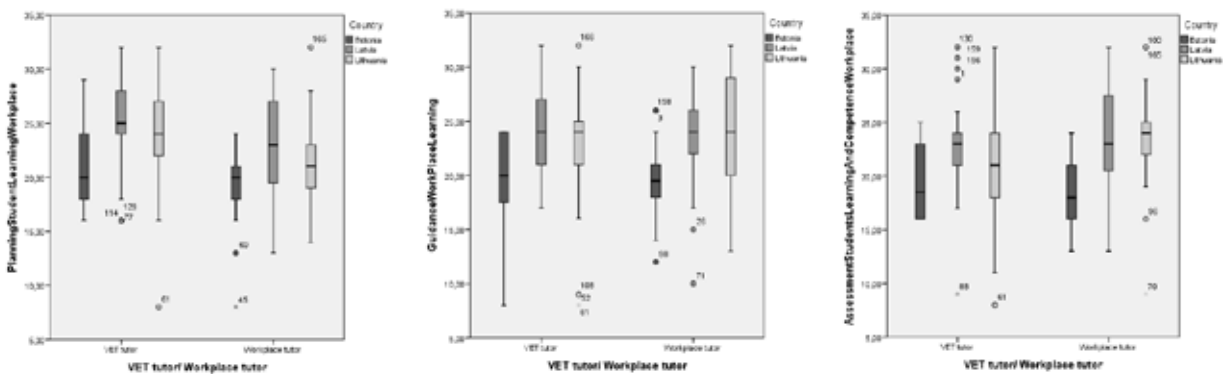
Figure 2. Baltic WBL tutors' self-assessment of their skills in planning, guiding and assessing WBL

Concerning their skills in developing cooperation between VET schools and workplaces the WBL tutors considered their expertise to be only satisfactory (see figure 3). However, the differences were not significant.

All in all, it can be said that Estonians assessed themselves to be weaker in all elements than the other country representatives. E.g concerning the expertise in Developing cooperation between VET schools and enterprises ¾ of the WBL tutors among Estonian best tutors considered them to be at the same level than the weakest ¼ fourth in Latvia. The tendency was similar in all assessment areas. However, none of the background factors explained this.
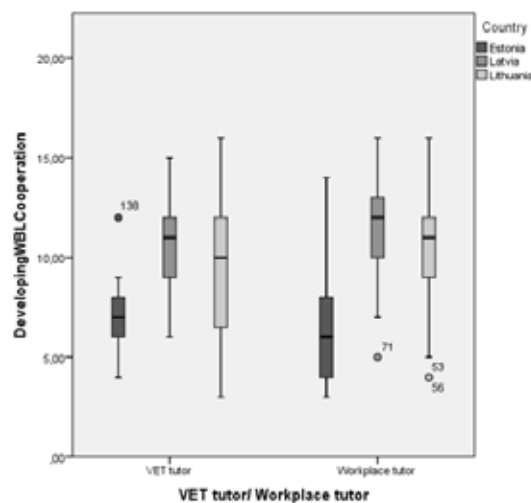
Figure 3: Baltic WBL tutors assessment of their own expertise in Developing WBL Cooperation between schools and enterprises

Experiences of having workplace and VET school tutors in the same group

Within the questionnaire provided the WBL tutors also gave some open feedback about the tandem training. They were saying that it was good to have workplace and VET school tutors in the same group as it gave them the possibility to build connections, to discuss and share experiences and see the topics from another point of view. Also the lead trainers in each Baltic country were fairly assured on this. They also considered tandem groups to be good but on the other hand self-assessed that they still need to develop the training approach to get the real best out of the joint group.

The topics considered important varied slightly from country to country. Estonian WBL tutors, most of them from workplaces, were interested in how to give feedback to students during their WBL learning periods but for this they told to be lacking information on the professional qualification standards. According to Lithuanian trainers their WBL tutors wanted to focus on administrative issues in order to understand the framework of WBL.

Both in Latvia and Estonia there have been, or are other projects going on related to the WBL or development of overall VET. Trainers felt that schools are under pressure. There is a lot going on in VET, and major changes in the VET system are pushed forward. Consequently, VET school staff have to perform in parallel in many challenging areas. In Estonia, this is one of the reasons why they have involved more workplace tutors, as VET schools have already received some trainings in previous or in other ongoing projects.

Conclusions, proposals, recommendations

The empirical data collection and analysis was based on prior desk research to ensure a sound theoretical background for the study. The desk research performed indicates that:

1. developing profession skills in vocational education during practical placements is in the focus of academic research (Pang, 2015)

2. This refers also to informal learning in workplace (Eraut, 2004).

3. The interrelation between the learning culture and learning performance is being stressed (Claeys, 2015).

4. In this regards the role of legislators, public administrators, educators and employers for developing successful collaborative teaching and learning in the workplace should not be underestimated (Tanggaard, 2005).

5. Moving from co-operation to networking in work-based learning is seen as an advantage and a step forward in addressing the societal demands (Eicker & Hartmann, 2002).

6. Problem based learning is considered as an advantage for better preparation of students for life and business (Hatisaru & Kücüktura, 2009).

7. The advantages of collaborative work in various learning settings is being analysed (Smith et al, 2010).

8. Work-based learning is being seen as bringing new pedagogical principles to the fore (Taousanidis & Antoniadou, 2008).

9. Pedagogical beliefs and experience in work-based learning including implications for teachers' belief orientations are stressed by British researchers (Abukari, 2014).

10. Supervision of work–based learning is of major importance (Collin and Valleala, 2005).

11. Entrepreneurship oriented education is presented as a challenge to be addressed by teachers and learners (Ostenk, 2003).

12. A major question is: learning to work and learning to learn (McCormack, et al, 2010). Issues on organization of practical placements, including requirements for teachers in different countries vary (Bathmaker and Avis, 2005).

13. Guidance by others, situations, and artefacts are central to learning through work, whereas the quality of learning through these planes of activities and guidance is ultimately premised on the workplace's participatory practices (Billet, 2002).

The research within the TTT4WBL project is only just started with the pilot phase trials. Accordingly, at this point it is not yet possibly to say anything but describe the initial data from the start of the pilot phase of the research, and these initial results do not yet allow to draw any conclusions about the feasibility of the benefits of the proposed 'tandem training' in the future. However, the results of the first piloting phase will serve as a basis for subsequent analysis when the results of the second stage of the research will be obtained. This will enable the research team to observe and analyse the dynamics of the opinions of the involved stakeholders in timeline – as proposed by the panel design of the research described above.

The conclusions from the overall research are however, expected to have a theoretical value regarding the development of joint methodological approaches against varied national VET policy contexts. The practical value of the study refers to the recommendations for education policy makers to improve the quality of training of trainers for work-based learning. Further research perspective involves obtaining and analysing the data from subsequent pahses in the TTT4WBL project lifecycle among the involved stakeholders in all the three Baltic countries. Based on the analysis a common Baltic competence profile of the tutors in work-based learning might be developed.

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THE IMPACT OF DECISION MAKING ON ORGANIZATIONAL PERFORMANCE WITHIN COMPLEX ORGANIZATIONS

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Abstract. The purpose of this paper is to explore the impact of decision making on organizational performance. Evaluation of the previous studies on provision of information turnover process indicated the trends that delegated decisions have a significant impact on work processes in organizations.

Tasks of the study were to research the basis of the review of scientific sources and study aspects influencing habits of decision making in complex organizations. For this particular study, the focus group is selected as the most appropriate data collection method for high-quality research.

To find out individuals' opinions and attitudes two focus group discussions were carried out. Members from various industries were included in discussion groups. In aggregate, opinions of the employees from 38 different companies were summarized regarding the aspects of decision making in organizations.

Results of researches show that that any organization can improve the speed and quality of the decision making by paying more attention to the process approach. Results of discussions showed that advanced analytics, intelligent algorithms and data storage provide organizations with powerful new approaches to decision making and improves decision-making dynamics. To identify the need for changes based on management decisions, a manager should follow events in the environment and analyse the extent, to which they affect the performance of the organization.

There are many decisions influenced by intelligent algorithms and devices. It speeds up the decision making and ensures greater consistency, but clear limitations need to be set. Decision makers need to know how to effectively use automated tools.

Key words: *decision making, complexity*

JEL code: M10

Introduction

Formal organizational structures are increasingly going through a change due to complexity.

There is a variety of new informal groups occur because of change and adaptation. It's no secret that decision-making is often affected by cooperation of persons in organization. Managers need to understand and evaluate the importance of individuals' relationships within an organization. Creating an environment of encouraging "care and connection" can help improve the organization's creativity, efficiency, and adaptability (Lewin et al., 1998).

Managers have experienced learning mainly through work, where work was experienced as fluid and influenced by varying degrees of emergence, agency, complex social networks and adaptation (Lizier, 2017).

In a simplified way, cooperation can be described as a process in which a number of people work together to carry out certain tasks and reach common goals. The participants evaluate relatively simple information and take simple by a high degree of commitment. If we assume that the scheme of decision taking between the participants become more complex, there is a possibility enter the zone of complex processes in which reactions are not simple to predict.

Complexity is a concept that has been discussed by many scientists and scholars. It seems that complexity holds a strong connection to our perception of the world (Flood and Carson, 1993).

Complexity theory reveals that individual behaviour and choice may sometimes be more important than organizational performance plans. Consequently, researchers suggested that managers should focus on self-organization rather than management control, focusing on small changes that contribute to conflicts and change. Initially it seems that such an approach can cause some degree of instability in the organization, however, healthy conflict situations and small external changes can indeed lead to improvements (Lewin et al., 1998).

Traditional management theories suggest that managers should find and reveal the problem within the organization. On the other hand, researchers of Complexity theory recommend that management should avoid eliminating problems and wait to see how the situation develops on their own. However, researchers believe that managers should control the balance between the changes caused by the problem and the stability of the organization. Such a situation could increase problem-solving creativity and innovate. A business environment that is always stable, constant and predictable minor changes will not be able to have a strong and irreversible impact, while a slight chaos can lead to beneficial changes in the organization's internal environment. Therefore, it is more productive and a bit complicated to manage small changes in the working environment (Grobman, 2005).

Complexity science suggests that it is often more efficient to test several approaches gradually, to allow changes to the system, to observe and draw attention to the things that seem to work best.

Complex adaptive systems

The system is a complex formation which functions as an integrated whole depends on its components and how they interact with each other. One way to explore the system is to reduce it. In this process, the system can be divided into parts. Thus, analysing each part, to subsequently try to understand its operation in its entirety. However, the disintegration process loses the focus on the interaction of complex processes between parts. The main condition for the existence and functioning of the same parts is precisely explain the interaction of these complex processes.

On the other hand, holistic approach offers to look at the system as something large, consisting of parts. Consequently, holistic approach also intends to explore the components of the system, but in this case, it is important to understand the role of the system as an integrated whole.

There are at least two basic forms of combining the principles of systemic thinking and management theories. The first approach mainly focuses on scientific management theories, which involves process optimization using business process engineering. The other form is largely shaped by the principles of an open system when the organization is considered as a biological system. However, both approaches face serious difficulties since any human system is purposefully built on self-goals.

Complexity as a characteristic feature occurs and grows when interdependence of the elements within the system becomes relevant. In such systems each part or agent has significance of its own, and removal of certain element from the system leads toward destruction of the existing system's behaviour. (Miller and Page, 2007).

Complex adaptive systems are characterized by ability to self-organize. Self-organization is a process in which a chaotic system creates an organized structure by certain interactions, without external influence. In the case of self-organization, the elements form a structure of the system in a stable state when the system is not in balance.

Open systems in case of not in balance can organize themselves. Then, the system be adapted if it is already inherent in the system itself. In the process of self-organization, the system is in balance at the highest level of complexity.

The theory of complexity and chaos believe that in order to succeed in business, it is necessary to change approach to environmental and business management. It must be understood that all long-term plans are largely unrealistic, although

planning is in itself necessary. The organization and environment are interacting with continuous variables, sometimes faster, sometimes slower. Even minor changes to the system can completely change the result. The results of the organization's activities on a long-term basis by nature are not determinable and foreseeable. However, there are incentives that can make sense for the organization's actions and become a reference point for routine planning. To identify such incentives, organizational processes should not be strictly regulated. Detailed rules, stringent requirements for implementing plans, uncompromising function distribution do not allow the organization to be flexible because of organizational change and often lead to disaster.

Organizational change is a process used by organizations to redesign their structure, processes and culture with an aim to move from the current state toward a future desired state in order to increase their effectiveness and efficiency (Jones, 2004).

Complexity theory is applied in strategic management and organizational research. The theory deals with the organization's collections of strategies and organizational structures. Organizations are viewed as complex adaptive systems because they have an ability to organize themselves and interact, they have chaos elements and self-similarity.

Ability to organize itself is an essential characteristic of complex organization; ability to adapt self-organization is a process inherent in complex adaptive systems, in which parts of the system interact spontaneously. Parts of the system are customized and coordinated to create a common behavioural model. Creative organizations are characterized by crises and instability phases, spontaneously emerging new, more complex internal order.

The fact that complex systems interact with other complex systems creates tensions and paradox that nothing can be fully resolved. In complex social systems, such apparent opposites as competition and cooperation often work together in a positive way: fierce competition in the industry can improve the collective performance of all employees. Complexity science suggests that maturity to changes emerges when the system is far from balance, but the tension makes to accept changes. Neither the system nor the external environment is not and will not ever become constant.

Complexity of decision making

Information at the time of the decision making is often incomplete. In this case the decision maker can be in a situation where the lack of the necessary knowledge about the future does not allow him to fully count on the occurrence of an event. In the best case, the decision maker can count on only a part of a possible event. Therefore, there is no guarantee that the events that will occur later include all the circumstances foreseeable at the time of the decision.

Complex systems typically have vague boundaries: for example, people can simultaneously be members of multiple systems, and the habits of the flow of information sharing processes can become significantly complicated. Complex system can adapt its behaviour over time. In place of regarding information sharing in a mechanical system, complexity views information sharing behaviours as result from complex, dynamic, and unique interactions between components of the management system.

The process of interactions is very complex. At every instance at which the information is received and not just transferred further, alterations occur, and information disappears. Because of information sharing, a message can be interpreted, it can be supplemented by additional information, or it can be split into smaller amounts of information. The sender of information can make a choice and transfer the information at random. In such case, the information will be selective and subjective.

Every human through whom the information is forwarded and every act of processing it is likely to change it slightly; The less information that is left of the original one when it reaches the decider of the organization, which the information system serves, the more complex the information system is (Backlund, ,2002).

In complex organizations managers should strive to increase the flow of information within the organization, thereby promoting tension rather than fighting it. Human reaction and the ability to process new information compound conditions of complexity (Desouza and Hensgen, 2005). They should encourage employees to ask questions, offer solutions and allow employees to take action. In complex organizations the role of the leader is to be a participant, not an external observer, because the leadership and top managers have a specific role in organizational changes.

When observing the organizational metaphor of the so-called 'flux and transformation' as opposed to, for example, the metaphor of 'political system', one can notice a significant difference in the expected roles of leaders and required traits of leaders. Traditional metaphors saw leader as the main designer, the one that implement changes, a skilled orator. It used to be a person with a vision, someone who is familiar with project management, who supervises and controls. In recent metaphors, those close to the theory of complexity, the leader is "facilitator of emergent change", he or she makes connecting possible, amplifies issues (Cameron and Green, 2004).

Problem statement

Because of future events are often non-linear and business conditions can become uncontrollable, decisions taken with respect to traditional forecasting and planning models may turn out to be false. Senior management often uses the Competitive Intelligence (CI) system to make decisions. These systems provide support for decision making by collecting and processing relevant data and information about the company's performance, as well as information on the situation in the current and up-to-date business environment.

Evaluation of the previous studies about CI processes in Latvian enterprises allows formulating several presented problems: (1) The information sharing process in Latvian enterprises is inherent of weak informative and reversible links. (2) The communication framework and lack of interrelation existing in enterprises do not contribute to the information sharing. (3) Decision making is often spontaneous: the emphasis is mainly placed upon definite solutions in unique situations; information gathered within short period of time, as well as that obtained spontaneously upon request is used for analysis. (4) decisions are taken solely by the manager, expressing his correct opinion on his own. Research should find out possible reasons of the presented problems, and therefore the following issues of the study are proposed: what units of contents describe the decision making in Latvia within complex organizations?

Methodology

To find out individuals' opinions and attitudes regarding aspects influencing habits of information sharing in Latvian enterprises, two focus group discussions were carried out: members from various industries and with different employment period were included in discussion groups. Group discussions were attended by 38 persons representing staff and specialists (Group No.1, 20 persons) and management of different levels (Group No.2, 18 persons). Selection of group members was subject to the requirement to represent large and medium-sized companies.

Results of the focus group discussions, possibilities of their interpretation and application should be repeatedly considered and weighted.

Results

Participants of the discussion considered aspects influencing habits of decision-making in complex organizations based on the current decision-making procedures in the organization.

Initially, the discussion participants agreed that the final decision in the organization is usually taken by an individual or group. Several possible solutions were proposed: the decision is made by the manager alone; the decision is made by the manager after consultation with the other key executives; the decision is taken in the group, and the leader is one of the members of the group.

Discussions about decision making in the group revealed interesting aspects. The group members while making decisions in a group acknowledged that usually leaders try to focus their debates on practical things -financial assistance, improvement of operational procedures, strategies for achieving goals and objectives, etc. For example, *during meetings, we are discussing only the almost resolved questions, so to say agree with the leader*; t*he manager gather us to announce the decision; talking about financial issues, deducing on the work done and our plans, looking at just the topical issues, etc.* However, talking about the discussion of complexity in decision making, some discussion participants expressed their opinions, for example, *the manager should strive to refrain from highlighting the problems and create the environment so that the situation develops on their own. In this case, possible future problems could be avoided; A small controllable chaos can lead to positive changes in the organization, etc.*

Managers generally avoid discussing emotional topics during discussing decisions in group. Participants acknowledged that, although these emotional issues are not discussed in meetings, they are discussed after a meeting or in small subgroups. For example, *after a meeting, we come together and understand that everything is not completely discussed; It is not clear what to do next; a few questions remained unresolved, etc.* However, next time as soon as everyone comes together, they do not speak about these questions again. The participants of the discussion stated that "*managers are afraid of chaos in the decision-making process, which could make it difficult for a quick unanimous decision to be made.*"

Participants of the discussion believe that it has a negative impact on the organization. The more a manager avoids talking about inconvenient problems or obstacles, the less information is received that can directly influence the decision. Failure to take psychological aspects into decision-making, avoiding complicated aspects may over time affect the implementation of the decision. For example, *the fact that an employee does not agree to express his or her opinion later only creates problems; the management is not ready to hear what is not in line with its plans; sometimes the situation has already changed, but the management does not want to hear anything about it; employees' opinion is not taken into consideration, etc.*

During the discussion participants evaluated several decision-making situations. Several versions of the decision-making process were expressed, for example, *decision-making is limited by time; decision in extreme circumstances; decision to be taken without sufficient information; A carefully thought out decision by comparing the alternatives with the desired result; a decision that has been devoted a lot of time: collection of information, analysis, evaluation, etc.*

Participants of the discussion acknowledged that a lot of topics during group discussions seems to be based on rational discussions on the daily agenda. However, in many cases, behavior is driven by irrational factors - those that are not available for deliberate logical reasoning. Participants emphasized that irrational is not something negative but unknowing. For example, *often decisions are made only on matters that are on the agenda, however, often the current issues need to be considered in the context of other issues that are not on the agenda for unknown reason. Then there are new questions again after the meeting.*

Usually, group discussions have a predefined agenda. When the participants agree on one item on the agenda, they will come to the next. In the event of a consensus, there is no decision to be taken - a decision has already been taken. The decision-making process only begins in case of a discrepancy in the group. Usually, when there are disagreements in the groups, they are polarized by small groups who have different opinions about an agenda item.

Participants expressed the opinion: "*if during the meeting we agree with the opinion of one person, but in the next half hour the discussion is switched to another topic, we do not agree with the same people, etc., then such changes during the meeting could indicate that this group is taking a fairly rational decision-making process.* "

However, during the discussion, the opinion was expressed that "*it is necessary to identify the alternatives for solving a possible problem, to understand the pros and cons of each alternative, to make a rational decision.* "

In the case of uncertainty, the choice is limited by the decision-makers qualification, experience and values. If there are not enough alternatives to ensure that the targets are met at a minimum level, the decision maker reduces the minimum requirements and chooses the first appropriate alternative, based only on the situation in the specific circumstances and the powers granted to him. Participants of the discussion expressed the opinion that a decision taken in such a situation may not be far-sighted and, in the long term, even cause damage. For example, *when making decisions, it is necessary to consider several alternatives to the problem, and it must be foreseen that the situation may change rapidly over time.*

Participants of the discussion acknowledged that nowadays the administrative decision-making process, i.e. take a decision within the limits - will not deliver a result. The manager must use an intuitive technique that allows possibility of analogy, association and change in decision making. For example, *the manager must be able to investigate the future when making decisions, to feel the situation; the manager must foresee that over time the situation may change and act in a completely different way to achieve the goal, etc.*

Participants believe that a complex approach to decision making does not systematically evaluate and select alternatives, but often uses creative personalities and their opinions based on extensive knowledge, erudition, judgmental independence and chaos that make decision making more difficult. The discussion expressed the opinion that such decision-making has its own disadvantages: *the decision-making process can be much longer lasting, sometimes the result of internal conflicts and disagreements, it is impossible to accept the decision at all, etc.*

Whereas the most frequently mentioned aspects influencing habits of decision making in complex organizations in Latvian competitive environment are summarized in the Table 1.

Table 1.

Aspects influencing behaviours of decision making in complex organizations in accordance to the result of the discussion.

Aspects of decision making in complex organizations	Citations frequency
Variable / unpredictable environment	38
Organization processes are not strictly regulated	37
The decision-making process is much longer	37
Minor changes to the system may change the result	36
There is no guarantee that events occurring later will indicate all those circumstances that were predicted at the time of the decision	36
Managers should strive to increase the flow of information within the organization, promoting tension rather than fighting it	34
Well-designed informational system	34
The use of incentives that gives the organization's actions a sense and becomes a reference point for routine planning	29
Management refrains from highlighting problems	23
Decisions are made mainly in groups	21

Aspects of decision making in complex organizations	Citations frequency
Leaders do not avoid discussing emotional topics	19
As a result of internal conflicts and disagreements, the decision cannot be accepted at all	17
The organization has the ability to organize and interact	16
The organization has an element of chaos and self-evident	16
Creativity in decision making	11

Summarizing the results of the discussion about the causes of errors in the decision-making process, these causes can be divided by the source of their origin: external, internal and socio-psychological factors.

External factors include time constraints, lack of information, uncertainty about the situation, unforeseen events, etc.

Internal factors related to the personality of the decision maker and the perception of events: uncertainty about important values, lack of motivation, lack of certain knowledge, inflexible response to change, etc.

The influence of other people in the group's decision-making process, or socio-psychological factors was mentioned, for example, uncertainty about group tasks, lack of focus, etc.

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Discussion

Concerning the decision making in groups, it should be summarized that in Latvian enterprises the group structure is usually formed from two or more subgroups and is rather constant. Analysing the results of the discussion on group decision-making, it should be concluded that in most companies there is a tendency for one subgroup to agree with the other subgroup on issues of finance, marketing, and opinions on politics, life and work. There is no complexity in the decision-making process, no new ideas arise or are not considered because of chaos, mistakes, slow decision-making or cancellation at all. It is not a not a rational approach, but the discussion resulted that the decision-making process in groups usually takes place in this way. Therefore, in order to work more effectively and achieve good results for the organization, it is very important to be aware of it. It is important to analyze and try to improve the process of decision-making by providing complexity.

The participants also expressed shortcomings in the decision-making process in complex organizations:

1. The decision-making process is much more lasting;

2. Because of internal conflicts and disagreements, it is possible that the decision cannot be accepted at all;

3. The results of the organization's activities on a long-term basis by nature are not determinable and foreseeable;

4. Complex organizations are more often characterized by crisis and instability phases;

5. An organization has a chaos element.

Results of discussions showed that it is important for a manager to be aware of the factors affecting the performance of the organization. Teamwork requires awareness and balance of each employee's individual knowledge, skills, personal qualities and values with the common organizational values and goals.

Conclusion

The concept of complexity defines new principles in the organization's system and in the behaviour of the system. Complexity creates the preconditions for an organization to be more flexible in responding to possible atypical events

and their impact. As a result of employees' interaction, transformation of information from an individual's knowledge into common organizational knowledge is ensured. Transformation takes place in the process of activity as people share their information.

Organizations are affected by an environment of continuous change. The interaction with the environment is both positive and negative. Therefore, it is difficult to draw conclusions about the future according to the rules in force. It is almost impossible to avoid uncertainty in today's fast-changing environment. Of course, one must be able to ignore the sources of uncertainty and put the bets on the best alternative or assume that the future will be the same as the past and make decisions as they were taken in the past, or constantly strive to reduce the uncertainty surrounding the conditions. Complexity also includes delays, errors, limited perceptions. The processes that have taken place are irreversible; the new rules apply to new circumstances. Making decisions in difficult obstacles is slowed down and burdened, it provides for errors that are becoming more frequent and serious in today's evolving technological environment. For today's organizations, a continuous, small but controllable element of chaos that allows for flexibility in organizational processes must be envisaged in their operation.

The concept of complexity provides new principles in the behaviour of the organization's system. This creates the preconditions for a successful organization's response to unforeseen situations. The difficulty is that complexity affects continuity and makes it difficult for the organization to learn because of delays, mistakes, perceptions of diversity, and so on. Some processes are over, but others start in totally different conditions, so it is difficult to maintain continuity.

One of the most important internal communication functions is involvement of employees in decision-making and expression of their views and ideas, for which a space should also be provided in the strategy of internal communication.

Limitations and implications for research

Neither conclusions regarding the reasons, nor generalizations can be made on the basis of these opinions or views, because the number of participants is small; the range of the expressed opinions, however, is wide enough to gain a picture on the various aspects of the investigated phenomenon.

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PRODUCT AND PRICING POLICIES IN THE GERMAN HOSPITALITY INDUSTRY

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Abstract. A lot is known about the flexible approach of aviation industry and hospitality industry, to proactively predict fluctuations in demand and to respond with various price differentiations. Achieving an optimal utilization with optimum absorption of the willingness to pay with a unit price is hardly possible in liberal economic environment. Therefore, different prices must be offered by means of price differentiation for diverse market segments, corresponding to the respective willingness to pay. Target is to define the right customers, to provide the right service at the right price at the right time at the right place. The services for the professional application of price differentiations (in hospitality industry called: revenue management) must be subject to greater fluctuations in demand and the requested goods must be price-elastic. The price differentiation itself can refer e. g. to the dimensions of time, place, space, quantity and purchaser. Typical examples of periods of high demand are holiday periods, trade fairs, the arrival days in a work week or even sporting and cultural events. The reactions of the product and pricing policy as reaction on volatility in demand leads to the question of this work.

The research is based on relevant literature. First, examples of studies concerning other major sports events will be introduced, to gain information on the importance of sporting events in general. Then, the function of food and beverage supply will be explained. In addition, typical instruments and strategies are explained, that affect the hospitality product and pricing policy. With respect to the Grand Départ, the influences on the product and the price policy had been surveyed upon local catering businesses. Also examined whether and to what extent behavioral pricing effects were used consciously.

Three months before the Grand Départ 160 catering establishments by e-mail were invited to participate in an online survey. 32 of these businesses gave a fully usable response, for which data were the basis of further evaluations. To interpret the investigation results better, criteria were defined that the restaurants were divided into different business types. The research showed, that some potentials are certainly not fully exploited because of lack of experience and the partial lack of knowledge about existing possibilities of price differentiation and effects of behavioral pricing.

Key words: *Behavioural pricing, hospitality industry, pricing strategy, Grand Départ*

JEL code: M31, L80, L83

Introduction

On the 1st July 2017, the Grand Départ, the start of the Tour de France, was conducted in Düsseldorf, Germany. The Tour de France will be traded after the World Cup and the Olympic Games as the third largest international sporting event. The media is enormous. The event was transmitted by television in over 200 countries. The main expected benefits are particularly an increase of publicity for the city and the region of Düsseldorf as well as a sustainable increase of tourism effects. Of course, especially hotels and restaurants benefit directly from major sporting events such as the Grand Départ through the visitors on-site. The economic effect was estimated to be around 60 million euros through the Grand Départ, despite rain, over 1 million have attended this event (Stadt Düsseldorf, 2015).

Already a lot is known about the flexible approach of aviation industry and hospitality industry, to proactively predict fluctuations in demand and to respond with various price differentiations. Achieving an optimal utilization with optimum absorption of the willingness to pay with a unit price is hardly possible in liberal economic environment. Therefore, different prices must be offered by means of price differentiation for diverse market segments, corresponding to the respective willingness to pay (Shoemaker, Dawson & Johnson, 2005). Target is to define the right customers, to provide the right service at the right price at the right time at the right place. The services for the professional application of price differentiations (in hospitality industry called: revenue management) must be subject to greater fluctuations in demand and the requested goods must be price-elastic. The price differentiation itself can refer e. g. to the dimensions of time, place, space, quantity and purchaser (Goerlich & Spalteholz, 2014). Typical examples of periods of high demand are holiday periods, trade fairs, the arrival days in a work week or even sporting and cultural events. The reactions of the product and pricing policy as reaction on volatility in demand leads to the question of this work.

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Economic Effects of Sporting Events

There have already been made some researches on the impact of other major sports events on society and economy. 2006, several million visitors from all over the world came to the Football World Cup in Germany. Thus, there has been an additional added value through investment activities and additional consumption by domestic population and foreign guests. The additional value creation for the total German economy however can be considered marginally. On the one hand because the football industry constitutes only a very small sector, and on the other because of the depreciation of high investments over the following years. Significant revenue increases have been felt in hotel and catering.

The temporary increase in employment however had no long-term positive effect on the unemployment figures. There has been a noticeable increase in football related goods sales in May 2006. This had also occurred when the World Cup in another country would have taken place (Brehnke & Wagner, 2007). In addition to the described economic effects, the World Cup had also impact on society. Sporting events are part of global understanding, promote the positive image of the country and entertain the people who attend the event with a certain fun-factor (Brehnke & Wagner, 2007).

The researches striking the European Football Championship 2008 and to the Football World Cup of 2010 confirm comparable results. 2008, in Austria and Switzerland, about 20-30% of visitor´s expenditures in the host country accounted on catering services. In addition, the visitors gave money for merchandise, shopping and accommodation (Heichele, 2012). For the World Cup 2010 in South Africa also high investments were made. For the population in the host country, neither income nor employment effects could be achieved in the long term. However, image and good feel effects benefit the population, e.g. through the expansion of the telecommunications network and the infrastructure that otherwise never would have afforded the country (De Melo, 2011).

A study on the FIS cross-country skiing World Cup 2006 in Düsseldorf confirmed revenue for retail, restaurants, hotels and taxi companies. Around 50% of visitors took advantage of the stay in Düsseldorf also for purchases. 40% due to higher sales benefited from the outlets. 84% of the hotels felt the positive effects of utilized capacities. In addition, the city of Düsseldorf has benefited from positive image effects by TV-reports in 23 countries (Fachhochschule Düsseldorf, 2007).

The Dutch city of Utrecht was hostess of the Grand Départ in the year 2015. A study of ING Bank estimated the amount of additional revenue for foods and drinks, shopping, room nights, merchandise and transportation to at least 34 million Euros. Furthermore, the municipality expected a growing number of visitors in the years after the Grand Départ due to the "free advertising" during the event (ING Bank N.V., 2015).

Major sports events affect positively additional sales taxes, the image of city positive and lead to sustainable tourism effects (Dobni, 2006). Particularly the gastronomy, as well as hotels and retail benefited from the implementation of major sports events. These effects are due to the specific role and function of gastronomic establishments in the context of major sports events. The transportation of food and drinks to the venue is limited for several reasons. Transportation in backpacks and bags are often limited to one (plastic-)bottle, on the other hand, the shelf life of foods due to the hot temperatures is limited especially in summer months. Security concepts due to the increased risk of terrorism are also often associated with the prohibition of bags, bottles and glass.

With their services, the caterers provide an important contribution to the success of most events, they are even part of it. Service, friendliness and the adequate availability of food and beverages affect the quality perception of the guests regarding events. Missing supply of adequate beverages and water at warm temperature can be assessed very negative, especially when it comes to cardiovascular collapses or panics.

In addition to daily tourists out of the region, international sporting events attract also guests from abroad, for example: media-representatives, supporters, supervisors and trainer. They are then often staying several days in the destination, so that not only restaurants directly at the venue can benefit from new guests, but also hotels and restaurants, which are further away. Guests usually take the opportunity to meet the tourist side of the destination residence, including the regional culinary offers (Dobni, 2006).

Product and Pricing Policies in the Hospitality Industry

The product policy is a part of the marketing mix, consisting of product, price, place and promotion (Borden, 1950). We need to align the design of the product or product portfolio to the needs and desires of potential customers. The product itself is defined by the rendered service, the technical properties, the type and shape of the packaging, the guarantees, the brand properties and the range connection (Xu & Xiao 2017).

The provision of a service is divided into two sections: pre-combination and end-combination. During the pre-combination, those potentials are brought into position, which are needed later in conjunction with other internal factors of production and by a pulse of the external factor. The commitment, in the form of pre-combinations, must be made constantly available (Ott, 1979).

This means for caterers, that the raw materials for manufacturing of food and beverages must be prepared in advance, so that they can be finished in a reasonable time frame in the moment of an order placed. There must be staff and a sufficient number of seats or tables available. But the provision of the required performance potential does not necessarily create a corresponding revenue. A storm can cause a lack of guests. Services are usually not storable or transportable. This means that the intermediate consumption (power potentials), can hardly be sold in a later period, they expire (Bruhn & Meffert, 2012).

Various instruments of product policy can be used to design the offered products. There are three main differences: performance variation, innovation and elimination. All measures and instruments aimed at the modification and differentiation of the product range are performance variations. The modification or differentiation can be made, for example through the provision of additional services. Thereby, the additional services may exhibit different affinities. So, additional services can be necessary, or they are a complete supplement. The services can be bundled in diverse ways such as pure bundling in the form of all-inclusive offers, or as mixed bundling, if smaller elements can be booked in addition (Simon & Fassnacht, 2016).

Particularly in the services sector, the offer can be changed by the nature and the extent of integration of the external factor (Xu & Xiao 2017). This can be done by internalizing or externalizing. Both approaches, the bundling of services and the change in the integration of the external factor, can offer great advantages depending on the circumstances, so that it can make sense to pull this performance variations for short-term events with a high volume of guest expected (Simon & Fassnacht, 2016). A restaurant service could decide, for example, to build a buffet for self-service to an event on the road to be able to serve more guests at the same time. Automation means, that service or parts of the service are replaced by machines. That makes sense for well standardized and relatively homogeneous services. The temporal change of the service process can be used to reduce transaction times, because these are perceived negative especially in the case of "little time" (Bruhn & Meffert, 2012).

Performance innovation describes a new performance to an actual innovation potential, processes and results. The performance innovation should be distinguished from offer innovation, representing only a completely new bundling, marketing or design of offers (Shoemaker, Dawson & Johnson, 2005). During product-elimination, common service components are removed from the program (Crompton, 2016). This may have different qualitative and quantitative reasons (Ott, 1979). This tool is suitable for short-term adjustments for example at sporting events such as the Grand Départ, to reduce the range of services in the short term and to streamline the creation of performance.

Even an excellent product which meets the demand needs must be sold with the right price. The price is the most crucial factor of economic success, because it directly affects the profit. The permanent deployment of the performance result in some peculiarities in the cost structure of services (Becerra, Santaló, & Silva, 2013). In comparison to industrial products, service industry deals with a high proportion of fixed costs and a relatively low proportion of variable costs. Especially high personnel costs to ensure permanently motivation and readiness. The pricing can support the capacity management and by such promoting a uniformly good usage (Bruhn & Meffert, 2012). Service is highly influenced through the integration of the external factor (uno-actu principle).

Some determinants that influence the price result from typical service-specific features and their implications for the pricing process. These include the cost structure and their height, the competitive situation, the willingness of customers to pay and sometimes even state regulations which restrict freedom in determining prices. The pricing is so geared to the parameters demand, competition and costs. Depending on the company's situation, different priorities are set (Bruhn & Meffert, 2012). The demand-oriented aspect is of importance regarding the described meaning of capacity management in the hospitality industry. The assessment of the willingness to pay of different customer groups is critical to optimally distribute the available capacities. Approaches of behavioral pricing can be used for the analysis of willingness to pay (Crompton, 2016). Behavioral economics no longer assume that a price increase also inevitably brings a decline in demand with it and argue with the limited capacity for recording and processing of information (Crompton, 2010). The consumer feels satisfactory solutions often as effective enough, even if they are not optimal (Simon & Fassnacht, 2016).

Achieving an optimal utilization with optimum absorption of the willingness to pay with a unit price is hardly possible in liberal economic environment. Therefore, different prices must be offered by means of price differentiation for diverse

market segments, corresponding to the respective willingness to pay (Shoemaker, Dawson & Johnson, 2005). Target is to define the right customers, to provide the right service at the right price at the right time at the right place. The services for the professional application of price differentiations (in hospitality industry called: revenue management) must be subject to greater fluctuations in demand and the requested goods must be price-elastic. The price differentiation itself can refer e. g. to the dimensions of time, place, space, quantity and purchaser (Goerlich & Spalteholz, 2014).

Regarding the described meaning of capacity management in the hospitality industry, the demand-oriented aspect is of importance. The assessment of the willingness to pay of different customer groups is critical to optimal distribution of the available capacities (Cuellar, 2013). In the dining area, one can distinguish for example the business guests for lunch and the guests during the evening. One can assume that those who go to lunch in a restaurant are much less willing to pay as a family that visit the restaurant in the evening. To achieve a consistently good table load in the middle of the day, one must take this aspect into account and react with adequate pricing (Korem, 2001).

Price differentiation can also refer to the dimensions of time, place or space, quantity and purchaser. The time-based price differentiation is aimed at the time of the transaction or at the time of booking (Bruhn & Meffert, 2012). A differentiation concerning the date of the receipt of the service might be, for example, a happy hour deal. A differentiation regarding the time of booking is for example an advance purchase rate (Simon & Fassnacht, 2016). At the spatial price discrimination, the same performance is offered in various places for different prices. The quantity-based price differentiation determines the price according to the number of purchased service units. Here, the price typically decreases as more of a performance claim is taken (Ott, 1979). Collecting cards in cafés, offering a free tenth drink after nine store-bought coffee drinks are a classic example of a set-oriented price differentiation in the hospitality industry.

Methodology and Survey Design

To capture the activities of restaurateurs in their price - and product policy regarding the Grand Départ 2017 in Düsseldorf and possible backgrounds for the product - and price-specific activities, various forms of investigation were used. The main collection consists of an online survey of selected restaurants located on the route of the Grand Départ or in surrounding areas. Three months before the Grand Départ started, 160 catering establishments were invited by e-mail to participate in an online survey. 32 of these businesses gave a fully usable response. The evaluation is based on these data. To interpret the investigation results better, criteria were defined that divided the restaurants into different business types. In addition, 8 industry experts (macro perspective) were consulted in telephone or personal interviews. The survey deals with the planning, expectations and activities of responding restaurateurs. The surveyed restaurateurs represented the micro perspective, the industry experts (and the literature review) the macro perspective.

The questionnaire was designed with the help of the online tool Google forms and was divided into three major blocks of the question.

The first block covered the structure of respondent's operation and the range. By means of some backed questions, it was captured, what price and product policies were used to make more attractive offers and to optimize sales. This information helped to identify whether there were links between the different priorities in the supply side economics and the activities for the Grand Départ. The second block of questions focused on the respondent´s expectations on the Grand Départ: The expected volume of the guest, the guest's willingness to pay, the origin of the additional guests, the ratio of the volume of guest on weekends and on weekdays. Some backed questions focussed aspects are positive influence: image of the city, awareness of own operations, customer acquisition, customer loyalty or sales on event days. The third block zoomed on the question whether and with what success to demand tough times or major (sports) events changes to

products or prices have been made before. Some prescribed ways of price structures were given, but also open answers requested.

A total 32 of restaurateurs responded. Of those were 17 food-oriented businesses with high service intensity, 5 hotel restaurants, 5 beverage-oriented establishments and 2 food-oriented businesses with low intensity of service. 3 companies used an individual description under "Miscellaneous". Figure 1 shows the main guest groups mentioned.

Figure 1:

Main guest groups, possibility of multiple answering (n=32)
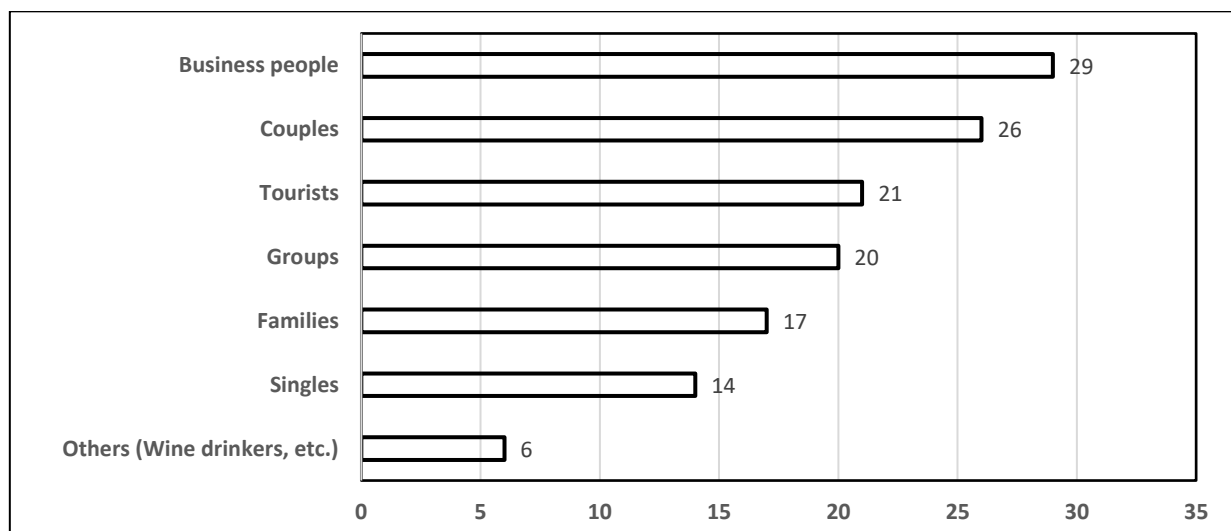
Source: author´s construction, based on own survey results

22 (68.8%) Respondents, answered, their operations work regularly with changing food selections (seasonal or exclusive offers). 7 (21.9%) offer a consistent food selection and 3 (9.4%) sell any food at all. There are no companies that waive the sale of drinks. The share of the beverage offerings with varying elements is 17 respondents (53.1%). A non-changing range of drinks, however, found 15 establishments, respectively 46.9%.

17 enterprises (53.3%) make exclusive offers by bundling own services and products. 12 establishments (37.5%) indicated to use limited offers available in demand weaker times: lunch menu, happy hour, weekly and daily specials or additional services without separate charge such as bread for dinner. 4 restaurants (12.5%) use professional help to make their offer more attractive and 3 (9.3%) bundle their services with external providers.

65.6% out of the surveyed companies are used to have always a stronger weekend-business. The proportion of those who estimate the guest volume to the Grand Départ stronger than a normal weekend (43.8%), is like the proportion who appreciates it as much as normal (40.6%). Only 5 of 32 restaurateurs (15.6%) indicated that for them the guest volume to the Grand Départ will be even lower.

Figure 2:

Expectations of respondents, possibility of multiple answering (n=32)
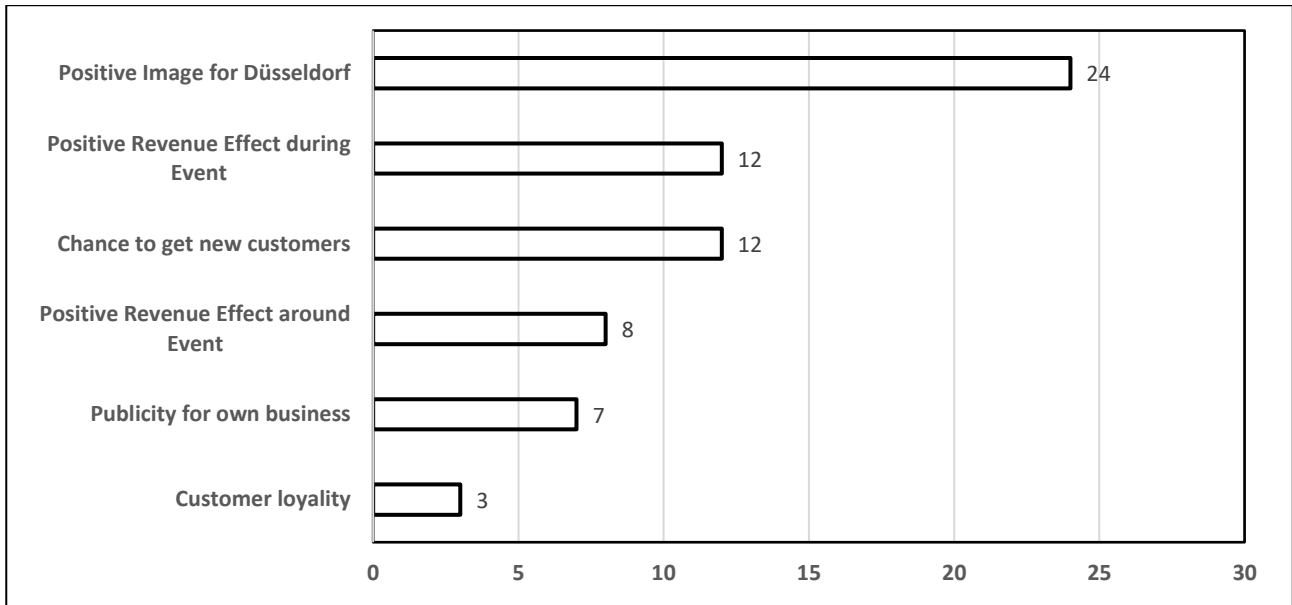
Source: author´s construction, based on own survey results

In the past, 9 restaurants (28.1%) adjusted products, services or prices in the context of (sporting-)events and in times of strong demand. 13 (40.6%) plan concrete actions during the Grand Départ like the bundling of own performance, price increases, the waiver of regular promotions or the design of a special card. 6 respondents stated other adjustments under "miscellaneous"; including the increase in hotel room prices, offering special tour tartlets, a free drink for guests arriving by bicycle, reduction of offers and some even the closure of the operation. Satisfied with their activities to other major events or periods of strong demand were 20 respondents (62.5%). The remaining 12 (37.5%) are neither satisfied nor dissatisfied.

93.3% of the food-oriented restaurants with high service intensity have a significantly higher volume of guests every weekend. Only 20,1% of them expect an increased guest volume. 50% of beverage-oriented enterprises have a stronger weekend business. 33.3% of them expect more guests than on a normal weekend. Only 22.2% of the hotel's restaurants have more guests on the weekend. However, 77.8% of the hoteliers believe that more visitors will come during the Grand Départ weekend than on a normal weekend.

Of the respondents who expected a higher willingness to pay of the Grand Départ visitors, 75.0% want to take this opportunity to adjust their products, services or prices. Companies who expected a similar willingness to pay by 36.1% and the companies with a lower payment readiness expectation by 33.3%. Out of the companies that wanted to adjust, 69.2% believe that the willingness to pay is comparable. Another 23.1% of respondents assume that the willingness to pay will be higher. 7.7% of the enterprises that still want to adjust expected a lower willingness to pay.

Conclusions

It is evident that there is a positive trend toward customization readiness of products and prices to the Grand Départ in comparison to previous adjustments at other events. 40% of the companies want to take actions during the occasion of the Grand Départ. Differently than the expectations based on existing literature, the focus of measures lies rather in the

customization of products and services than in the adjustment of prices. The willingness for price modifications could only be found in hotel-restaurants. In this type of operation are also proportionally more adaptation activities in general.

Regarding the expectations for the Grand Départ, it can be said that hotel-restaurants have a much more positive expectation than the other operating types, which already have a high guest frequency on normal weekends. While nearly all respondents expect positive effects for the image of the city, expectations of positive influences on their own targets, such as sales, awareness, new customer acquisition, etc. have been subdued. Positive impact on willingness to pay were expected by hardly any company.

Some concepts can be identified between the expectations and the planning of adjustments. The higher a willingness to pay is expected, the more adaptation activities to major sports events are planned (Cuellar, 2013). The more variable and flexible the products generally are, the sooner the caterer plans adjustments of products and prices. Similarly, if already experience from other times of strong demand exists. Thus, it can be said that the experience with the price and product policy instruments and the reactions of the guests is relevant.

The examination of various concepts for fan parties and VIP zones shows that, in addition to the stationary restaurateurs, rather mobile booth caterers benefit from large events. Since their products and pricing policy is tailored for the supply and demand of such events and there is thus no need for further adjustments to meet the requirements for hosting the hospitality areas.

Some potentials are certainly not fully exploited because of lack of experience and the partial lack of knowledge about existing possibilities of price differentiation and effects of price psychology (Crompton, 2010).

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DEVELOPMENT OF SHARING ECONOMY: ANALYSIS OF DIFFERENT COUNTRIES' EXPERIENCES

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Abstract. Sharing economy as one of the Circular economy business models has great potential in reducing the need for physical assets whilst at the same time increasing the availability of different services. The Sharing economy does not require giving up the benefits and conveniences of using material assets because of more efficiency, but as a side effect; it also causes an increase in the consumption of goods and services provided. This paper discusses the benefits of the Sharing economy and how problems induced by it can be solved. The aim of the research is to discover drivers and obstacles in developing the Sharing economy and suggest solutions. We use literature study, observations and consumer survey as the research methods. The findings of this research suggest that the main drivers to engage in the Sharing economy are the opportunities to save or earn money. The main obstacles are worries about personal safety and mistreatment by platform members. We suggest building trust between sharing platform members, providing a system of credible reviews about service providers and users, as well as providing more comprehensive information about sharing platforms to enable further development of the Sharing economy. Clear rules should exist for participants in a collaborative economy to separate sharing activities from illegal entrepreneurship and set a fair tax system. The results of the study can help to develop better sharing platforms and for policy makers to work out suitable regulation of the Sharing economy.

Introduction

Since the advent of natural exchange people have shared with each other the benefits - invited relatives and friends to visit, allowed them to spend the night, and shared things that they themselves did not use. With the development of technology, society has returned to this practice, but now, the exchange of things and services is not limited to a narrow circle of familiar persons, but has grown to a global scale. The sharing economy has gained huge interest from consumers and researchers alike in recent years. The total revenue from the shared economy increased from around €1 billion in 2013 to €3.6 billion in 2015 (Vaughan R. & Daverio R., 2016.).

The sharing economy has many synonyms: peer-to-peer economy, network economy, gig economy, collaborative economy, on demand economy, the economy of joint consumption, and collaborative consumption. At its core, this is an economic model, a peer-to-peer system based on the collective use of goods and services. There are still two basic things remaining in the economy - production and consumption, but the connections between them are vastly transformed. The sharing economy allows linking key economic agents directly and distributing products and services between them without intermediaries. Joint consumption suggests that it is more convenient to pay for temporary access of goods than to own them. Individual property ownership in the modern world often becomes expensive and unprofitable. In addition,

the model of consumer behaviour in society is changing; people are increasingly renting not because they cannot buy, but simply because they do not want to. One of the reasons for such a victorious procession of a sharing economy is, of course, the development of Internet platforms, which have significantly reduced the transaction costs of this type of business. Their development has made it possible to involve a wide range of clients in the model of collaborative consumption. The sharing economy uses different digital platforms and people who do not know each other can access physical, virtual, and intellectual goods and services. The success of this economic concept is also facilitated by the changing worldview of society. It is clear that soon we will see how the sharing economy covers more and more segments of the traditional economy.

The sharing economy attracts the attention of researchers, online platform providers and government officials and is discussed in scientific and newspaper articles, journals and Internet portals. Nevertheless, the authors did not find a large number of publications which generalize all possible directions of the sharing economy and the attitude of consumers towards them and regarding the factors that may influence environmental performance.

This paper discusses the benefits of the Sharing economy and how problems induced by it can be solved. **The aim** of the research is to discover drivers and obstacles in developing a Sharing economy and suggest solutions.

Methods. The research employed a combination of approaches. Theoretical analysis of the scientific work and practical papers in this field, observations and consumer survey were used as the research methods. 201 replies from respondents have been summarized.

The findings of this research suggest that main drivers to engage in the Sharing economy are the opportunities to save or earn money and therefore it is not sufficient precondition for reducing environmental impact of consumption.

Research results and discussion

1. Literature review

Economists Rachel Botsman and Roo Rogers in the book "What's Mine Is Yours: The Rise of Collaborative Consumption" proposed the concept of joint consumption. The idea was that it is often more profitable and more convenient for the consumer to pay for temporary access to the product than to own it. The authors called the sharing economy a new socio-economic model that revolutionizes the consumption of goods and services (Botsman R. & Rogers R., 2010)

There are a vast variety of sharing economy forms and definitions. The Oxford English Living Dictionary defines a sharing economy as "an economic system in which assets or services are shared between private individuals, either free or for a fee, typically by means of the Internet" (Oxford English Living Dictionary, 2018). The Cambridge Dictionary defines a sharing economy in a very similar way, as "an economic system that is based on people sharing possessions and services, either for free or for payment, usually using the internet to organize this" (Cambridge Dictionary, 2018).

Recently, many scientists are exploring the sharing economy and give their own definitions in order try to understand this phenomenon and the factors influencing its popularity. The sharing economy is a socio-economic system built around the sharing of human, financial, and physical capital. It includes the shared production, distribution, and consumption of goods and services by different people and organizations (Tribunella, T., Tribunella, H., 2016). The 'sharing economy' label is used not only in newspapers' and in scientific journals papers, but also in the European Commission (European Commission, 2015a, 2015b) and OECD (OECD, 2015a, 2015b) official documents.

The Sharing economy is developing in many areas, but the most popular are accommodation, transportation, finance and Online labour markets.

In 2014, Russel Belk tried to find the similarities and differences between sharing and collaborative consumption and how it can change traditional business models (Belk R., 2014). In 2016, Cheng also provided an objective, systematic and holistic review of the academic literature of the sharing economy by using co-citation analysis and content analysis (Cheng M., 2016).

Roos and Hahn (2017) investigated the effects of shared consumption on individuals. They found that "the more consumers engaged in shared consumption, the more concerned they were for others, while it did not affect their concern for the environment or themselves". Parguel et al. (2017) conducted a survey of 541 buyers and found that materialistic and environmentally-conscious consumers are more likely (than consumers who are not materialistic and environmentally-conscious) to use Sharing economy platforms.

Co-owning properties is an old concept. Travellers have always used bed and breakfast or hotel and holiday home rentals; later the timeshare model was developed and widely used. People rent apartments or parts of properties through the following platforms: Airbnb, HomeAway, HouseTrip and others. But very often using such platforms is connected with the term of trust related to the seller or buyer, to the platform, and the transaction. Huurne et al. (2017) analysed 45 articles to understand how the trust of users in the sharing economy is influenced. They found various antecedents of trust in the Sharing economy, i.e. reputation, trust in the platform, and interaction experience, and suggest that trust is much more complex matter and extends beyond reputation.

Falcone and Imbert (2017) investigated the sharing economy within the food sector and confirmed that "major effort towards general routines and practices, which underpin individual-level behaviour, is required to tackle food waste in a more effective manner".

The Sharing economy provides favourable conditions for start-ups and attracts venture capital investors, established players in the automotive industry (Delloite, 2017). Car-sharing services in recent years have become an alternative to various modes of transportation. The most known are Uber, Blablacar, Lyft, DriveNow, car2go, ZipCar, Carguru, etc. Cohen and Kietzmann (2014) discussed existing shared mobility business models in their article and found that from one side car sharing reduce inner-city traffic, congestion and pollution problems, but from the other side, it causes a lot of conflict between service providers (agents) and the local governments. Retamal (2017) also highlighted the need for policy intervention to facilitate more sustainable outcomes and to motivate passengers for transport sharing. The instrumental attributes usually affect the choice of car-sharing services, and in some circumstances, respect for low psychological ownership may influence the choice to use a shared car. (Paundra et al., 2017)

Sposato et al.(2017) investigated drivers and barriers of the sharing economy and analysed mobility, agro-food, buildings and goods production and consumption from the perspective of resources to show how a sharing economy can contribute to a circular economy. They used a life cycle thinking approach and analysed environmental impacts of the most strategic sectors. The research results of Hamari, Mimmi, and Antti show that participation in collaborative consumption is motivated by many factors such as its sustainability, enjoyment of the activity, as well as economic gains. They also found that "sustainability is not directly associated with participation unless it is at the same time also associated with positive attitudes towards collaborative consumption. This suggests that sustainability might only be an important factor for those people for whom ecological consumption is important". (Hamari J., Mimmi S. & Antti U., 2016)

2. Empirical study

To assess consumer views regarding the sharing economy we conducted a survey of consumers in Latvia and compared the results with previous research conducted by "Veridu" and "The people who share" in 2016, surveying 850 consumers in the USA and the United Kingdom (The Sharing Economy Consumer Views Survey, 2016) and survey of 3,000 Americans commissioned by Burston-Marsteller, Aspen Institute and TIME in 2015 (Burston-Marsteller et al, 2015). In the survey we defined a Sharing economy as a socio-economic system based on the sharing of human, physical and intellectual resources, involving digital platforms or organized communities. Exchange can be carried out by means of money, local currencies, swapping services or given away as gifts. Considering that engagement in a Sharing economy is mostly available for people who use their electronic devices and internet on a regular basis, we surveyed people electronically by filling-in the questionnaire on the internet; mostly young people responded – mainly Millennials (birth cohort born approximately between 1980-2000). Our survey was carried out in Latvia during February and March 2018. The sample size was 201 respondents; type of sample - convenience sample. The authors recognize the drawbacks of convenience sample and acknowledge that type of sample is not statistically representative, but still the sample size is big enough to draw conclusions regarding the younger population in Latvia and their attitudes towards a Sharing economy. The sample consisted of 71% female and 29% male respondents. 35% of respondents were younger than 20 years, 41% were in the age range 20-25, 15% 26-30 and the remaining 9% of respondents were aged over 30. 75% had secondary education, 14% Bachelor degrees and 4% Masters degrees. The distribution of education levels is explained by the young age of the respondents. Our results coincide with the results of the RFS 1099 Report (Newcomer, 2017), as well as with the Burston-Marsteller, the Aspen Institute and TIME (2015) survey of 3,000 Americans.

2.1. Main Sharing economy sectors

The results of the survey show that the vast majority of respondents have used some Sharing economy sectors. Only 8% of respondents had not used any of Sharing economy services neither as providers, nor receivers. The most often used Sharing economy sectors in Latvia are car/transport sharing (64% have used as customers and 48% as service providers) and used goods trading (57% have used as customers and 55% as service providers) (see Fig. 1). This result shows much higher participation in Sharing economy in Latvia in comparison with the USA and the UK. According to a survey of 3,000 Americans in 2015, only 44% of the population have used collaborative platforms. In Veridu and The people who share survey in 2016 - 63 % of consumers in the USA and the UK use Sharing economy services. The larger participation rates in the Sharing economy in Latvia are explained by younger survey participants and time gap, because during the last few years different Sharing possibilities have grown rapidly.
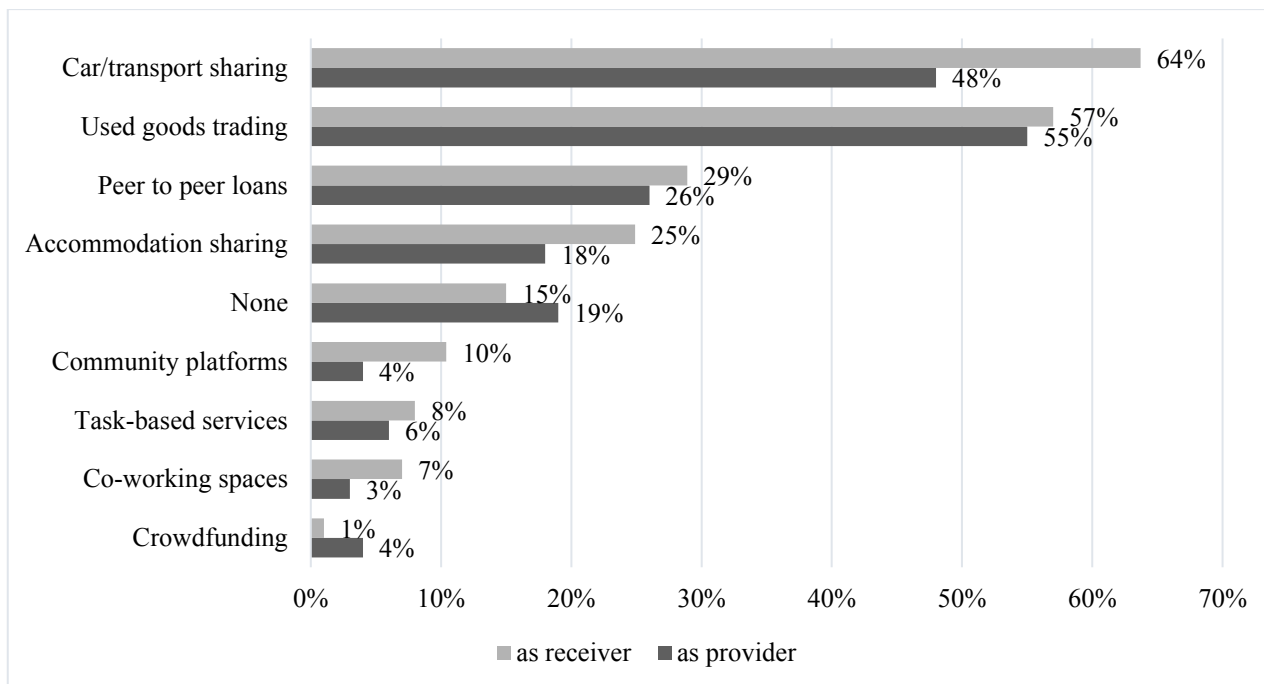
Source: author's construction based on survey results.

Fig. 1. **Answers to the survey questions "Which of the following Sharing Economy sectors have you used as product/service receiver?" and "Which of the following Sharing Economy sectors have you used as product/service provider?" (in percentages)**

Car and accommodation sharing as well as used goods trading are familiar and comparatively developed sectors of a Sharing economy in many countries. These services are so popular due to the many possibilities to use them, including self-organized groups in social media and well known international companies, like AirBnb and Uber. Also, ride sharing is a well established practice not only using digital platforms, but also between friends and acquaintances. Accommodation sharing is especially popular among students. The main difference between consumers in the USA and the UK and consumers in Latvia is the comparatively high percentage of people who use peer to peer loans, which in Latvia is used by more than quarter of respondents (see Fig. 2), while in the USA and the UK barely 5 per cent. This could be explained by several peer to peer loan platforms established in Latvia. For example, Mintos and Twino are among the largest in Europe by the number of loans issued. Comparing people with higher than average income levels, one can observe that the percentage of those who have not participated in the Sharing economy is not significantly higher. So, the participation in the Sharing economy is not solely for people who cannot otherwise afford these services.

Consumer attitudes towards sharing different things are very similar. In Latvia, as in Western countries, people are extremely uncomfortable lending their cars and lending money to someone they have not met. In both situations, 65% of respondents feel extremely uncomfortable, followed by 55% who feel extremely uncomfortable borrowing money from people they have not met (see Fig. 2).
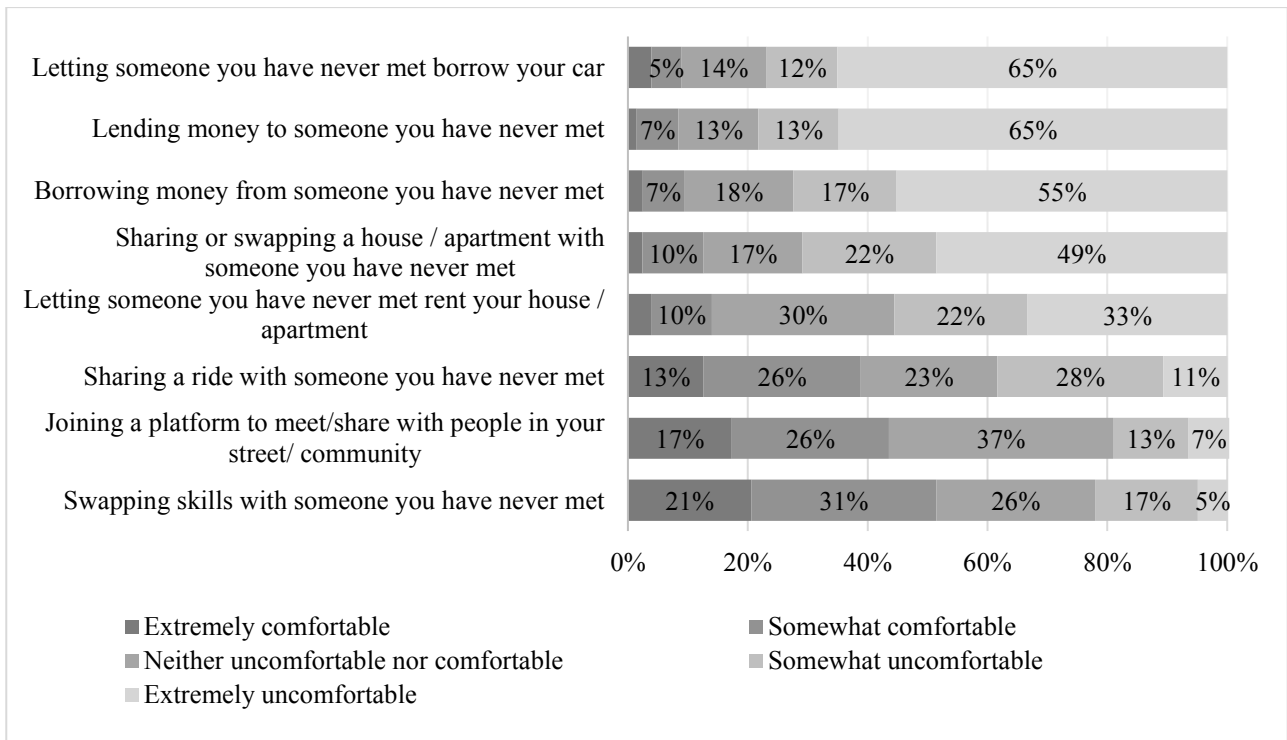
Source: author's construction based on survey results.

Fig. 2. **Answers to the survey question "How comfortable are you with each of the following Sharing Economy scenarios?" (in percentages)**

This result is worth examining in more detail from the perspective of consumer behaviour. Car sharing and peer to peer lending are the most used sectors of Sharing economy, but most people also feel extremely uncomfortable to lend or borrow money from strangers. One explanation could be that people have experienced these Sharing economy sectors in practice and know exactly their attitude. Surprisingly approximately 23% of those 130 people who feel extremely uncomfortable to lend money have used peer to peer loans, both as lenders and as borrowers. Probably, before engaging in these activities they had a different attitude to lending money to unknown people. Another possibility is whether the need for service is bigger than the discomfort of using it.

2.2. Drivers and obstacles of Sharing economy

Personal safety is the biggest concern for people when using Sharing economy services. In Latvia, 97% of respondents marked personal safety as extremely or somewhat important (see Fig. 3) which is considerably higher than in the UK and the USA – correspondingly 82 %. The second concern in Latvia is about how well-treated professions or homes are in these services – 95%, while in the UK and the USA – 78%. Saving and making money are very important when engaging in a Sharing economy in all countries. Answers to this question reveal that assumption about engaging in the Sharing economy as a way to reduce environmental impacts or to get to know new people is too idealistic. Only 16% of respondents consider helping the environment as extremely important (see Fig. 3).
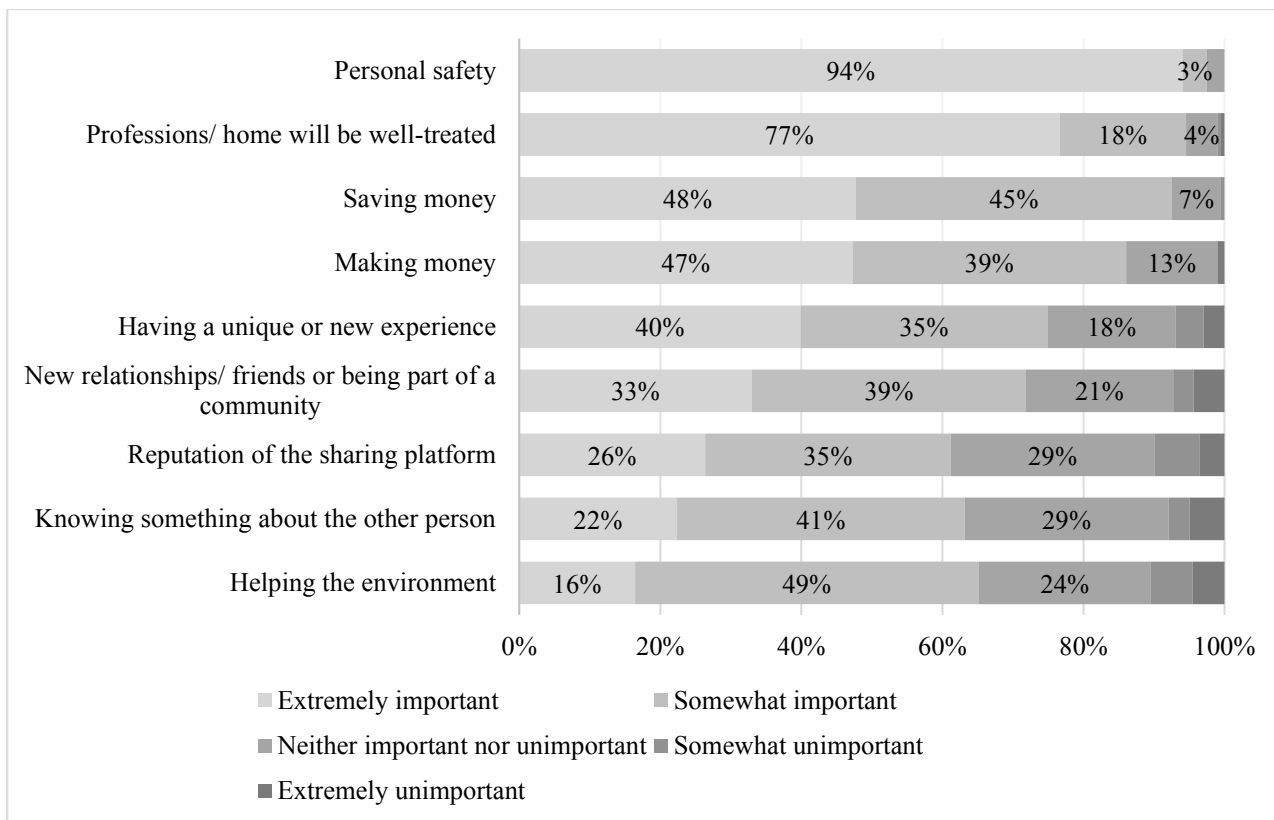
Source: author's construction based on survey results.

Fig. 3. **Answers to the survey question "When using these Sharing economy services how important was each of the following to you?" (in percentages)**

Examining the responses more closely we found that people who assessed themselves as environmentally friendly have a significantly higher evaluation of how important helping the environment is when using Sharing economy services. For 77% of environmentally-friendly respondents, this argument is extremely or somewhat important, while only for 49% of those who do not consider themselves as environmentally friendly (see Fig. 4). Average evaluation of environmentally-friendly respondents is 3.9 points, i.e. almost somewhat important and of environmentally ignorant - 1.8 points, i.e. less than somewhat unimportant.
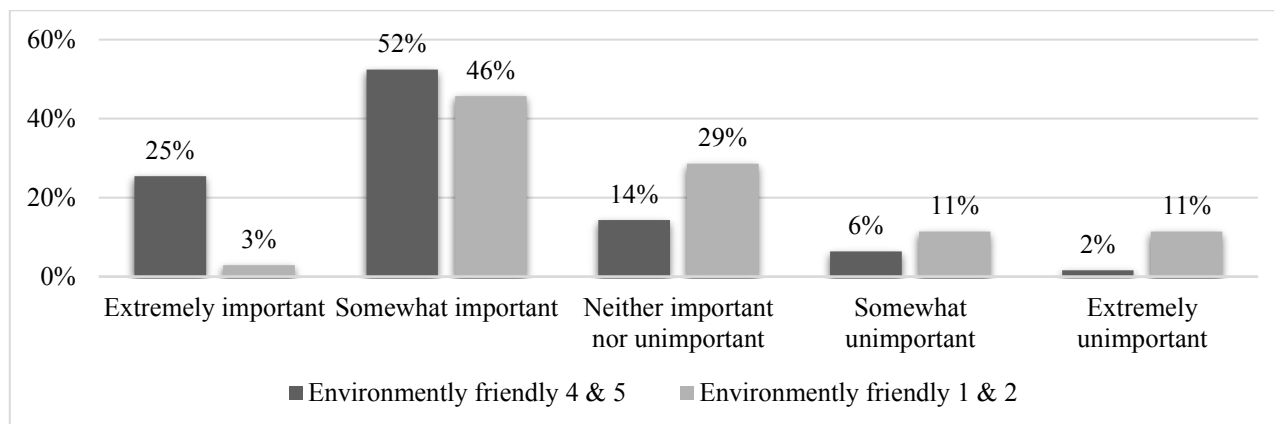
Source: author's construction based on survey results.

Fig. 4. **Distribution of answers to the survey question "When using these Sharing Economy services how important was helping the environment" depending on self-assessment (in percentages)**

Responses to the question about how people build trust using Sharing economy platforms show that reviews of other platform members and the possibility to check other members' profiles on the platform are the main ways how people do

this. Almost 90% of respondents completely likely or very likely read reviews from other members and check their profiles on the platform (see Fig. 5). This is an important message for sharing platform developers - the review system is a must for any sharing platform and requirement of members' profiles with some verification helps a lot for building trust. A review system should be sophisticated enough to avoid fake or paid reviews. Considering the very high concern for personal safety (See Fig.3) in Latvia, improvements in building trust could boost engagement in the Sharing economy. Therefore the development of a community who have common interests and mutual trust is a key for a Sharing economy. A small percentage of the population can help in developing such communities, but at the same time this is a challenge because sharing works best if there are enough service providers and customers. A study of several sharing platforms in Latvia revealed that activity is quite low and transactions take place only occasionally. A comparatively small percentage of respondents consider communicating directly with platform members.
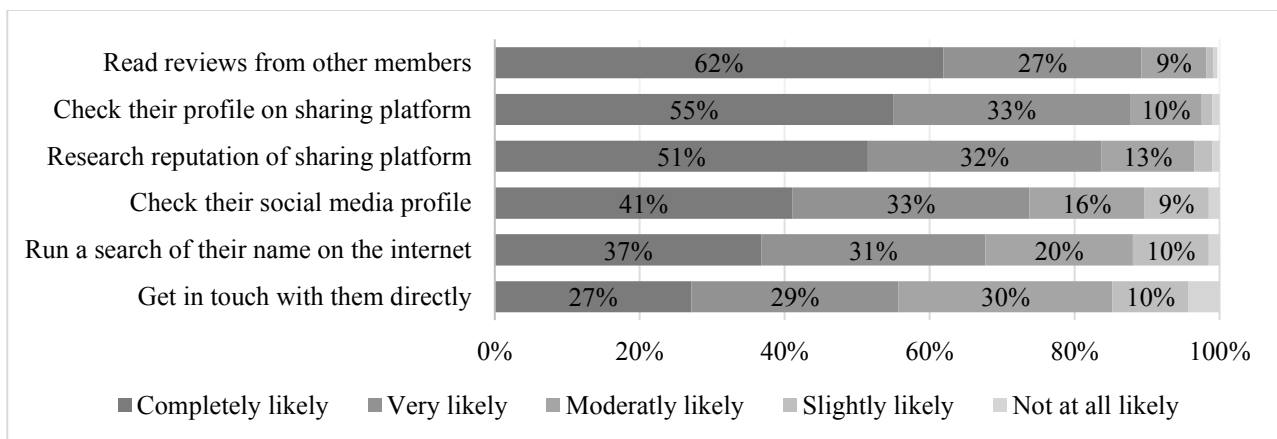
Source: author's construction based on survey results.

Fig. 5. **Answers to the survey question "How likely are you to carry out any of the following checks before engaging in a transaction with another member of a Sharing Economy platform?" (in percentages)**

Unwillingness to share and lack of understanding are the main obstacles for engaging in a Sharing economy Considerably more women (14%) than men (3%) are concerned about their personal safety (see Fig. 6). None of the respondents mentioned any difficulty signing up for sharing platforms as the main reason not to use Sharing economy services.
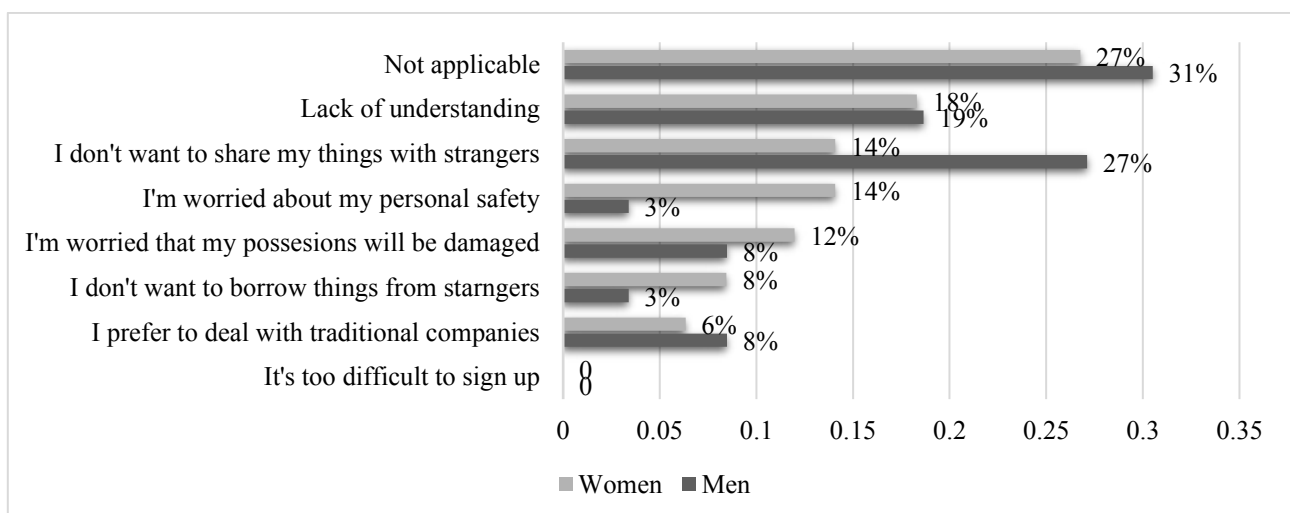
Source: author's construction based on survey results.

Fig. 6. **Answers to the survey question "Why haven't you participated in any of these Sharing Economy services?" (in percentages)**

The top reason for abandoning a sharing transaction is also lack of trust – 39% women and 32% men have terminated a transaction if they do not trust the other person (see Fig. 7). At the same time, roughly one third of respondents have never abandoned a transaction and less than one in ten respondents consider that creating an account is too difficult or takes too long. No one was unable to pass verification requirements. This could indicate that verification requirements are not difficult to pass. On one hand this is good because it allows a wide range of people to access sharing services, but on the other hand it lowers the level of trust.
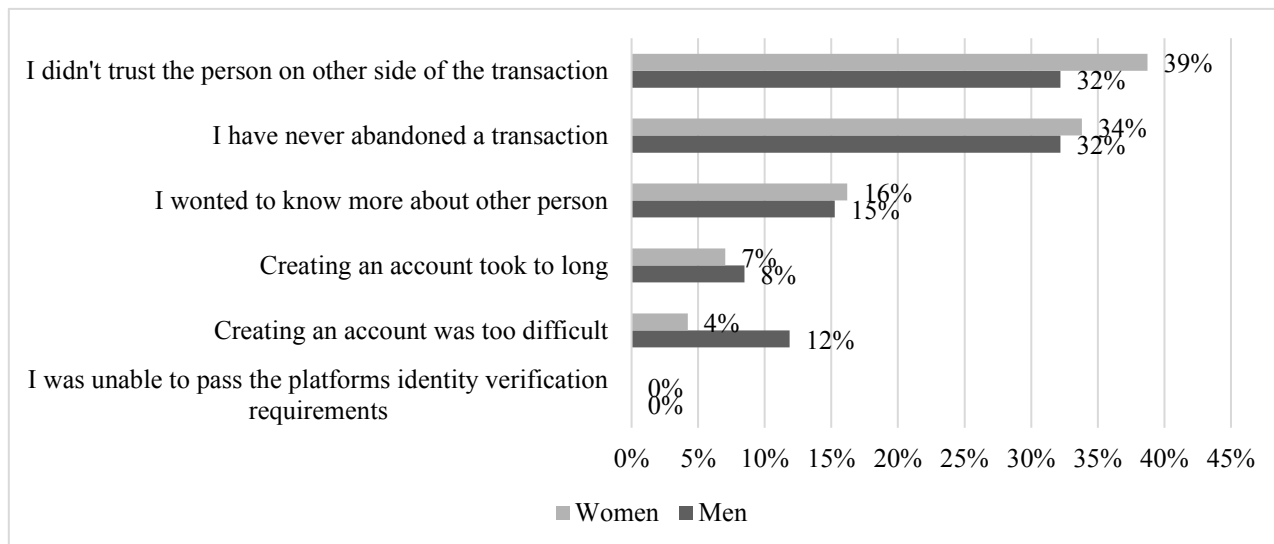
Source: author's construction based on survey results.

Fig. 7. **Answers to the survey question "In what scenarios have you abandoned a Sharing economy transaction?" (in percentages)**

The right balance between verification requirements, which select trustful sharing community members and inclusion of people, who lack access to different services, should be found. Some basic requirements should be set by legislation in order to ensure security of sharing services. For ride-sharing services, these could be validity of the driver's license, civil liability insurance class or purchase of additional insurance.

In summary, we see great potential in the development of the Sharing economy in Latvia, observing high participation rates in different sectors. Sharing is also very familiar for older generations in many post-soviet countries, because in circumstances of deficit during the planned economy period it was vital. This unwanted historical experience discourages people from sharing who finally have the opportunity to their own possessions. They do not want to share anymore. This is very understandable and therefore the main attention should be devoted engaging the younger generation who do not have this psychological barrier.

Conclusions, proposals, recommendations

Assessing Sharing economy developments globally and in Latvia we conclude the following:

1. A Sharing economy has the potential to reduce environmental impacts, but it is not a sufficient precondition for decoupling material use from increase in consumption. Increased accessibility and affordability of different services provided by Sharing economy considerably increase demand for them. If Sharing economy development is left mainly for people to save or earn more money, as it is apparent now, it will not solve resource scarcity, pollution or climate change problems.

2. Rapid development of Sharing platforms in many countries show that people increasingly accept new consumption models, learn to build trust between community members and are ready to share their personal

belongings, skills, services at least for the Millennial generation. This acceptance, especially between young people should be promoted, but together with rising awareness and understanding about environmental impacts, and putting more stress on Sharing as helping environment aspect instead of increasing availability and consumption.

3. The survey results show that in Latvia Sharing economy services in some form as service providers or receivers are used by 92% of respondents, which means that the adequate changes in legislation, insurance and business models are necessary. Development of Sharing economy requires special attention from the State revenue service- regarding just taxation; municipalities- regarding security, well-being of neighbours of shared homes, availability and affordability of long-term rents; and also from traditional businesses– adapting to a new competitive environment.

4. Building trust between the sharing community members is crucial element for development of the Sharing economy, therefore trustful review system should be important part of any sharing platform.

5. Surveys and study results will allow planning regulation and support measures for Sharing economy to ensure that existing resources can support more efficient product and service delivery, creating new sources of resilience, service speed and cost.

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INCOME INEQUALITY IN EU COUNTRIES

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Abstract. After 2004, many post transitions economies joined EU, which significantly differed in the level of development from the "old" EU countries. In literature, the concept of a two-speed Europe has become popular. Simultaneously in the global economy the gap between rich and poor countries keeps widening. Many scientific studies indicate that in the long-run increase in income inequality cause social, political and economic problems. One of the EU's priorities is to reduce disparities, for this purpose, cohesion policy is conducted.

The purpose of the research is to answer the question whether income differences between old and new Members are increasing or diminishing over the last years. In the first part of the article Author will focus on income inequity problem described in literature. In the second part EU policy that aim to reduce inequality will be presented. Then paper highlights the key statistics about income inequality from Eurostat. The research period is from 2005 to 2015. In the last part of the article Author will analyze inequality gap between EU countries using various statistical methods. To show differences in income inequalities between countries the quintile analysis will be present. Author will focus also on GINI Index. Both disproportion between EU countries and intra countries will be examined.

Research confirmed that inequity was changing with different speed and directions over all EU counties. Inequality was rising the most in Bulgaria and Cyprus. The Gini index also increased in Germany, Denmark, Sweden and Spain. On the other hand, it was decreasing in Poland, Romania, UK and Portugal. The highest growth in disposable income was noticed in Bulgaria and Romania, but those countries are still behind EU average. Moreover, difference between the country with the highest and the lowest income per capita is decreasing during research period. This research can be used by policy makers in to ensure proper policy is implemented to reduce income inequality and sustainable growth.

Key words: *Inequality, Competitiveness, Income redistribution, Comparative studies*

JEL code: D31, D63, O15, O57

Introduction

Poverty and income inequity are one of the most important socio-economic issues. Globalization and integration processes are speeding up economic growth, but in the same time income inequity is growing. Over last two decades real disposable household incomes increased, however in the same time incomes of the richest grew faster than those of the poorest, so widening income inequality. Expanding income inequalities both inside economies, and globally are important for the well-being of individuals and society, for social cohesion and the effectiveness of state policy.

The issue of income inequality is widely described in the literature. Economic inequality is the result of complex web of phenomena involving various forces. Authors indicate many reasons for this phenomenon. The most frequently appearing in the literature are geography, technology, financial and trade globalization, changes in labour market regulations and redistributive policies. Geography plays an important role as inequality driver, both between countries and regions. The country of birth or migration destination, has impact over personal income and wealth status. Country regions may be characterized by differences in productivity levels, allocation of government resources, and availability to labour market, which is especially visible between urban and rural areas (Galasso 2014). Technological changes may

cause disproportional increase for skilled labour over decrease in low-skilled labour by automation of production process (Acemoglu 1998). The high volume of trade and financial flows between countries is another driver of income inequality. The impact of trade on inequality depends on relative factor abundance and productivity differences across countries, and the extent of income from wages or capital (Dabla-Norris, et. al. 2015). Inequality may increase as countries with higher incomes have much better access to finances, which favor further increase the skill bonus and potentially return to capital (Claessens and Perotti 2007). More liberal labour market institutions can raise economic growth by reallocating resources to more productive sectors/companies. Studies of Calderon and Chong (2009) proved that labour market regulations, such as minimum wages, unionization, and social security contributions, tend to improve the income distribution. Moreover, redistributive policy seems to be less effective than in the past. There are many gaps in existing tax-and-transfer systems that are causing rising market inequality.

Many studies indicate that in the long-run increase in income inequality cause social, political and economic problems. Lazear and Rosen (1981) concluded that some degree of inequality may provide incentives for people to excel, compete, save, and invest. It is also motivation for innovation and entrepreneurship. High and sustained levels of inequality, especially inequality of opportunity can entail large social costs declining trust in institutions, weakening social cohesion, misallocation of resources, corruption, nepotism (Stiglitz 2012). Inequality could also result in poor public policy choices - protectionist pressures against globalization and market-oriented reforms (Claessens and Perotti 2007) IMF studies have found that income inequality negatively affects growth and its sustainability (Ostry, Berg, and Tsangarides 2014).

Nowadays, in the literature popular is concept of two-speed Europe. The old Member States are more developed and with higher income, while new Members are representing post-transition economies on the lower stage of development and lower incomes. One of the EU's priorities is to reduce disparities between Member States. Studies of Copeland and Daly (2014) conclude that poverty target of Europe 2020 Strategy is both ungovernable and ungoverned, due to ideational, political and governance-related weaknesses. The goal of 2020 Strategy was agreed centrally, but social politics necessary to reach this goal are different for each Member States. EU should find a credible role for itself in social policy continues.

The main research goal of this article is to answer the question whether income differences between old and new Members are increasing or diminishing over the last years. Then paper examines key statistics about income inequality from Eurostat. The research period is from 2005 to 2016, as since 2004 many developing countries joined EU. The article analyses inequality gap between EU countries using various statistical methods, inter alia quintile analysis - S80/S20 Index and8 GINI Index.

EU policy to reduce inequity

The socio-economic inequity has been increasing in Europe over the past decades and has intensified after global financial crisis. Income and wealth are the most important aspects of the socio-economic divide in Europe. Inequity pertains not only to increasing gaps between the reaches and the poorest, but also to diverging trends between EU countries. There is no one single European model of inequity, as the inequity level in each EU country is different. The Nordic and Central Eastern European countries are the most equal and have lower levels of income inequality. Western European countries are close to the European average, while the biggest disproportions are in all southern European countries, UK and Baltic States. Nevertheless inequality in Europe is generally lower than in many non-European countries, in particular the United States. In all European countries, tax and transfer policies are reducing income inequality, but some welfare systems are more effective than others (OECD, 2017).

After 2004 many developing countries joined to EU. Since then in the literature popular become the concept of a two-speed Europe. Issue was also noted by EU policymakers, who focused more on cohesion policy. Cohesion policy aim to improving the economic well-being of regions in the EU and also to avoid regional disparities. One of the main EU's documents emphasizing problem of poverty and inequity is Europe 2020 Strategy. Main goal of this policy is to make EU smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion. One of targets of Europe 2020 is to reduce number of people that are living at the risk of poverty by 20 million. Moreover, European Commission emphasized that Europe 2020 goals should be translated into national targets and trajectories. One of the initiatives appointed by the European Commotion is "European platform against poverty", which aim to guarantee social and territorial cohesion. Mission of this platform is to ensure that profits of growth are commonly shared and people facing poverty and social exclusion are able to live as an active part of society. (European Commission, 2010)

The Europe 2020 Strategy anticipated actions both on the EU and national levels. At the EU level, the Commission works on cooperation and exchange of good practice, targeted support from structural funds, implementation of social innovation programs and assessment of the adequacy and sustainability of social protection and pension systems. At the national level, the Member States should focus on promoting shared collective and individual responsibility in opposing poverty and social exclusion, implementation of state support to groups at particular risk and deployment of their social security and pension systems to ensure adequate income support and access to health care. (European Commission, 2010)

The EU policy and targets are widely criticized. Market-income inequalities are growing and that growth will be more difficult to neutralize by redistribution. Europe 2020 targets are assessed generally weak as they do not provide a legally binding framework for the Member States. Firstly, individual Member states are operationalizing their own poverty targets, which does not add up to the aggregate European target. Secondly, policy actions are left to the national actions of Member States, which are different in each country. Poverty is not mentioned in the policy making at the European level. The expectations for future trends are a continued increase in the inequality of market incomes. To prevent this from happening economic inequality shall take center stage in European policy making. (Salverda, 2015)

Inequity gap between EU countries

The EU at the time of writing this article has 28 Member States. In 2004 ten new Members joined the EU: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovenia and Slovakia. In January 2007 Bulgaria and Romania joined EU and in 2013 Croatia. Currently there are 15 old Member states and 13 new joiners. Malta and Croatia are not included into analysis due to lack of homogeneous data. The Eurostat database is main source of data. The research period is 2004-2015, due to lack of the newest data for all countries.

Table 1

Adjusted gross disposable income of households per capita in EU

Country	2004	2015	2015/2004 % change	2015/2004 net change	2004 % of EU28 average	2015 % of EU28 average
EU (28 countries)	17 239	21 901	1.27	4 662	100%	100%
Old Members (15 countries)	19 202	23 252	1.21	4 050	111%	106%
New Members (11 countries)	9 571	14 999	1.57	5 427	56%	68%
Gap between old and new Members	9 631	8 253	0.86	-1 377	-	-
Belgium	19 611	24 775	1.26	5 164	114%	113%

Country	2004	2015	2015/2004 % change	2015/2004 net change	2004 % of EU28 average	2015 % of EU28 average
Bulgaria	5 328	10 285	1.93	4 957	31%	47%
Czech Republic	11 962	17 165	1.43	5 203	69%	78%
Denmark	16 917	23 826	1.41	6 909	98%	109%
Germany	21 401	27 926	1.3	6 525	124%	128%
Estonia	8 064	15 289	1.9	7 225	47%	70%
Ireland	18 003	19 877	1.1	1 874	104%	91%
Greece	16 655	15 062	0.9	-1 593	97%	69%
Spain	16 804	18 986	1.13	2 182	97%	87%
France	20 080	25 104	1.25	5 024	116%	115%
Italy	19 337	21 384	1.11	2 047	112%	98%
Cyprus	15 552	17 046	1.1	1 494	90%	78%
Latvia	7 557	13 097	1.73	5 540	44%	60%
Lithuania	9 348	16 457	1.76	7 109	54%	75%
Luxembourg	28 204	32 106	1.14	3 902	164%	147%
Hungary	10 298	13 551	1.32	3 253	60%	62%
Netherlands	20 361	23 854	1.17	3 493	118%	109%
Austria	21 118	26 684	1.26	5 566	123%	122%
Poland	8 846	15 108	1.71	6 262	51%	69%
Portugal	14 576	17 078	1.17	2 502	85%	78%
Romania	5 233	13 645	2.61	8 412	30%	62%
Slovenia	13 803	16 924	1.23	3 121	80%	77%
Slovakia	9 291	16 417	1.77	7 126	54%	75%
Finland	17 031	24 334	1.43	7 303	99%	111%
Sweden	17 684	24 509	1.39	6 825	103%	112%
United Kingdom	20 245	23 272	1.15	3 027	117%	106%

Source: author's calculations based on Eurostat Database

The research confirmed that disposable income was changing with different speed and directions in all EU counties. The highest percentage growth in disposable income was noted in Romania, Bulgaria and Estonia. In terms of net increase the highest was noted in Romania, Finland and Estonia. The only decrease in income during research period was in Greece. All new Member States are still behind EU average, but also some of the old Members are not reaching average income. In 2004, the average income for new Members was 56% of EU average, in 2015 this increased to 68%. Moreover, the difference between Luxemburg - the country with the highest income and Bulgaria – the lowest income per capita decreased during research period. The gap in income between new and old Members is reducing each year, but at the same time income of the old Member States is increasing. Positive is fact, that both percentage and net increase for new EU states are higher than for old ones. However, even if growth of income of new Members is higher, it will take many years to catch up.

Table 2

Gini coefficient of equivalized disposable income – EU (scale from 0 to 100)

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
European Union27	30.6	30.3	30.6	31.0	30.6	30.5	30.8	30.5	30.5	31.0	31.0	30.8
Belgium	28.0	27.8	26.3	27.5	26.4	26.6	26.3	26.5	25.9	25.9	26.2	26.3
Bulgaria	-	31.2	35.3	35.9	33.4	33.2	35.0	33.6	35.4	35.4	37.0	38.3
Czech Republic	26.0	25.3	25.3	24.7	25.1	24.9	25.2	24.9	24.6	25.1	25.0	25.1
Denmark	23.9	23.7	25.2	25.1	26.9	26.9	26.6	26.5	26.8	27.7	27.4	27.7
Germany	26.1	26.8	30.4	30.2	29.1	29.3	29.0	28.3	29.7	30.7	30.1	29.5
Estonia	34.1	33.1	33.4	30.9	31.4	31.3	31.9	32.5	32.9	35.6	34.8	32.7

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ireland	31.9	31.9	31.3	29.9	28.8	30.7	29.8	30.5	30.7	31.1	29.8	29.5
Greece	33.2	34.3	34.3	33.4	33.1	32.9	33.5	34.3	34.4	34.5	34.2	34.3
Spain	32.2	31.9	31.9	32.4	32.9	33.5	34.0	34.2	33.7	34.7	34.6	34.5
France	27.7	27.3	26.6	29.8	29.9	29.8	30.8	30.5	30.1	29.2	29.2	29.3
Italy	32.7	32.1	32.0	31.2	31.8	31.7	32.5	32.4	32.8	32.4	32.4	33.1
Cyprus	28.7	28.8	29.8	29.0	29.5	30.1	29.2	31.0	32.4	34.8	33.6	32.1
Latvia	36.2	38.9	35.4	37.5	37.5	35.9	35.1	35.7	35.2	35.5	35.4	34.5
Lithuania	36.3	35.0	33.8	34.5	35.9	37.0	33.0	32.0	34.6	35.0	37.9	37.0
Luxembourg	26.5	27.8	27.4	27.7	29.2	27.9	27.2	28.0	30.4	28.7	28.5	31.0
Hungary	27.6	33.3	25.6	25.2	24.7	24.1	26.9	27.2	28.3	28.6	28.2	28.2
Netherlands	26.9	26.4	27.6	27.6	27.2	25.5	25.8	25.4	25.1	26.2	26.7	26.9
Austria	26.3	25.3	26.2	27.7	27.5	28.3	27.4	27.6	27.0	27.6	27.2	27.2
Poland	35.6	33.3	32.2	32.0	31.4	31.1	31.1	30.9	30.7	30.8	30.6	29.8
Portugal	38.1	37.7	36.8	35.8	35.4	33.7	34.2	34.5	34.2	34.5	34.0	33.9
Romania	-	-	38.3	35.9	34.5	33.5	33.5	34.0	34.6	35.0	37.4	34.7
Slovenia	23.8	23.7	23.2	23.4	22.7	23.8	23.8	23.7	24.4	25.0	24.5	24.4
Slovakia	26.2	28.1	24.5	23.7	24.8	25.9	25.7	25.3	24.2	26.1	23.7	24.3
Finland	26.0	25.9	26.2	26.3	25.9	25.4	25.8	25.9	25.4	25.6	25.2	25.4
Sweden	23.4	24.0	23.4	25.1	26.3	25.5	26.0	26.0	26.0	26.9	26.7	27.6
United Kingdom	34.6	32.5	32.6	33.9	32.4	32.9	33.0	31.3	30.2	31.6	32.4	31.5

Source: author's calculations based on Eurostat Database

As generally income increased in EU countries, there are also different trends within income distribution. Income inequality was generally lower one generation ago. In European countries, the Gini coefficient increased on average from 28 in the 1980s to 31 in 2016, where Gini coefficient of 0 expresses perfect equality and equal 100 expresses maximal inequality among values. There are different trends across EU countries. Countries with the highest income inequity in 2016 were Lithuania, Romania from new Members and Greece and Spain from old Members. The most egalitarian societies are in the Czech Republic and Slovakia from new joiners and Finland from old Members. Inequality was rising the most in Bulgaria (from 31.2 in 2007 to 38.3 in 2016) and Cyprus (from 28.7 in 2006 to 32.1 in 2016). The Gini index also increased in Luxemburg, Germany, France and Spain. Inequality enlarged not only in countries with highly unequal incomes, but also in traditionally more egalitarian countries, such as Sweden and Denmark. On the other hand, GINI was decreasing in some new Member States as Poland, Romania, Slovakia, Latvia, Estonia. Index also decreased significantly in UK and Portugal.

Table 3

Income quintile share ratio

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU (27 countries)	4.9	5	5	4.9	4.9	5	5	5	5.2	5.2	5.2
Belgium	4.2	3.9	4.1	3.9	3.9	3.9	4	3.8	3.8	3.8	3.8
Bulgaria	5.1	7	6.5	5.9	5.9	6.5	6.1	6.6	6.8	7.1	7.9
Czech Republic	3.5	3.5	3.4	3.5	3.5	3.5	3.5	3.4	3.5	3.5	3.5
Denmark	3.4	3.7	3.6	4.6	4.4	4	3.9	4	4.1	4.1	4.1
Germany	4.1	4.9	4.8	4.5	4.5	4.5	4.3	4.6	5.1	4.8	4.6
Estonia	5.5	5.5	5	5	5	5.3	5.4	5.5	6.5	6.2	5.6
Ireland	4.9	4.8	4.4	4.2	4.7	4.6	4.8	4.7	4.9	4.5	4.4
Greece	6.1	6	5.9	5.8	5.6	6	6.6	6.6	6.5	6.5	6.6
Spain	5.5	5.5	5.6	5.9	6.2	6.3	6.5	6.3	6.8	6.9	6.6
France	4	3.9	4.4	4.4	4.4	4.6	4.5	4.5	4.3	4.3	4.3

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Italy	5.4	5.4	5.2	5.3	5.4	5.7	5.6	5.8	5.8	5.8	6.3
Cyprus	4.3	4.4	4.3	4.4	4.5	4.3	4.7	4.9	5.4	5.2	4.9
Latvia	7.8	6.4	7.3	7.4	6.8	6.5	6.5	6.3	6.5	6.5	6.2
Lithuania	6.3	5.9	6.1	6.4	7.3	5.8	5.3	6.1	6.1	7.5	7.1
Luxembourg	4.2	4	4.1	4.3	4.1	4	4.1	4.6	4.4	4.3	5
Hungary	5.5	3.7	3.6	3.5	3.4	3.9	4	4.3	4.3	4.3	4.3
Netherlands	3.8	4	4	4	3.7	3.8	3.6	3.6	3.8	3.8	3.9
Austria	3.7	3.8	4.2	4.2	4.3	4.1	4.2	4.1	4.1	4	4.1
Poland	5.6	5.3	5.1	5	5	5	4.9	4.9	4.9	4.9	4.8
Portugal	6.7	6.5	6.1	6	5.6	5.7	5.8	6	6.2	6	5.9
Romania	-	8.1	7	6.5	6.1	6.2	6.6	6.8	7.2	8.3	7.2
Slovenia	3.4	3.3	3.4	3.2	3.4	3.5	3.4	3.6	3.7	3.6	3.6
Slovakia	4.1	3.5	3.4	3.6	3.8	3.8	3.7	3.6	3.9	3.5	3.6
Finland	3.6	3.7	3.8	3.7	3.6	3.7	3.7	3.6	3.6	3.6	3.6
Sweden	3.6	3.3	3.7	4	3.8	4	4	4	4.2	4.1	4.3
United Kingdom	5.4	5.3	5.6	5.3	5.4	5.3	5	4.6	5.1	5.2	5.1

Source: author's calculations based on Eurostat Database

Another indicator for income inequity is quintile share ratio (called also S80/S20 ratio), which measures ratio of total income received by the 20% of the population with the highest income (the top quintile) to income received by the 20% of the population with the lowest income (the bottom quintile). In 2016 there were wide inequalities in the distribution of income highest quintile received 5.2 times as much income as the bottom quintile. This disproportion increased since 2006. S80/S20 ratio varied significantly across the Member States, from 3.5-3.6 in Czech Republic, Slovenia, Slovakia and Finland, to 7.1 in Lithuania, 7.2 in Romania, peaking at 7.9 in Bulgaria. For research period 2005-2016 this ratio decreased the most in Latvia and Hungary and the highest increased was noticed in Bulgaria and Spain.

Table 4

People at risk of poverty before and after social transfers (%)

	At-risk-of poverty BEFORE social transfers (%)		At-risk-of poverty AFTER social transfers (%)		Social transfer impact (%)	
Country/year	2006	2016	2006	2016	2006	2016
EU (28 countries)	26.1*	25.9	16.5*	17.3	-0.37	-0.33
Belgium	26.8	26.3	14.7	15.5	-0.45	-0.41
Bulgaria	24.7	27.9	18.4	22.9	-0.26	-0.18
Czech Republic	21.6	16.3	9.9	9.7	-0.54	-0.40
Denmark	28.0	24.9	11.7	11.9	-0.58	-0.52
Germany	25.7	25.3	12.5	16.5	-0.51	-0.35
Estonia	24.6	28.9	18.3	21.7	-0.26	-0.25
Ireland	32.8	34.7	18.5	16.6	-0.44	-0.52
Greece	23.4	25.2	20.5	21.2	-0.12	-0.16
Spain	24.6	29.5	20.3	22.3	-0.17	-0.24
France	24.9	23.6	13.2	13.6	-0.47	-0.42
Croatia	30*	27.3	20.6*	19.5	-0.31	-0.29
Italy	23.7	26.2	19.3	20.6	-0.19	-0.21
Cyprus	21.6	25.0	15.6	16.1	-0.28	-0.36
Latvia	28.0	27.8	23.5	21.8	-0.16	-0.22
Lithuania	26.6	27.9	20.0	21.9	-0.25	-0.22
Luxembourg	23.6	27.1	14.1	16.5	-0.40	-0.39
Hungary	29.6	25.8	15.9	14.5	-0.46	-0.44
Malta	21.3	23.8	14.2	16.5	-0.33	-0.31

	At-risk-of poverty BEFORE social transfers (%)		At-risk-of poverty AFTER social transfers (%)		Social transfer impact (%)	
Netherlands	21.0	22.1	9.7	12.7	-0.54	-0.43
Austria	25.1	26.3	12.6	14.1	-0.50	-0.46
Poland	28.6	22.9	19.1	17.3	-0.33	-0.24
Portugal	25.1	25.0	18.5	19.0	-0.26	-0.24
Romania	31.5*	29.5	24.6*	25.3	-0.23	-0.14
Slovenia	24.2	24.3	11.6	13.9	-0.52	-0.43
Slovakia	20.0	18.4	11.6	12.7	-0.42	-0.31
Finland	28.6	27.0	12.6	11.6	-0.56	-0.57
Sweden	29.0	29.9	12.3	16.2	-0.58	-0.46
United Kingdom	30.1	28.1	19.0	15.9	-0.37	-0.43

* data from previous period

Source: author's calculations based on Eurostat Database

Poverty is inextricably linked to the phenomenon of income inequality. Economic inequality is particularly significant for estimating relative poverty because the distribution of economic resources may have a direct impact on the extent and depth of poverty. The at-risk-of-poverty threshold is set at 60 % of national median equivalized disposable income. The at-risk-of-poverty rate after social transfers in the EU-28 slightly increased from 16.5 % to 17.3 %. This is caused by accession of Romania and Bulgaria, where poverty rate is quite significant. The rate for the EU-28, calculated as a weighted average of national results, which is not showing differences across the EU Member States. In eight Member States, namely Romania (25.3 %), Bulgaria (22.9 %), Spain (22.3%), Lithuania (21.9 %), Latvia (21.8 %), Estonia (21.7 %), Greece (21.2 %) and Italy (20.6 %), one fifth or more of the population was being at-risk-of-poverty. Among the Member States, the lowest rate of people at-risk-of-poverty were observed in the Czech Republic (9.7 %), Finland (11.6 %) and Denmark (11.6 %). Efficiency of social protection can be assessed by comparing at-risk-of-poverty indicators before and after social transfers. In 2016, social transfers reduced the at-risk-of-poverty rate for EU28 from 25.9 % before transfers to 17.3 % after transfers, thereby lifting 8.8 % of the EU28 population above the poverty threshold. Social transfer impact was the lowest in 2016 for Bulgaria (-5%), Romania (-4.2%) and Greece (-4%). The most effective social policy was noted in Ireland, Finland and Denmark, where more than half all persons who were at-risk-of-poverty moved above the threshold.

Conclusions

This study aims to verify if income differences between old and new Members States of European Union are increasing or diminishing over the last years. Based on literature review and conducted research, the author makes the following conclusions and recommendations:

1. Poverty and income inequity are important socio-economic issues. Generally, income growth has been gaining momentum thanks to globalization and integration processes, but at the same time there are growing social inequalities. Economic inequality is the result of various factors. The most popular in economic literature are geography, technology, financial and trade globalization, changes in labour market regulations and redistributive policies.

2. Inequity is one of the most important issues highlighted by EU. Reducing social inequalities is the goal of cohesion policy and the Europe 2020 Strategy. However, the EU legislation do not provide a legally binding framework for the Member States. Social and redistribution policy actions are agreed on national level and are different in each country. More actions are needed on the EU level in order to achieve the objectives of social policy.

3. Research confirmed that inequity was changing with different speed and directions over all EU counties. There is no one single European model of inequity, as the inequity level in each EU country is different.

4. All new Member states are still behind EU average in adjusted gross disposable income of households per capita. The gap in income between new and old Members is reducing each year, however in the same time income of old Member States is increasing. Both percentage growth and net increase for new EU States are higher than for old ones. Nevertheless, it will take many years to catch up in terms of income.

5. As generally income increased in EU countries, there are also different trends within income distribution. Among new Member States are countries with the highest income inequity measured by GINI index, as Lithuania and Romania, and the most egalitarian societies as the Czech Republic and Slovakia. Also, in terms of S80/S20 ratio it is the lowest in the Czech Republic, Slovenia, Slovakia and Finland, and the highest in Lithuania, Romania and Bulgaria. Romania and Bulgaria are also the countries with the highest poverty rate.

6. In all European countries, tax and transfer policies are reducing income inequality, but some welfare systems are more effective than others. Social transfer policy is the most effective in Ireland, Finland and Denmark, where more than half all persons who were at-risk-of-poverty moved above the threshold. Romani, Bulgaria an Greece are the countries, which need the most changes in redistribution and social policy.

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INVESTMENT ATTRACTIVENESS OF CENTRAL AND EASTERN EUROPEAN COUNTRIES: THE ROLE OF INSTITUTIONAL QUALITY

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Abstract. There is a long list of location-specific attributes which impact foreign direct investment (FDI) inflow. Independent variables include, inter alia, economic and social stability, taxes, institutions, size of the host market, cost of labour, the availability and quality of infrastructure, political risk and many others. In our article, we want to focus on the institutional aspects and their role in attracting FDI. Hence, the objective of the paper is to assess the relationship between institutional efficiency (both public and private) in Central and Eastern European Countries (CEECs) and FDI stock.

We employed variables used in the leading global investment attractiveness ranking (Global Competitiveness Index by World Economic Forum). As the measures of institutional efficiency, we used several detailed and overall indicators from rankings focusing on, e.g., intellectual property protection, diversion of public funds, favouritism in decisions of government officials, transparency of government policymaking or the strength of investor protection. To examine the relationship we used statistical methods, such as Spearman's rank correlation and Pearson correlation.

This study is structured as follows. First, it explores the existing literature on factors of investment attractiveness paying special attention to the importance of institutional efficiency. Then, we discuss institutional efficiency in the CEECs, based on the results of selected international rankings. The final part examines the correlation between individual institutional efficiency indices and the stock of foreign direct investment. Detailed results of our analyses are presented in the final part of the study. At the end we present conclusions.

Key words: *FDI, Institutions, CEECs, investment attractiveness*

JEL code: F21, F23

Introduction

The institutional environment is one of the factors of paramount importance for a country's FDI attractiveness. Its relevance has been realised for quite a long time; however, it was not until the 1990s that FDI researchers began to attach greater importance to it (Bailey, 2018; Daniele, Marani, 2006; Bénassy-Quéré, Coupet, Mayer, 2005). There are some reasons why the quality of institutions does matter to foreign investors. Firstly, according to the institutional theory, enterprises operate in a complex and unstable environment, which is why their decisions are largely based on the performance of institutions that impact the development of the investment environment (Francis, Zheng, Mukherji, 2009). Policymakers can influence capital structure and investment decisions, and thus the cost of capital and firm value, by controlling corruption, adopting quality regulations and ensuring the rule of law. Secondly, since policymakers may impact the capital structure of firms, by the same token they may determine the quality of corporate governance at company level (Lemma Negash, 2013). Finally, and most importantly, the presence of a high-quality institutional setting tends to add more credibility and security to MNEs, which translates into lower investment transaction costs (sunk costs included) (Daniele, Marani, 2006).

Thus, we may argue that researchers agree that institutions (whether regional, national or sub-national) shape the nature of business by providing the framework of opportunities and constraints within which economic activity takes

place (Nielsen, Asmussen, Weatherall, 2017), which implies that the quality of the host country institutions should impact FDI location decisions.

Acemoglu, Johnson and Robinson (2004) stress that, in most instances, countries where the quality of institutions is high (by which we understand effective rule of law, good business climate, more secure property rights and market-friendly social norms) are better positioned to attract investment and participate in trade, resulting in better growth performance over the long run. In turn, Hausmann and Fernández-Arias (2000) suggest that countries representing "lower" institutional quality paradoxically attract more foreign capital because there are investors who prefer doing business in a more complex investment environment because the cost of entering such markets is lower compared to other economies. According to Levchenko (2004), institutional differences between countries may thus be a source of comparative advantages. It implies that some sectors are more "institution-intensive" than others, and that this could be a source of more trade or investment flows.

Therefore, apparently, the importance of institutions in attracting FDI is an issue of high relevance. At the same time, we need to bear in mind that changing the governance framework is extremely difficult. Kaufman, Kraay, and Mastruzzi (2005) estimate that over the eight-year period from 1996 to 2004, only about 5–7 % of the 200-plus countries in their database experienced a substantial change (for better or worse) in governance. Hence, if this is an important determinant of attracting FDI, it will be decisive for the size of FDI inflows over a long–term. On top of that, many researchers (Jude, Levieuge, 2015; Busse, Hefeker, 2007; Ali, Fiess, McDonald, 2010) believe that institutions have the power to impact not only the quantity, but also the quality of FDI. That is because foreign companies are non-homogeneous and produce different knowledge-spillover effects. Therefore, poor institutional quality is likely to attract low-technology, resource-exploiting FDI which offers limited growth potential (Jude, Levieuge, 2015).

The majority of the publications on relationships between institutions and FDI flows focus on the institutions in the host country (Bonni, Quan, Meenakshi, 2012; Mohamed, Sidiropulos, 2010; Daude, Stein, 2007; Globerman, Shapiro, 2003). Nevertheless, we may also come across publications addressing the impact of institutional quality upon OFDI (Klimek, 2015; Wang et. al., 2014; Kolstad, Wiig, 2012), which examine whether a better institutional framework might reduce undesirable outflows of capital and if the quality of those institutions may impact FDI effectiveness in host countries. Moreover, we need to observe that most researchers focus on the level of FDI; however some, like Buchanan, Le and Rishi (2012), also postulate research studies in the area of the volatility of FDI inflows.

The relationship between institutional quality and FDI inflows is illustrated by many factors, such as democratic institutions and political stability (e.g. Jensen 2008; Busse, 2004), corruption (e.g. Habib, Zurawicki, 2010, Al-Sadig, 2009; Globerman, Shapiro, 2003), tax policies (Feld, Heckemeyer, 2008; Bénassy-Quéré, Fontagné, Lahrèche-Révil, 2003), property rights (Tanaka, Iwasako, 2014; Khan, Samad, 2010), or security (Essien et al., 2015; Stoian, Vickerman, 2005). Due to the multiplicity of factors that shape the abovementioned institutional quality, the literature on its impact upon FDI can be divided into three strands (Kurul, Yalta, 2017). The first one focuses mainly on identifying the effects of a specific institutional dimension, such as corruption or the political regime on FDI. The second one analyses the importance of different dimensions of institutional quality. Finally, the third one explores the effect of a composite institutional indicator, which is constructed by combining different dimensions of institutional variables.

Empirical results are vague, because it is hard to measure institutional factors. The reason may be that various researchers use different measures of institutional quality and look at different types of data (investing firms versus aggregate FDI inflows) (Walsh, Yu, 2010) or differently define individual factors of institutional quality. As Ali, Fiess and MacDonald (2008) rightfully observe, measurement problems also emerge when a single factor is used to capture a broad, complex phenomenon such as institutions. Foreign investors are likely to base their investment decisions on overall

institutional quality rather than on a single institutional aspect such as political stability or corruption. By using only one indicator in the analyses, we most likely to underestimate the role of institutions in determining FDI inflows.

The majority of studies find inward FDI to be significantly influenced by the quality of institutional variables (Daude, Stein, 2007; Pournarakis, Varsakelis, 2002; Fabry et al., 2006). However, there are researchers (e.g., Akçay, 2001) who did not observe any clear relationship between institutions and the FDI. Some authors argue that political stability, corruption and crime rates impact FDI more than any other institutional factor (Tuman, Emmert, 2009). Others claim that political stability has little potential to attract investments (Egger, Winner, 2005; Jaspersen, Aylward, Knox, 2000), and some have observed a positive relationship between corruption and the inflow of FDI (Egger, Winner, 2005).

For our study, we selected 17 countries of Central and Eastern Europe (CEE). The term Central and Eastern Europe and its geographical scope are defined in many sorts of ways in the existing literature (Bański, 2008; Ostergren, Rice, 2004; Halecki, 1994). For the needs of this publication, we adopted the most commonly recognised scope of the region, which includes the Visegrad Group countries (Poland, the Czech Republic, Slovakia, and Hungary), the Baltic States (Lithuania, Latvia, and Estonia), countries of the former Yugoslavia (Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia), Romania, Bulgaria, Albania, and Ukraine. In selecting the countries, we were guided by three criteria applied in conjunction: firstly, by their geographical location; secondly, by political convergence with European and Transatlantic structures; and thirdly, by an ongoing or recently completed economic transformation. For that reason, countries such as, e.g., Austria, Switzerland or Belarus were not considered, while Kosovo is not included in the Global Competitiveness Index ranking. We analysed several dozen variables that reflect the efficiency of their institutional setup. By correlating these variables with FDI stock, we will be able to assess not only if but, first and foremost, which institutional factors may determine the investment attractiveness of countries.

1. FDI in Central and Eastern European countries

Central and Eastern Europe is often seen by investors as one entity even though the countries of the region very much differ with respect to their ability to attract FDI (fig.1). Poland, the Czech Republic, and Hungary are the most effective in successfully competing for foreign investors. In 2016, the total value of the FDI inward stock exceeded the value of FDI stock in all the other countries covered by the study taken together (ca. USD 380 bn compared to USD 342 bn).
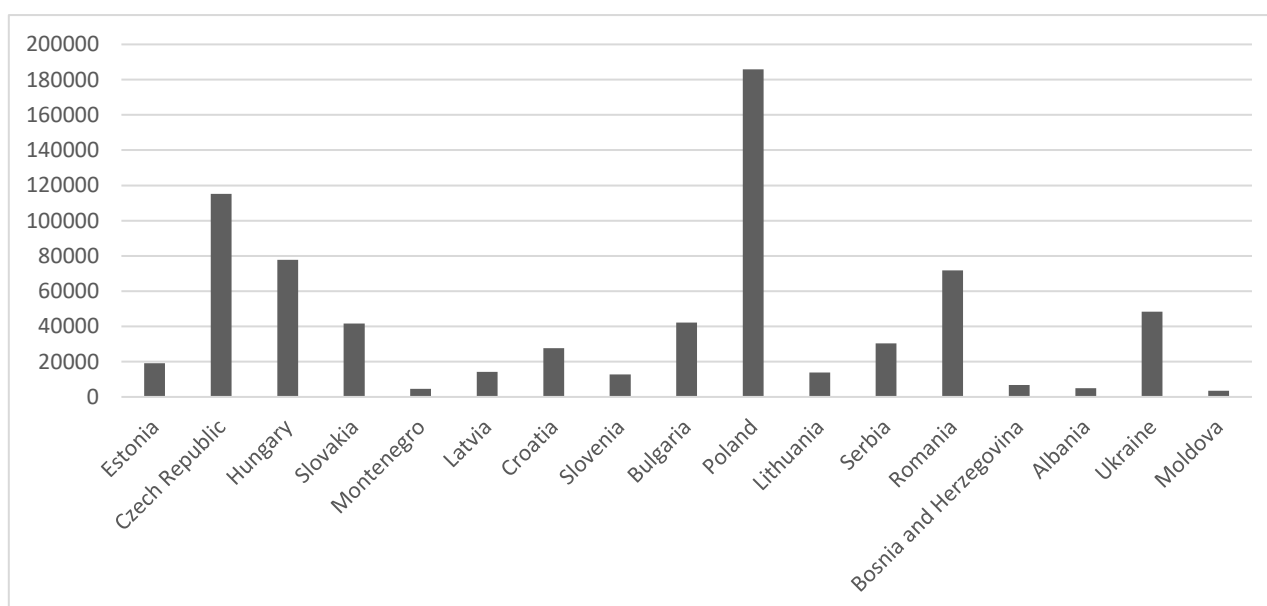
Source: World Investment Report, UCTAD, 2017.

Fig. 1. **FDI inward stock in 2016 (in millions of USD)**

However, the examined values look different when we take account of the FDI inward stock per capita indicator (fig. 2). Then we find out that Estonia (USD 14.6 k) and the Czech Republic (USD 10.9 k) attracted the most foreign capital. Hungary, in third position, managed to attract the equivalent of half of the Estonian FDI (USD 7.9 k), which is comparable to the accomplishments of Slovakia (USD 7.7 k), Montenegro (USD 7.5 k), and Latvia (USD 7.3 k). In this ranking Poland occupies the 10th position (USD 4.9 k). The least developed countries of the region, which embarked on the road of market transformations later, are the poorest performers when it comes to the FDI inward stock per capita. We mean here Moldova, Ukraine, and Albania but also Bosnia and Herzegovina. In total, within the period covered by the study, these countries attracted FDI worth USD 5.8 k.
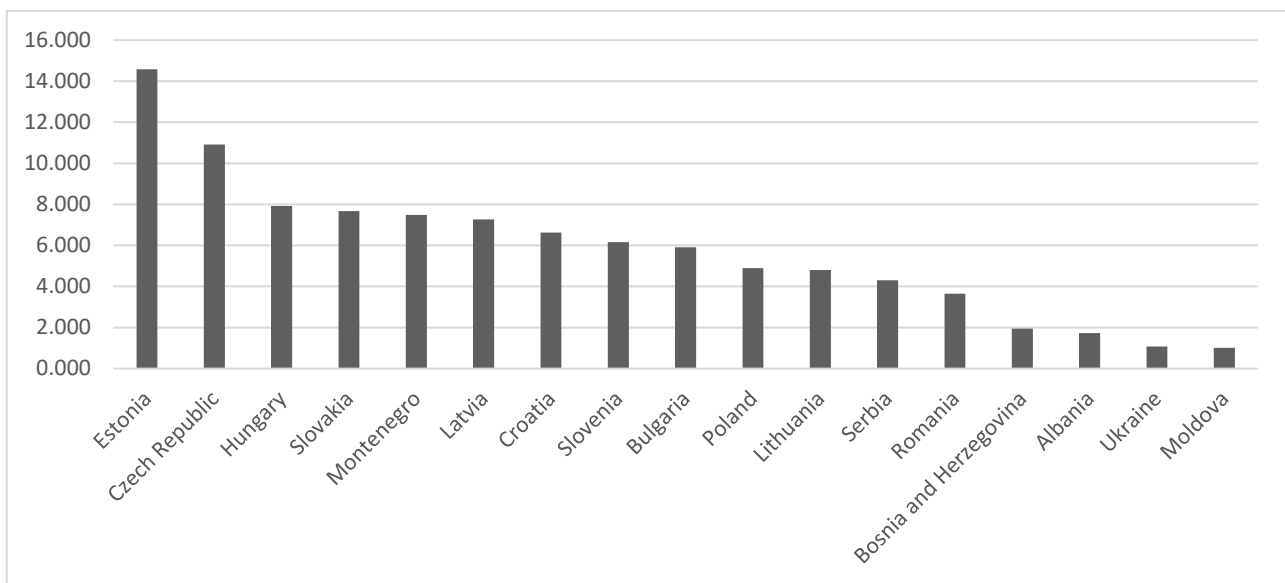
Source: World Investment Report, UCTAD, 2017.

Fig. 2. **FDI inward stock per capita in 2016 (in USD)**

2. Institutional quality assessment in CEE countries based on the Global Competitiveness Index

Institutional performance of Central and East European countries was assessed based on the Global Competitiveness Index (GCI). It has regularly been published by the World Economic Forum since 1979. The GCI started with only one ranking, the Competitiveness Index, prepared under the supervision of Jeffrey Sachs and designed to identify the foundations of medium and long-term rapid economic growth. Then, it gradually expanded with new indices. Some of them come from results of surveys conducted amongst thousands of corporate managers from almost all countries included in the analysis (137 countries in the latest edition 2017-2018). This latest edition features only 6 countries of Central and Eastern Europe in the top 50: Estonia is the highest ranked, in 29th place, followed by the Czech Republic (31), and Poland (39), which scored 4.8, 4.8, and 4.6, respectively, on a scale from 1 to 7 (with 7 being the highest score).

The GCI presents the results in three main categories (subindexes) (basic requirements, efficiency enhancers, and innovation and sophistication factors), which address twelve policy domains (pillars). Each pillar is built of at least several detailed indices. Final assessment of a given economy is thus a derivative of over 100 different indicators. For our paper, we selected indices from the first pillar *Institutions*, which consists of two parts *Public Institutions* and *Private Institutions* (fig. 3).

Part I (public institutions) brings together 5 categories and 16 detailed indices. They help assess the institutional system of a given country from the point of view of, inter alia, the enforcement of property rights, public institutions' interference in the economy, efficiency and transparency in the public sector, and security. Part II (private institutions) embraces 2 categories and 5 detailed indices, which provide the assessment of, inter alia, corporate ethics and governance standards. The set of all these detailed indices within the scope of the first pillar enables us to assess and compare the quality of the institutional set-up in the surveyed countries both quantitatively (index) and order-wise (ranking position). Hence, in the study, we used the Pearson linear correlation coefficient and the Spearman rank correlation coefficient.
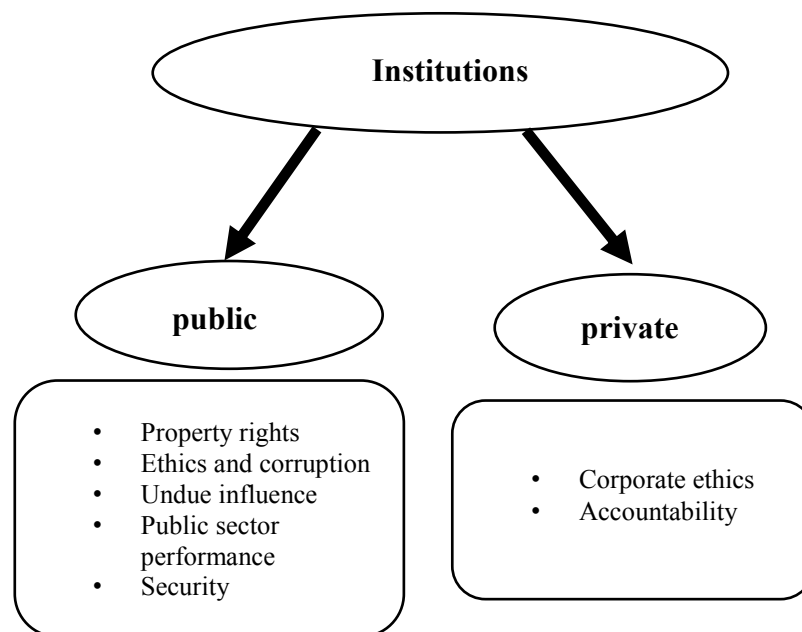
Source: author's own elaboration based on GCI.

Fig. 3. **Key subcategories in the pillar Institutions**

In the reports of the World Economic Forum (Tab. 1) institutions in the CEE countries score quite differently. When it comes to their performance, Estonia is the undisputed leader (1st ranking position among all the surveyed countries and 24th globally), followed by the Czech Republic (2nd and 52nd respectively), Lithuania (3rd and 53rd), and Slovenia (4th and 56th). Institutions in Bosnia and Herzegovina (17th and 126th), Moldova (16th and 119th), and Ukraine (15th and 118th) are considered the worst performers. In twelve countries in the region, private institutions performed better than the public ones, which is especially evident in the case of Albania, Poland, and Bulgaria.

Table 1

Competitiveness ranking – public and private institutions (ranking positions amongst 137 countries)

Country	Institutions	Public Institutions	Private Institutions
Estonia	**24**	22	29
Czech Republic	**52**	54	41
Lithuania	**53**	57	44
Slovenia	**56**	60	55
Montenegro	**66**	69	68
Albania	**68**	78	49
Poland	**72**	80	53
Latvia	**82**	81	76
Romania	**86**	85	94

Country	Institutions	Public Institutions	Private Institutions
Slovakia	**93**	99	78
Bulgaria	**98**	107	69
Hungary	**101**	97	114
Croatia	**102**	104	89
Serbia	**104**	103	108
Ukraine	**118**	117	109
Moldova	**119**	118	113
Bosnia and Herzegovina	**126**	122	129

Source: own compilation based on the GCI 2017-2018, World Economic Forum.

Detailed analysis of individual subcategories of public institutions also reveals substantial differences among the countries (Tab. 2). Again, Estonia clearly outperformed other CEE countries in all the surveyed subcategories: property rights, ethics and corruption, undue influence, public sector performance, and security. Property rights are well enforced also in the Czech Republic, Slovenia, and Romania. In turn, Lithuania, Slovenia, and Montenegro scored best for the ethics and corruption subcategory. Compared to other economies globally, the CEE countries clearly underperform in undue influence and public sector performance, where most of them occupy ranking positions that are above 100. Surprisingly, security scored rather well, as all the examined Central and Eastern European Countries (CEECs) (with the exception of Bulgaria and Montenegro) ranked higher in this subcategory than in the overall category of public institutions.

Table 2

Competitiveness ranking – public institutions, subcategories (ranking positions amongst 137 countries)

Country	Public Institutions	Property rights	Ethics and corruption	Undue influence	Public-sector performance	Security
Estonia	22	26	28	22	32	12
Czech Republic	54	44	71	63	100	22
Lithuania	57	62	53	61	87	42
Slovenia	60	54	61	83	102	25
Montenegro	69	93	62	73	59	78
Albania	78	111	70	107	51	61
Poland	80	80	65	94	106	68
Latvia	81	81	78	91	117	39
Romania	85	55	91	90	116	64
Hungary	97	116	93	120	118	46
Slovakia	99	72	102	128	123	71
Serbia	103	126	80	112	98	94
Croatia	104	102	99	122	136	41
Bulgaria	107	122	92	105	93	108
Ukraine	117	128	106	129	103	106
Moldova	118	124	119	133	113	84
Bosnia and Herzegovina	122	130	110	115	128	100

Source: own compilation based on the GCI 2017-2018, World Economic Forum.

Private institutions is a category subdivided into two subcategories: corporate ethics and accountability (Tab. 3). Here again, Estonia is the regional leader in the rankings. Corporate ethics was assessed well in Albania and Lithuania, while

the Czech Republic, Lithuania, Bulgaria, and Slovakia received high ranking for accountability. Bosnia and Herzegovina is the poorest performer amongst all these countries.

Table 3

Competitiveness ranking – private institutions, subcategories (ranking positions amongst 137 countries)

Country	Private Institutions	Corporate ethics	Accountability
Estonia	**29**	30	29
Czech Republic	**41**	60	31
Lithuania	**44**	48	42
Albania	**49**	43	63
Poland	**53**	62	50
Slovenia	**55**	57	60
Montenegro	**68**	56	85
Bulgaria	**69**	91	46
Latvia	**76**	73	84
Slovakia	**78**	105	47
Croatia	**89**	97	79
Romania	**94**	100	81
Serbia	**108**	99	104
Ukraine	**109**	102	111
Moldova	**113**	112	103
Hungary	**114**	127	70
Bosnia and Herzegovina	**129**	120	127

Source: own compilation based on the GCI 2017-2018, World Economic Forum.

3. The relationship between FDI stock in CEECs and institutional components of the Global Competitiveness Index

In our study, we focused on the evaluation of the relationship between FDI stock in seventeen CEECs and factors that determine the institutional quality of these countries. To this end, we used the Spearman rank correlation coefficient (r_s) and Pearson linear correlation coefficient (r_{xy}).

In the first stage of the study, we selected variables that directly or indirectly determine the institutional quality of the countries. We used the Global Competitiveness Index of the World Economic Forum for the years 2017-2018. To the best of our knowledge, this is the most comprehensive study that has been conducted for many years using the same method. In order to evaluate institutional quality, we selected 3 overall rankings (1. Institutions, 2. Public institutions, 3. Private institutions) and 21 partial rankings. They describe in detail:

1) Property rights, including intellectual property rights;
2) Ethics and corruption, including diversion of public funds, public trust and payments;
3) Undue influence, including judicial independence & favouritism of government officials;
4) Performance of the public sector, including the efficiency of government spending, legal framework & policymaking transparency;
5) Security, including costs of terrorism, crime & violence;
6) Corporate ethics, including the ethical behaviour of firms;
7) Accountability, including auditing and reporting standards, efficacy of corporate boards & strength of investor protection.

All these factors were contrasted with amounts of FDI stock per capita (in millions of USD) in 17 CEECs at the end of 2016 (based on the World Investment Report by UNCTAD and World Bank data). The second stage of the study focused on the evaluation of the relationship between FDI stock per capita in the CEECs and the ranks & values of institutional quality determinants using the Spearman rank correlation coefficient (r_s) and Pearson linear correlation coefficient (r_{xy}). As determinants, we used variables selected in the first stage of the study.

The rank correlation coefficient (also referred to as order correlation coefficient) is used to describe the strength of two-dimensional correlations. It helps identify the strength and direction of the relationship between examined traits by comparing ranks (positions in a row) assigned to two variables. Compared to the Pearson correlation coefficient, it measures a wider class of relationships and shows a monotonic, not necessarily linear, relationship between variables. It is also more resilient to the presence of outliers in the sample.

We used the SPSS software formula. The coefficient gives values between -1 and +1 inclusive. The examined relationship is stronger the closer r_s gets to the absolute value of 1. Its minus or plus sign informs us about the convergence (plus) or discrepancy (minus) of the evaluation of distinguished characteristics. The rank correlation coefficient can be assessed with regard to its statistical significance. The test can be used for ordinal variables when the analysed features can be expressed in numbers and the sample is small (in our case, the sample includes 17 observations). The data used in our study meet these conditions.

The Pearson coefficient gives a value between -1 and +1 inclusive. It measures the co-occurrence of features for interval or ratio variables, i.e., quantitative variables. The coefficient describes the strength and direction of a relationship, which is close to linear (Rószkiewicz, 2002; Sobczyk, 2000). The results of the analysis for public institution indicators are presented in Table 4, and for private institution indicators in Table 5.

Table 4

Relationships between institutional competitiveness indicators and FDI inflow into the countries of Central and Eastern Europe

No.	Variables	Rank		Value	
		Spearman		Pearson	
		Coefficient	Empirical significance level	Coefficient	Empirical significance level
1.	Institutions (pillar, 2. Public & 3. Private)	**0.556**	**0.020****	**0.751**	**0.001***
2.	Public institutions (main category)	**0.559**	**0.020****	**0.750**	**0.001***
2.1.	**Property rights**				
2.1.1.	Property rights	**0.547**	**0.023****	**0.724**	**0.001***
2.1.2.	Intellectual property protection	**0.620**	**0.008***	**0.745**	**0.001***
2.2.	**Ethics and corruption**				
2.2.1.	Diversion of public funds	0.339	0.184	**0.558**	**0.020****
2.2.2.	Public trust in politicians	0.201	0.439	0.447	0.072
2.2.3.	Irregular payments and bribes	**0.559**	**0.020****	**0.740**	**0.001***
2.3.	**Undue influence**				
2.3.1.	Judicial independence	**0.608**	**0.010***	**0.805**	**0.000***
2.3.2.	Favoritism in decisions of government officials	0.136	0.606	**0.491**	**0.045****

2.4.	**Public sector performance**				
2.4.1.	Efficiency of government spending	0.161	0.538	0.187	0.472
2.4.2.	Burden of government regulation	0.005	0.985	0.072	0.785
2.4.3.	Efficiency of legal framework in settling disputes	0.310	0.226	0.452	0.069
2.4.4.	Efficiency of legal framework in challenging regulations	0.178	0.495	**0.560**	**0.019****
2.4.5.	Transparency of government policymaking	0.007	0.978	0.309	0.227
2.5.	**Security**				
2.5.1.	Business costs of terrorism	**0.610**	**0.009***	**0.591**	**0.012****
2.5.2.	Business costs of crime and violence	**0.623**	**0.008***	**0.617**	**0.008***
2.5.3.	Organized crime	**0.645**	**0.005***	**0.754**	**0.000***
2.5.4.	Reliability of police services	0.392	0.119	**0.549**	**0.022****

*Significant at the level of 0.01.
**Significant at the level of 0.05.
Source: own calculation based on the World Economic Forum, the World Investment Report by UNCTAD & World Bank databases.

The results of the study indicate the presence of a statistically significant correlation between FDI stock and overall & public institutional quality in CEECs. These relationships are highly significant at the level of significance p = 0.01 using the Pearson correlation coefficient and weaker for the Spearman rank coefficient (significant at the level of p = 0.05). From among the partial correlation coefficients, similar significance was reached for almost all public institutional variables, excluding public sector performance. For non-public institutions, the results scored for corporate ethics turned out to be insignificant.

Table 5

Relationships between competitiveness indicators for private institutions and FDI inflow into the countries of Central and Eastern Europe

No.	Variables	Rank		Value	
		Spearman		Pearson	
		Coefficient	Empirical significance level	Coefficient	Empirical significance level
1.	Institutions (pillar, 2. Public & 3. Private)	**0.556**	**0.020****	**0.751**	**0.001***
3.	Private institutions (main category)	0.426	0.088	**0.612**	**0.009***
3.1.	**Corporate ethics**				
3.1.1.	Ethical behavior of firms	0.270	0.295	0.466	0.059
3.2.	**Accountability**				
3.2.1.	Strength of auditing and reporting standards	**0.625**	**0.007***	**0.756**	**0.000***
3.2.2.	Efficiency of corporate boards	**0.583**	**0.014****	**0.681**	**0.003***
3.2.3.	Protection of minority shareholders' interests	**0.600**	**0.011****	**0.665**	**0.004***
3.2.4.	Strength of investor protection	0.115	0.660	-0.082	0.755

*Significant at the level of 0.01.
**Significant at the level of 0.05.
Source: own calculations based on the World Economic Forum, the World Investment Report by UNCTAD & World Bank databases.

Conclusions

The above overview of subject-matter literature proves that institutional environment is one of the factors decisive for the investment attractiveness of countries. Our study, however, was not intended to be yet another attempt to prove or dismiss this knowledge but to find out which institutional factors are relevant for FDI inflow. To this end, we examined several dozen variables that describe the efficiency of public and private institutions. We investigated countries of Central and Eastern Europe which, besides geographical location, share common experiences of a more or less successful transformation from centrally planned to market economy and cooperate within various international institutions and organisations (e.g., EU, V4, NATO, OECD).

Data, rankings and statistical analyses have led us to the following conclusions:

1. Central and Eastern European countries differ with respect to the efficiency with which they attract FDI; those, which were in the forefront of the systemic transformation and integrated with Western Europe by joining the EU represent the highest efficiency in attracting FDI.

2. Similar conclusions can be drawn from comparisons of rankings of institutional quality. Estonia is the undisputed leader in the region, both in the overall and in the detailed rankings.

3. In twelve out of the seventeen countries that we compared, private institutions performed better than public ones. That was confirmed for, inter alia, Poland, Bulgaria and Albania. It may be treated as a clear signal for representatives of public administrations as to which areas of their performance they should work on.

4. The quality of public and private institutions is closely linked, although to a different degree, with FDI inflow. We revealed the majority of statistically relevant relationships for property rights and security in the group of public institutions and for most variables describing private institutions with the exception of corporate ethics. Variables which describe public sector performance were clearly much less important. It may mean that foreign investors chose Central and Eastern Europe despite the rather poor performance of the region's public administration.

The obtained results justify the need to continue the research to focus on an in-depth quantitative analysis which will demonstrate the power of the impact of individual variables. It also seems justified to expand the study with other groups of countries.

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LOCATION ADVANTAGES OF THE LODZ REGION: WHERE ARE WE 5 YEARS LATER?

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Abstract. In the paper, we compared the role of various factors in attracting foreign capital to the Province of Lodz (Poland) in two periods: until 2010 and between 2010 and 2015. We assumed that, based on investors' opinions, we would be able to conclude whether the location advantages of the Province changed and, if so, in what direction. Using the same direct questionnaire study:

1) in 2010 we interviewed 92 micro and small companies with foreign capital (CFCs);

2) in 2015 we interviewed 52 micro and small CFCs which had invested in the Lodz Province between 2010 and 2015.

The 24 factors included in the questionnaire were divided into three groups, reflecting supply, demand and institutional conditions. We used the Mann-Whitney test in order to identify significant changes in motivations behind FDI location in the Lodz Province before the end of 2009 and between 2010 and 2015.

We found that, generally, the Province became somewhat less attractive for small foreign investors, and the importance of most factors did not change significantly. In both periods they valued the abundance of relatively cheap and skilful labour the most. This was the biggest location advantage of the Province, enabling them to lower production costs. In 2015, investors clearly appreciated improvements in infrastructure, but they were more critical of information policy and relations with the administration.

Key words: *FDI, Lodz Region, Location Advantages*

JEL code: F21, R11

Introduction

The reasons for which multinational enterprises (MNE) choose a particular location for production activities depend on its characteristics and their guiding motivations (Dunning, Lundan, 2008). For years, details of these decisions have attracted the attention of both academics from different fields (Faeth, 2009; Kim, Aguilera, 2016; Nielssen et al., 2017) and institutions responsible for public policy vis-à-vis foreign investors (Cass, 2007; Harding, Javorcik, 2011; Morisset, 2003). Usually, these institutions want to attract MNEs because they could bring better quality jobs, new technologies, links with local suppliers, and access to foreign markets. However, with practically no impact upon investors' motivations, they may influence only the attributes of the location, which remains within their respective political and administrative remit. They are aware that investors perceive changes in this area in comparison to what is offered by other jurisdictions, be it national, regional or local (James, 2013).

Location attributes evolve, some faster (e.g., legal regulations) others more slowly (e.g., labour supply). This contribution aims at comparing the role of 24 factors which led foreign investors to choose the Lodz region to pursue activities before 2010 and over the period 2010-2015. Their choices should reflect the region's advantages and help explain how they have changed, and whether, as a result, over time the region has become more or less attractive to MNEs

as an investment location. Answers to these questions may act as guidelines for the assessment of policies pursued by regional authorities.

The paper is based on a questionnaire study conducted among companies with foreign capital (CFC) registered in the Lodz Province, which is a region in the administrative sense. Statistical data were provided by GUS[1] (the Central Statistical Office of Poland). The study in 2010 covered 188 respondents (Świerkocki, ed., 2011). The second one was carried out in 2015 among 56 CFCs established after 2009. However, this group included only 4 big and medium-sized enterprises. Substantial differences in the structures of the two samples could bias the surveys' results, and therefore we decided to compare only micro and small enterprises. Thus, we were able to better attribute differences in assessments to changes in the business environment taking place in the Lodz Province. To this end, we used statistical methods, inter alia, the Mann-Whitney test.

The paper is organised as follows. In the first section, we provide a short theoretical justification for our study. The second one discusses changes in location advantages of the province based on the rankings of investment attractiveness, i.e., on experts' evaluations. The third section describes the method and the fourth section presents the results of the questionnaire-based study and their discussion. In the final section, there are conclusions and recommendations.

1. Theoretical foundations of the study

For many years, economists, international business academics, and representatives of other disciplines have been interested in the criteria for choosing FDI locations (for an overview of studies see Blonigen, 2005; Faeth, 2009; Kim, Aguilera, 2016; Nielssen et al., 2017). In both fields (economics, international business), theory addresses the problem only indirectly. In economics, the issue is tackled in trade theories that explain the phenomenon of vertical (Helpman, 1984) and horizontal (Markusen, 1984) FDI and the theory that makes reference to enterprise productivity advantages (Helpman, Melitz, Yeaple, 2004). In international business, suggestions with respect to a potential FDI location result from, inter alia, monopolistic advantage theory (Hymer, 1976) and product lifecycle (Vernon, 1966). Location also makes a valid part of the eclectic paradigm of international production (Dunning, 1977). According to the latter, to make an FDI, a company must be ahead of its competitors when it comes to the ownership (O) of unique assets, e.g., knowledge and must find a location (L) abroad where it could commercialise these assets, and do it by internalising (I) markets. In other words, it would be better to open a branch in the host country rather than sell a licence to other operators.

As argued by Nielssen et al. (2017), the implications of theories proposed by economists and experts in international business have a lot in common. Both agree that the location is selected after its attributes have been carefully considered with the specificity of the investing company in mind. Sometimes it also depends on the individual relationship between the two factors. It may result from earlier operations in a given market (e.g., exports) or the distance (cultural, geographic, administrative) between the home and the host countries.

Due to the scope of data collected from the questionnaires, we were not able to refer to the motives or strategies of investors, and we limited the study to the features of the Lodz Province as the only determinant of investment location. These features can be divided (Nielssen et al., 2017) into purely economic (related to supply and demand), institutional, and agglomeration. The last ones were irrelevant to our study because, nowadays, the Lodz region neither exhibits any intra-industry specialisation nor does it offer benefits of inter-industry agglomeration attributed to so-called *global cities* (AT Kearney, 2017). The region is among the less affluent EU regions with GDP per capita in PPS accounting for 64%

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[1] Unfortunately, it was not possible to get information about enterprises, which considered coming to Lodz but finally chose locations external to the region.

of the EU-28 average (Eurostat, 2017). It was classified as a modest innovator in 2010 and a moderate one in 2016 (European Commission, 2016).

2. Location advantages of Lodz Province in experts' opinions

The assessment of investment conditions made by respondents in 2010 and 2015 may be viewed against a background of experts' opinions. Synthetic measures of the location advantages of the Lodz Province are reflected in investment attractiveness rankings published regularly by different institutions in Poland. They are prepared by academics specializing in economic policy and in business. The goal, scope, and methods of rankings differ significantly, which prevents their detailed results from being directly compared but allows conclusions to be drawn about general trends.

The ranking of the Gdansk Institute for Market Economics (PL abbr. IBnGR) has been published every year since 2005 in the same format. It takes account of 24 demand, supply and institutional factors that impact business activities. The factors are grouped by 7 thematic indicators used to develop a weighted synthetic indicator of investment attractiveness. It does not distinguish between foreign or domestic investors as separate categories. Table 1 shows how the location advantages of the Lodz Province evolved between 2005 and 2015 against the background of the remaining 15 provinces. A higher ranking means greater competitiveness.

Table 1

Position of the Lodz Province in investment attractiveness rankings

Variable	2005	2008	2010	2013	2015
Availability of transport infrastructure	7	9	9	7	7
Labour resources and cost	3	3	4	5	4
Market	7	7	11	8	8
Economic infrastructure	11	10	7	7	8
Social infrastructure	7	7	7	7	8
Public safety	10	11	9	10	11
Province activities addressed to investors	8	5	8	7	6
Synthetic indicator	6	7	7	8	8

Source: IBnGR (2005, 2008, 2010, 2013, 2015).

The data from Tab. 1 show that between 2005 and 2015, the overall location advantage of the Lodz Province deteriorated. It was a one-way process which advanced in both sub-periods that are of interest to us, i.e., until 2010 and 2010-2015. By contrast, partial indicators changed non-uniformly.

Before 2010, the two indicators that had deteriorated the most were market capacity (household wealth, corporate investment outlays) and the availability of transport infrastructure. The advantage of the province in the labour market also decreased (working population and the number of unemployed, inflow of university graduates, remuneration), which, despite the relative decrease, continued to be the main asset of the region. Economic infrastructure (business environment institutions, R&D centres, special economic zones) improved the most. Also, public safety reported a positive evolution. Social infrastructure remained unchanged (hospitals, schools, hotels, entertainment) together with administration activities including, inter alia, information and promotion efforts addressed to investors, despite temporary improvements in this area. In Poland, these activities are closely linked with the political cycle, which impacts the quality of staff in local government and central administration units.

Between 2010 and 2015, the unfavourable tendencies in the evolution of some partial indicators reversed, and the Lodz Province restored its location advantages. At the same time, areas which had previously experienced positive

changes reported a decline. The biggest improvement was recorded in the market size as a result of clear increases in the income of the local population, the availability of transport solutions connected with the construction of the A1 and A2 motorways and the S8 fast road, as well as the activities of the administrative authorities in the region. Economic and social infrastructure deteriorated compared to other regions and public safety reached the lowest levels. The only aspect that remained unchanged was labour resources and cost. Altogether, as shown by the synthetic indicator, the location advantage of the Lodz Province decreased compared to other provinces in the country.

If we assume that the condition of the region is a derivative of the economic performance of its metropolis (Gaczek, 2010), the same basis can be used to draw conclusions about the region's location advantages. The trends for Lodz, and thus, indirectly for the province, can be deduced from regularly published PwC reports (2007, 2011, 2015). These reports evaluate the location advantages of the major cities in Poland based on, inter alia, the Investment Attractiveness Capital index. Its point of reference is the index of a given metropolis compared to the average for the entire group of surveyed cities (Tab. 2).

Table 2

Investment Attractiveness Capital of Lodz in 2007, 2011 and 2015

Index	2007*	2011**	2015***
Total investment attractiveness	72.0	79.7	60.2
Investment attractiveness index for foreign investors	73.0	85.9	58.3
Investment attractiveness for domestic investors	76.0	88.1	79.8
Investment conditions	66.0	58.7	44.3

*7 cities =100

**11 cities =100

***12 cities =100

Source: based on PwC (2007, 2011, 2015).

Changes revealed by the data in Tab. 2 differ from those in Tab.1 only with respect to trends. While between 2007 and 2011 Lodz improved its ranking position compared to other cities, at a later stage, it lost its advantages even more rapidly. The evolution was observed in both categories of investors, although more strongly among foreign than domestic ones. As a result, the end outcome concords with the IBnGR rankings: launching production in Lodz was less attractive in 2015 than in 2007. PwC experts were especially negative about the investment conditions and generally about running a business in Lodz (local development plan, educational services, English language skills among the local population, quality of available hotels).

3. Study description and method

The data regarding investors' opinions come from direct questionnaire studies conducted by a team of academics from the Department of International Trade of the University of Lodz in 2010[2] and repeated in 2015[3]. In order to select samples from both surveys that would be comparable with respect to the size of enterprises, we selected 92 and 52 micro- and small companies with foreign capital (CFC), which employ not more than 49 people. The first group had invested in the Lodz Province before the end of 2009 while the second one in the period 2010-2015. Such a limitation was imposed on

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[2] We used part of the results of a direct study conducted for the project "Role of foreign direct investment in shaping current and future economic profile of the voivodeship of Lodz," delivered in the period 2009-2011 by the research team of the University of Lodz. The project was co-financed from EU resources of the European Social Fund. The study results were published in Świerkocki, (ed., 2011).

[3] We used data collected within the project "Developing New Interdisciplinary Courses in Polish and English," co-financed with Norwegian and EEA funds originating from Iceland, Liechtenstein, and Norway, and national funds under the Scholarship and Training Fund, implemented in the period 2015-2016. The project was carried out by a team of researchers of the University of Lodz.

the comparisons because micro and small enterprises accounted for 94% of all CFCs registered in the Lodz Province over the years 2010-2015 (Tab. 3).

Table 3

Employment in enterprises included in the study

Employment	No. of enterprises			
	2010		2015	
	absolute	in %	absolute	in %
up to 9 people (micro)	26	28.3	40	76.9
10 – 49 people (small)	66	71.7	12	23.1
Total	**92**	**100.0**	**52**	**100.0**

Source: own compilation based on the results of questionnaire-based studies.

In the first survey, there were more small enterprises with employment ranging from 10 to 49 people. Micro-enterprises accounted for less than 1/3 of the sample. In the second study, the proportions were reversed.

Using binding classification criteria, we identified micro- and small enterprises based on their revenue. Compared to the employment-based classification, in both studies micro-enterprises prevailed and accounted for more than 53% in 2010 and almost 83% in 2015. It may be caused by the fact that some enterprises intentionally reported reduced revenues. No data in the case of 10 entities means they refused to answer our questions (Tab. 4).

Table 4

Revenues of enterprises included in the study

Revenue	No. of enterprises			
	2010		2015	
	absolute	in %	absolute	in %
up to PLN 8 m (micro)	49	53.3	43	82.7
PLN 8 – 40 m (small)	37	40.2	5	9.6
No data	6	6.5	4	7.7
Total	**92**	**100.0**	**52**	**100.0**

Source: own compilation based on the results of questionnaire-based studies.

As already mentioned, in both years we applied the same method. Each questionnaire included demographics and was composed of several dozen closed and open questions. Some of them included rating scales. Answers were constructed in accordance with the 7-point Likert scale, which enables further statistical processing (Churchill, 2002, p. 415-419). To analyse the results, we used the distribution of variables, central tendency, and dispersion measures. At an earlier stage, we validated the reliability of data using Cronbach's alpha index[4]. The indicators (0.828 in the 2010 study and 0.865 in the study of 2015) confirm the high reliability of the calculated values. In both studies, random sampling was applied. Interviews were conducted mostly with top management: CEOs, directors and their deputies, managers, plenipotentiaries, assistants, and specialists.

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[4] Its value informs us about the correlation between answers to individual questions and the total result of the measurement. It shows to what extent the items (factors) of the scale are uniform and identifies the same interpretation of questions by respondents (Ferguson, Takane, 2004).

Source: own compilation based on the results of the questionnaire-based study.

Fig. 1. **Location of enterprises in the Lodz Province included in the study (in %)**

The statistical data suggest that foreign investors locate their projects in cities, which is why almost all enterprises covered by the study are based in cities (Świerkocki ed., 2011). Our survey targeted business operators from all the major towns and cities in the Lodz Province (the capital of the region and county capitals). In the first sample (2010), 37% of enterprises were based in Lodz. In the second one, their absolute number was similar but the share in the sample was much bigger (Fig. 1). Over the years 2010-2015, investors mainly chose Lodz and its immediate surroundings (Lodz Metropolitan Area) as the location for their business.

Table 5

Principal business area of enterprises covered by the research by sectors of the PKD*

Sector	No. of enterprises			
	2010		2015	
	absolute	in %	absolute	in %
Manufacturing	25	27.2	6	11.5
Construction	6	6.5	0	0.0
Transportation, shipping, logistics	3	3.3	3	5.8
Retail and wholesale trade	37	40.2	30	57.7
Other services	21	22.8	13	25.0
Total	**92**	**100.0**	**52**	**100.0**

* Polish Classification of Business Activity
Source: own compilation based on the results of questionnaire-based studies.

Both samples included enterprises from two sectors: manufacturing and services (Tab. 5). Agriculture was not represented since its importance to foreign investors in the Lodz Province is marginal (ca. 1% of the total population). The samples included clearly more enterprises from the service sector, mostly trading companies. Manufacturing enterprises dominated among big and medium-sized investors, which have been excluded from the study.

4. Results and discussion

In order to identify the reasons why FDIs have been located in the Lodz Province, the representatives of the CFCs were asked to evaluate the extent to which specific factors were encouraging or discouraging. In both years, on a 7-degree scale, they assessed 24 suggested reasons (see Tables A1 and A2 in the Appendix). All factors included in the questionnaire were divided into three groups, reflecting supply, demand and institutional conditions (see Fig. 2). We used the SPSS software to analyse the results.
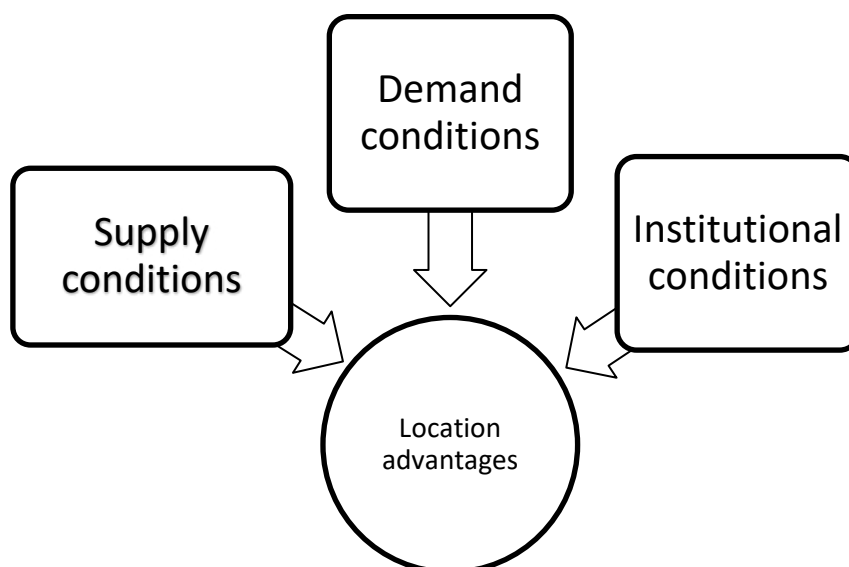
Source: own compilation.

Fig. 2. **Location advantages**

The rankings of the mean answers for 2010 and 2015 (see Appendix) reveal relatively little difference in the relevance of location premises. To confirm this conclusion, we used a non-parametric Mann-Whitney test for independent variables to examine the significance of differences between the means. As with the ranking of the means, we took as the grouping variables (n) the location determinants in the Lodz Province in 2010 and in 2015, so each grouping variable takes two values.

The tests were performed for 24 variables which identify location determinants in the Lodz Province. We started with the Mann-Whitney test for the following hypotheses:

H_0: two independent samples come from the population of the same distribution,

H_1: ~ (two independent samples come from the population of the same distribution).

For the purpose of the study, the above hypotheses can be formulated in the following way:

H_0: the grouping variable (n) does not differ for the k-th determinants (k = 1, 2,…, 24),

H_1: the grouping variable (n) differs for the k-th determinants (k = 1, 2,…, 24).

For the calculated test probability $p \geq 0.05$, there are no grounds for rejecting H_0, i.e., if cumulative distributions in the distinguished sub-groups are equal, it means the phenomenon follows a similar course in the studied population.

However, when $p < 0.05$ we may reject the null hypothesis, i.e., if the cumulative distributions in the distinguished sub-groups are not equal, the distribution parameters, as well as the means, are different, which in our case means that the grouping variable is the differentiating factor for a given location determinant (tested variable) (Tab. 6).

Table 6

FDI location determinants in 2010 and 2015 – mean ranks and results of the Mann-Whitney test

No.	Factors*	Rankings		Average of answers**		Empirical significance in the Mann-Whitney test
		2010	2015	2010	2015	
1.	**Possibility to find staff with adequate skills (S)**	1.	3.	5.81	5.00	0.011
2.	**Possibility to find workers with adequate skills (S)**	2.	4.	5.66	4.92	0.024
3.	**Salaries and wages (S)**	3.	1.	5.64	5.11	0.044

4.	**Production costs (S)**	**4.**	**2.**	**5.57**	**5.06**	**0.020**
5.	Closeness (geographical) to suppliers and business partners (S)	5.	5.	5.36	4.90	0.075
6.	Availability of developed plots, production, office and warehouse space, etc. (S)	6.	10	4.99	4.69	0.318
7.	People's mentality / Attitude of employees to professional duties (I)	7.	6.	4.94	4.84	0.600
8.	Possibility to sell in the market of the Province (D)	8.	7/8	4.85	4.79	0.999
9.	Profile of vocational schools and universities / graduates (S)	9.	15	4.84	4.31	0.055
10.	Economic image of the Province (I)	10.	9	4.71	4.75	0.954
11.	Presence of business environment institutions (S)	11/12.	7/8	4.55	4.79	0.307
12.	Competition in the market of the Province (S)	11/12.	11	4.55	4.42	0.909
13.	Attitude of local authorities to foreign investors (I)	13.	17	4.48	4.19	0.096
14.	Public safety (I)	14.	12	4.41	4.38	0.810
15.	**Access to information about the Province (I)**	**15.**	**22**	**4.38**	**3.86**	**0.005**
16.	Lodz Special Economic Zone (I)	16.	16	4.34	4.25	0.729
17.	Social infrastructure (hotels, catering, culture, etc.) (S)	17.	19	4.26	4.13	0.382
18.	Natural environment (S)	18.	18	4.23	4.15	0.798
19.	Support to foreign investors from communes and counties or the Province (I)	19.	23/24	4.22	3.85	0.127
20.	Railway infrastructure (S)	20.	20	3.82	4.02	0.397
21.	Stability of regulations adopted by the authorities at various levels in the Province of Lodz (I)	21.	23/24	3.73	3.85	0.471
22.	**Road infrastructure (S)**	**22 /23.**	**13**	**3.66**	**4.37**	**0.043**
23.	Speed of operations and flexibility of administration at various levels in the Province of Lodz (I)	22/ 23.	21	3.66	3.89	0.368
24.	**Availability of air transport connections (S)**	**24.**	**14**	**3.58**	**4.33**	**0.009**
	Total on average	-	-	4.59	4.45	-

* S - supply factors, D - demand factors, I - institutional factors.

** Using the following responses to each factor: encouraging to the following extent: large (7), medium (6), little (5), neither encouraging nor discouraging (4), discouraging to the following extent: little (3), medium (2), large (1).

Source: own compilation based on the results of questionnaire-based studies.

Using the Mann-Whitney test, we validated 24 hypotheses. Seven out of all differences (29%) turned out to be statistically significant at the level of $p < 0.05$. It means that the location advantages of the Province did not change radically during the five years. This result is in accordance with intuition and suggests that the detailed conclusions should also be reliable.

Statistically significant changes in the evaluation of individual variables were not radical either. The most important differences were reported in the assessment of labour and cost-related factors and infrastructure. Five years later:

a) the region's labour market was also its most valuable asset. However, in 2015, all labour market characteristics came out less important than in 2010. Secondly, in 2015, investors valued (low) salaries and (low) production costs higher than a well-educated labour pool which, probably, became less abundant;

b) investors evaluated much better the quality of road infrastructure and availability of air transport connections (cargo and passenger);

c) respondents' opinions were less favourable regarding access to information about the Province and were more critical of assistance offered by local and regional administration (although this variable was insignificant).

Conclusions and recommendations

1) The investment attractiveness rankings prepared by independent economic and business experts show that the overall location advantage of the Lodz Province shrank between 2010 and 2015. Its labour market remained the biggest asset for locating production.

2) In principle, our detailed questionnaire-based surveys conducted among micro- and small foreign investors confirm the above general observations. Firstly, the average value of answers to the 24 questions about factors decisive for choosing the Lodz Province in 2015 (4.45) was slightly lower than in 2010 (4.59). Secondly, the regional labour market was assessed as the most important advantage.

3) The labour market situation of the province has changed for the worse. According to the investors, before 2010, the main benefit lay in the ease with which one could find inexpensive workers/employees with adequate skills. After 2010, the cost advantage achieved through low salaries and wages became central. The change may suggest that labour resources are being exhausted.

4) The investment attractiveness rankings and our respondents were in agreement over the clearly improved advantage of the Lodz Province connected with road infrastructure and the availability of air connections. That is largely the effect of investment projects carried out by the central government and local authorities and co-financed with the EU funds.

5) The respondents were more critical than in 2010 about the information policy and assistance received from the regional and local authorities, which may be a sign of the declining engagement of the latter in attracting investors. In this context, the significantly smaller share of large and medium-sized MNEs in our 2015 sample should be another cause for concern and a question for further research.

6) The study shows that, in the short term, regional authorities should take care of matching the supply of labour and investors' needs by better collaborating with universities and vocational schools. They should also pay more attention to the promotion of the Province and assist micro and small foreign investors in complying with the formalities connected with establishing companies and doing business. On the other hand, regional authorities should be aware that a location advantage based on inexpensive, well-educated labour and transport facilities will not contribute to long-term economic growth. Catching up with the leading regions in Poland, not to mention the leading regions in the EU, will not occur without mobilising local businesses to get access to better technology and managerial knowledge. They are certainly available in other countries but they are perhaps also available in Polish universities and R&D institutes.

Appendix

Table A1

FDI location determinants in 2010

	Specification	Average of answers	Standard deviation	Average relative error	Median	Mode
		2010				
1.	Possibility to find staff with adequate skills	5.81	0.26	0.27	6	7
2.	Possibility to find workers with adequate skills	5.66	1.28	0.23	6	7
3.	Salaries and wages	5.64	1.08	0.19	6	6
4.	Production costs (services)	5.57	1.24	0.22	6	6
5.	Closeness (geographical) to suppliers and business partners	5.36	1.35	0.25	5	4

	Availability of developed plots, production, office and warehouse space, etc.					
6.	Availability of developed plots, production, office and warehouse space, etc.	4.99	1.44	0.25	5	4
7.	People's mentality / Attitude of employees to professional duties	4.94	1.39	0.28	5	4
8.	Possibility to sell in the market of the Province	4.85	1.23	0.25	4	4
9.	Profile of vocational schools and universities / graduates	4.84	1.23	0.25	4	4
10.	Economic image of the Province	4.71	1.07	0.23	4	4
11/12.	Presence of business environment institutions	4.55	0.98	0.22	4	4
11/12.	Competition in the market of the Province	4.55	1.08	0.24	4	4
13.	Attitude of local authorities to foreign investors	4.48	1.20	0.27	4	4
14.	Public safety	4.41	1,29	0.29	4	4
15.	Access to information about the Province	4.38	1.10	0.55	4	4
16.	Lodz Special Economic Zone	4.34	0.81	0.29	4	4
17.	Social infrastructure (hotels, catering, culture, etc.)	4.26	1.44	0.29	4	4
18.	Natural environment	4.23	0.84	0.34	4	4
19.	Support for foreign investors from communes, counties or the Province	4.22	1.19	0.19	4	4
20.	Railway infrastructure	3.82	1.44	0.47	4	4
21.	Stability of regulations adopted by the authorities at various levels in the Province of Lodz	3.73	1.18	0.28	4	4
22 /23.	Road infrastructure	3.66	2.00	0.38	4	4
22/ 23.	Speed of operations and flexibility of administration at various levels in the Province of Lodz	3.66	1.54	0.32	4	4
24.	Air transport infrastructure	3.58	1.69	0.20	4	4
	Total on average	**4.59**	**1.22**	**0.28**	-	-

Source: own compilation based on the questionnaire study.

FDI location determinants in 2015

	Specification	Average of answers	Standard deviation	Average relative error	Median	Mode
		2015				
1.	Salaries and wages	5.11	1.49	0.29	5	4
2.	Production costs (services)	5.06	1.27	0.25	5	4
3.	Possibility to find staff with adequate skills	5.00	0.32	0.35	5	4
4.	Possibility to find workers with adequate skills	4.92	1.76	0.36	5	4
5.	Closeness (geographical) to suppliers and business partners	4.90	1.42	0.29	4	4
6.	People's mentality / Attitude of employees to professional duties	4.84	1.3	0.27	4	4
7/8.	Possibility to sell in the market of the Province	4.79	1.33	0.28	4	4
7/8.	Presence of business environment institutions	4.79	1.24	0.26	4	4

9.	Economic image of the Province	4.75	1.2	0.25	4	4
10.	Availability of developed plots, production, office and warehouse space, etc.	4.69	1.66	0.35	4	4
11.	Competition in the market of the Province	4.42	1.36	0.31	4	4
12.	Public safety	4.38	1.35	0.31	4	4
13.	Road infrastructure	4.37	1.57	0.36	4	4
14.	Air transport infrastructure	4.33	1.62	0.37	4	4
15.	Profile of vocational schools and universities / graduates	4.31	1.37	0.32	4	4
16.	Lodz Special Economic Zones	4.25	1.13	0.27	4	4
17.	Attitude of local authorities to foreign investors	4.19	1.16	0.28	4	4
18.	Natural environment	4.15	1.29	0.31	4	4
19.	Social infrastructure (hotels, catering, culture, etc.)	4.13	1.37	0.33	4	4
20.	Railway infrastructure	4.02	1.46	0.36	4	4
21.	Speed of operations and flexibility of administration at various levels in the Province of Lodz	3.89	1.34	0.34	4	4
22.	Access to information about the Province	3.86	1.05	0.27	4	4
23/24.	Support for foreign investors from communes, counties or the Province	3.85	1.13	0.29	4	4
23/24.	Stability of regulations adopted by the authorities at various levels in the Province of Lodz	3.85	1.13	0.29	4	4
	Total on average	**4.45**	**1.305**	**0.31**	**-**	**-**

Source: own compilation based on the results of questionnaire-based studies.

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THE ROLE OF ASEAN IN ASIAN REGIONALISM IN THE 21ST CENTURY

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Abstract. Regionalism in the global economy is a historical category, whose dimensions and direction of evolution have always depended on a set of economic, political, cultural, and civilization factors that affected a particular region. For many years, the prime stimulus for continued research of Asian regionalism was the relative scarcity of regional institutions in the East Asia region but in 21st century, a decidedly reverse trend can be observed.

The main objective of the paper is to characterize the role of Association of South East Asian Nations in the Asian regionalism of the 21st century. The main thesis of this article is that ASEAN is dominant regional institution in East Asia with large potential to generate the prospective East Asian Community in 21st century. The following research methods were used: primary source analysis, descriptive and critical analysis, starting with research papers and legal documents published by ASEAN. Personal visits of the Author in head office of ADB, in Manila were also very important sources of knowledge.

The ASEAN is an example of a regional institution characterized by consistent and persistent strife for improved economic cooperation of its members. The development of regionalism under ASEAN auspices has increased incrementally since the early 1990s. In 2007, members of the ASEAN agreed on adopting a new approach to the process of regional cooperation through the so-called ASEAN Charter, intended to form a basis for setting up a formal ASEAN Community. The ratification of the Charter (2009) has opened up a path to a regional grouping based on three pillars: military security, economic union, and socio-cultural community.

The observed progress of regional integration of the ASEAN member countries attests to the fact that the nations involved in the process are well-aware of not only the potential benefits offered by close integration, but also of the potential risks associated with increased globalization and international competition on world markets.

Key words: *regional integration, regional institutions, Asian regionalism, ASEAN*

JEL code: F02, F53, F55

1. Introduction

The dynamics of the integration processes occurring in the East Asia region and its increasing political and economic significance in the global economy have contributed to arousing interest in the phenomenon of New Asian Regionalism and demonstrating the dominant role of the Association of South East Asian Nations (ASEAN) in this context. The critical analysis of the relevant literature, the legal acts published by the analysed Association, and the qualitative interviews conducted in the head office of the Asian Development Bank in Manila have encouraged the author to formulate the following question: Where does the role of ASEAN as an organisation constituting the core of the integration processes in East Asia manifest itself? In order to obtain an answer to this research question, the following structure of the paper is proposed. In the first part of the reasoning, the phenomenon of New Regionalism in East Asia is presented along with its basic characteristics for the purpose of describing the role played by ASEAN in the examined region against this background. In the second part, ASEAN serves as an example of a regional organisation which gradually and consistently

deepens the process of economic integration and the competitiveness level of its member states. In the third part, in turn, the activity of the East Asia Summit, which is a complementation of ASEAN's operation and has a major significance in the process of the region's political integration, is emphasized.

2. New Asian Regionalism

The principal premise for the development of New Regionalism was the dynamic relations between the events occurring in different parts of the world (Baylis, Smith, 2005). The transformations in the European Union, which resulted in an increased competitiveness level of the single market and thus gave rise to anxieties in other regions of the world, including East Asia, was an important impulse. It prompted the countries of the region, such as the ASEAN member states, Japan, China, and South Korea, to seek mechanisms for increasing the competitiveness of their economies and, in consequence, the entire East Asia region.

What plays a crucial role in the concept of New Regionalism is identification of a given regional system as a space for competitiveness. In fact, as was explained by Webb and Collis, "the starting point for New Regionalists is almost always the concept of regional competitiveness" (Bristow, 2010). The described theoretical school combines two concepts (Harrison, 2006). One concentrates on the development of regional and transnational forms of control, which are important platforms for achieving an effective compromise between the state and the market in a given international environment (Keating, 1998). Since control at the state level is perceived as the primary context for the process of building a region (and its identity), international markets and political implications of the processes occurring in the global economy provide the necessary stimuli to regionalisation, thus enhancing the rank of the regions (Passi, 2002). Therefore, the other, and at the same time prevailing, thesis of New Regionalism is concerned with new economic regionalism. It relies on the historical and empirical statement – in the context of globalisation and development of new competition areas (e.g. in East Asia) – that it is the region that is the central entity of economic development and prosperity creation processes (Brenner, 2000). Applying an approach inspired by the endogenous growth theory, institutional economics and cognitive psychology, the advocates of new economic regionalism associate competitive advantage with the regional business environment, which fulfils the function of a foundation for the development of new productive forces (Lipietz, 1994) and at the same the sphere of creation and reinforcement of innovations at the level of enterprises (Porter, 2003).

In the face of the globalising world economy, the end of the Cold War, and the frequent absence of economic and political stability, there is a need and strong stimuli for economic cooperation between countries with different development levels. These are normally neighbouring countries with the already existing trade relations. It could be stated that this is when the domino effect occurs[1]. When countries in one region unite to pursue common economic interests, other regions strive for imitating and implementing the same processes.

It is difficult to explicitly classify the associations between the countries of the East Asia region as resulting from regionalism or regionalisation (Drelich-Skulska, 2007). Numerous initiatives regarding financial, monetary, trade, police and military cooperation requires the establishment of at least the minimum institutional superstructure required for their implementation, execution and control. However, the countries of the region do not express a strong wish to build solid transnational institutions. The political coordination of regionalism in the discussed region is described as an "intergovernmental decision-making style" (Shaw, Soderbaum, 2003), which in practice means the necessity to seek a consensus as regards the decisions made.

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[1] Baldwin proposed a paradigm which forecasts continuous spread of bilateral and multilateral regional trade agreements resembling a political chain reaction. The idea inherent in this type of formal international connections is the pursuit of the common interests and challenges based on the reciprocity rule. In other words, every free trade agreement potentially becomes a source of another one. More on this subject: (Baldwin, 2006).

The causes of the reluctance to establish regional political institutions can be sought in historical considerations, the great diversity of the countries of the region, the peculiar political culture, or even in the insufficient development level of the civil society. As regards institutionalisation of economic integration, more specific obstacles can be enumerated: the lack of motivation and political will, different levels of the economic development of the individual countries, diverse cooperation concepts (multilateralism v regionalism), and inconsistent goals (Mingqi, 2003).

The absence of strong leadership and agreement between the greatest (economic and political) powers of the region are easily noticeable. Particularly much is expected with this regard from Japan and China as the potential core of the full political and economic integration (Komori, 2006). However, it is worth stressing the increased political activity of both countries, which strive for intensification of their economic cooperation. An example here is the agreement concluded between Prime Ministers of both countries on 27 December 2011 under which China and Japan decided to convert their commercial transactions into the yuan rather than the American dollar, like they used to do. This fact has contributed to the greatest Asian economic powers becoming independent from politics. There are also many issues which require systemic solutions at the regional level in East Asia (the most prominent example here is North Korea's nuclear programme). A confirmation of the growing awareness and integration aspirations in East Asia is also the negotiated investment treaty of 2012. Concluded between Japan, China and South Korea, it opened the way for a free trade agreement between these countries.

There are three types of entities functioning as the driving force for the Asian type of regionalism, namely governments, international bodies appointed *ad hoc* in order to solve particular problems, and transnational corporations (Pempel, 2005). What plays a major role in creating regional ties in East Asia is transnational corporations (TNCs). International production chains are among the most significant mechanisms of establishing strong relations between diverse economies of the region. Creating international production networks facilitates also the increase in the number of integration process participants. Countries at different levels of economic development are characterised by different costs (and different availability) of individual production factors. Being aware of that, entrepreneurs place particular production chain modules in various locations (including outside the integration bloc) and make use of local comparative advantages. However, since it is necessary to combine individual production stages into a whole, there is interdependence between the integrating economies and the ones which have stayed aside to date. What becomes a natural consequence of this bottom-up process is closer international cooperation on the political plane.

The character of the regionalism noticed in East Asia is best illustrated with two keywords: diversity and openness.

The diversity of the countries of interest in the analysed region is expressed in nearly all aspects of their functioning. Beginning from (territory and population) size diversity, to ethnic and religious diversity (almost all religions of the world are represented in East Asia), to system diversity (constitutional monarchies, democratic republics, communist states, and military dictatorships are present side by side), to social diversity (education level, life expectancy), to economic indicators. The listed differences result in the Asian integration process facing many obstacles. The high diversity of the countries in the discussed region of the world does not facilitate development of common goals and forms of cooperation acceptable to all. A reluctance to develop regional institutions, which take over the decision-making competences of the individual countries, is noticeable in East Asia. The pluralistic approach, which relies on seeking a consensus in implementing new concepts of cooperation and political autonomy of each and every country, is prevalent.

The regionalism or regionalisation dilemma is clearly manifested in the disputes existing in the East Asia region on the directions of integration and challenges of globalisation. On the one hand, there is ASEAN with its vision of regionalisation based on a consensus, sensitivity to particular interests of its individual members, and distance from their internal problems (the so-called *ASEAN Way*). On the other hand, there is APEC, which promotes *open regionalism*,

which is simply regional cooperation (in very broad terms, geographically from Russia to Chile) combined with external liberalisation. The latter is supposed to prevent discrimination against third countries in favour of the group members as regards trade relations (in compliance with the WTO recommendations with this respect). Some researchers of the region emphasise the role of the East Asia Summit (EAS) – established in 2005 – in the processes of political integration of the examined region with an increasing intensity.

When discussing the problem of Asian regionalism, it needs to be realised that, firstly, it is the direct consequence of internationalisation of the economic activity of Asian enterprises. Secondly, governments acted only as indirect links and therefore their role was limited to facilitating export or import of the production capital. Thirdly, governments, by facilitating capital transfer, lost the possibility to control private entities operating on the regional scale. Fourthly, this resulted in diversification of the interests between private entities operating on the regional scale on the one hand and the ones continuing their activities on the local market and governmental entities on the other hand (Skulska, 2012).

Aspirations for strengthening ties on the Asian continent is particularly visible in the case of the ASEAN member states. Preparation of the ASEAN Free Trade Agreement (AFTA) by no means blocks the development of relations with other, external, ASEAN partners as a whole and partners of the individual member states. Already in 2001, at the summit in Bandar Seri Begawan, the leaders of the ASEAN member states decided to promote primarily relations with Eastern Asian countries: Japan, China and South Korea.

At the beginning of the 21st century, the possibility of using the Free Trade Agreement (FTA) as a tool for developing preferential terms and conditions of bilateral cooperation was discerned. The attractiveness of FTA in confrontation with the multilateral WTO system arises from three fundamental causes: stagnation of the multilateral trade talks in the WTO forum, the possibility of a relatively quick adaptation of WTO-plus elements, i.e. competition, investment, public procurement, and trade facilitation policies, as well as the fact that trade agreements serve not only pursuit of economic interests but also diplomacy and security nowadays (Ravenhill, 2006). Therefore, according to Sen, New Regionalism, especially the Asian one, prioritises strategic interests over strictly economic premises more and more frequently (Sen, 2006).

For instance, in parallel to the intraregional integration process, ASEAN negotiated a FTA with Australia–New Zealand, China, India, Japan and the Republic of Korea, bearing in mind the share of the enumerated countries in the trade of the group's member states[2]. A characteristic feature of ASEAN Plus free trade agreements is their complex nature. The provisions on liberalisation of trade in goods and services are accompanied by trade and investment facilitations, regulations on e.g. the competition policy, mutual recognition of standards/documentation, economic and technical cooperation. The last of the areas mentioned is critical for the states with the lowest development level, i.e. Cambodia, Laos, Myanmar, and Vietnam.

At the same time, the content of the ASEAN Plus agreements fulfils the function of strategic interests of regional partners. Japan is interested in liberalisation of trade and investment flows and development of a package of improvements for a stable, open and transparent environment for domestic enterprises building regional production networks. While the developing ASEAN countries, such as China or India, do not attach much significance to the issue of intellectual property rights, Japan, the Republic of Korea or Singapore seek effective methods of their protection. This, in turn, has an effect on the diversity of the individual FTAs and is a source of criticism. In light of a study by the Asian Development Bank Institute (ADBI) conducted on a sample of 841 export enterprises in the Asian region, 29% of the surveyed Japanese

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[2] For instance, the total share of China and Japan in the trade of the ASEAN member states is almost equal to the share of trade within the group, the annual average of which is estimated at 23-25%.

enterprises, 21% of the Korean entities, and 45% of the Chinese ones declared using the FTA preferences (Kawai, Wignaraja, 2013). In the group of the analysed ASEAN countries, the indicators were comparable to the Korean ones: Thailand – 25%, Philippines – 20%, Singapore – 17%. The declared principal reasons of the low attractiveness of FTA for the business sector include in particular the lack of information, a limited scope of the preferences offered, the existence of non-tariff barriers, the so-called exclusion lists, a complex system of rules of origin, and administration costs.

Given the above, it is worth examining the FTA implications for trade and prosperity more carefully. When analysing the effects of the commercial policy, the Computable General Equilibrium (CGE) model is used at present[3]. On its basis, the definition of trade costs was expanded from the angle of both tariff and non-tariff barriers and indirect expenses involved in the time-consumption of customs procedures, adaptation to standards and other facilitations (Brooks, Roland-Holst, Zhai, 2005). By means of a broad approach to trade costs, the authors proved that real income growth in South East Asia, in connection with commercial policy liberalisation, fluctuated between 35.5-116.6%, whereas in the classical narrow approach – 1.9-6.6%. The CGE modelling dedicated to AEC, performed by Petri, Plummer and Zhai, evidenced potential benefits at the level of 5.3% of the regional GDP and in the case of concluding free trade agreements with key external partners – over 10%. Furthermore, benefits from the establishment of the ASEAN Economic Community for all signatory countries, a limited scale of the trade and investment diversion effect, although with positive consequences for the global economy as a whole, were proved (Petri, Plummer, Zhai, 2012).

The dynamic increase in the number of FTAs in the Asian region after 2000 concerned in particular countries such as Singapore, Japan, the Republic of Korea, and China, which have already signed more than twenty trade agreements, including partly implemented ones, with Asian and non-Asian countries. As regards South East Asia, the highest number of valid free trade agreements have been concluded by China (16), followed by the Republic of Korea (15), and Japan (14)[4]. The mentioned countries are engaged in negotiations related to the Regional Comprehensive Economic Partnership (RCEP) project, both Japan and the Republic of Korea have signed a free trade agreement with the United States of America: as part of a mega-regional Trans-Pacific Partnership (TPP) agreement and in the form of a bilateral FTA, respectively. Moreover, the European Union–South Korea Free Trade Agreement came into force in July 2011, and Japan has been negotiating its agreement in the EPA format with the European Union since April 2013 (Japan Times, 2017)[5]. In Northeast Asia, only a bilateral China–South Korea Free Trade Agreement has been signed and successfully implemented in December 2015 thus far. There are, however, no official declarations regarding the bilateral China–Japan FTA project, which could imply the aspiration of the latter for legitimisation of the tri-lateral China–Japan–South Korea agreement (CJK FTA) as soon as possible. This would enable reduction of the disproportions arisen in mutual trade relations after the entry of the China–South Korea FTA into force, which results mainly from the trade diversion effect (Gill, 2012). The conclusion of the CJK FTA would also increase the significance of ASEAN in trade regionalism in East Asia.

3. **ASEAN as an integration process platform for member states**

As regards the examined region, ASEAN is the oldest organisation which has taken consistent measures for deepening

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[3] CGE modelling, the empirical foundation of the commercial policy, serves the estimation of the effects of trade creation and diversion in accordance with the theory of net prosperity benefits. More on CGE models: Schiff, Winters, 2003; Kimura, 2006; Bobowski, 2012.

[4] Own elaboration based on: ARIC database (2017).

[5] In April 2017, the 18th round of negotiations was held in Tokyo; finalisation and implementation of the agreement is planned for 2019.

economic cooperation between its members since its establishment. It was founded in 1967 in Bangkok, where representatives of five countries: Philippines, Indonesia, Malaysia, Singapore and Thailand, signed a declaration with the following goals specified: to accelerate the economic growth, social progress and cultural development in the region through joint endeavours; to strengthen the political and economic stability of the region; and to create a forum for solving intraregional problems.

The second item of the ASEAN founding treaty, in turn, provides that "the Association represents the collective will of the nations of Southeast Asia to bind themselves together in friendship and cooperation and, through joint efforts and sacrifices, secure for their peoples and for posterity the blessings of peace, freedom and prosperity" (Severino, 1999). The wish for stabilisation and peace in the region was already then considered almost as important as the need for economic cooperation, which was emphasised also at a conference held in Kuala Lumpur (November 1971) by creating the Zone Of Peace, Freedom And Neutrality within ASEAN (ZOPFAN). Five years later, during the first summit of the ASEAN member states, on 24 February 1976, the Treaty on Amity and Cooperation was signed (Gawlikowski, 2004).

Currently, ASEAN is composed of ten countries from South East Asia, which – save the founding states – joined the group gradually: the Sultanate of Brunei (1984), Vietnam (1995), Laos and Burma (1997), and Cambodia (1999). The only country from this region of Asia which has not become a member of the Association to date is East Timor, which had not regained its independence until May 2002. The listed member states are highly diverse in many aspects, which influences their participation and engagement in the Association's integration processes (Skulska, 2009).

Regionalism has gradually developed under ASEAN auspices since the early 1990s, in particular through taking initiatives and creating regional integration structures: the ASEAN Free Trade Area, specification of the ASEAN Framework Agreement Services (Thanh, Bartlett, 2004), adoption of the document "ASEAN Vision 2020", development of the concept of the common ASEAN Investment Area, or creation of the principles of industrial cooperation between enterprises from the Association's member states, the so-called ASEAN Industrial Cooperation Scheme. Severino expressed a view that ASEAN had been successful on the political stage by keeping regional issues away from external influences of political entities; however, the goal in the form of economic integration had been pursued, so far, to a limited extent (Severino, 2007). Although Koh shared some of the critical opinions, he pointed to progress in six areas (Koh, 2008). Firstly, ASEAN contributed to maintaining peace in the region; secondly, it ensured safety of key sea lanes serving a vast majority of the world trade; thirdly, it created the concept of a single market in the region and a production base; fourthly, it is a perfect example of a well-functioning multicultural organisation; fifthly, it has become an active participant of the process of building new international structures of the turn of the century; and sixthly, it has outlined its future direction.

Unfortunately, not all of the initiatives taken proved effective from the viewpoint of reinforcing integration processes. An illustration of an ineffective, thus far, implementation of the new mechanisms in this group is the ASEAN Investment Area. Regrettably, the ASEAN organisational structure was insufficient at that time to implement the AIA guidelines due to the sector-related restrictions on investments, limitations in the level of foreign ownership, and other types of requirements in the field of law and investment regulations in the individual ASEAN member states. Therefore, ASEAN, in order to effectively implement the regional integration project, strove for enhancing its legal and institutional framework (Nakamura, 2009).

ASEAN has made efforts to strengthen intraregional integration for many years now. One of them was the establishment of the ASEAN Economic Community (AEC). The AEC objective was to create a stable, prosperous, and highly competitive ASEAN economic region with free movement of goods, services, investments, freer flow of capital, equitable economic development, reduced poverty and socioeconomic disparities in 2020. During the ASEAN Summit

in Cebu (Philippines) in January 2007, it was decided to accelerate the AEC implementation by five years, i.e. by the end of 2015. The so-called AEC Blueprint, which outlined a road map for reinforcing economic integration and fulfilment of the AEC assumptions by the end of 2015, was adopted in the same year (ASEAN, 2007).

ASEAN accepted the new approach to the process of regional integration of its member states in 2007 by adopting the so-called ASEAN Charter, which follows the pattern of the European institutional organisation model[6]. The ASEAN Charter establishes the legal personality of ASEAN (Article 3), the fundamental purposes and principles of operation of ASEAN institutions in the group of its member states (Article 2), institutional framework (Articles 7-15), and the fundamental principles of the decision-making and implementation process (Articles 20-21) (ASEAN, 2017). This document is a kind of a constitution of the Association's member states. The ASEAN Charter entered into force on 1 January 2009. Its adoption will enable the Association's transformation into a tighter organisation relying on legal instruments. The signed document became an impulse for transforming ASEAN into a regional group based on three pillars: the Security Community, the Economic Community, and the Socio-Cultural Community. The formation of the Communities was completed in 2015. In terms of economics, the purpose of the Charter was to integrate the member states into a single market with free movement of goods, services and investments and increased reliefs in the area of free movement of entrepreneurs, investors and workforce.

The ASEAN Charter establishes the legal bases for specifying the rights and obligations of the member states and sets the directions of action in relations with external partners. The Charter upholds the respect for the right of non-interference from the outside and gives a mandate to a body responsible for promotion and protection of human rights and the fundamental freedoms in the region.

The recorded progress in integrating the ASEAN member states proves that the participants of the process realise the benefits from closer integration and at the same time are aware of the globalisation processes occurring in the world and the growing competition on the international stage. They, however, opt for cultivating the traditional approach to integration, which is based on the political instruments which are not legally binding, e.g. ones concerned with the methodology of building the ASEAN Economic Community.

4. East Asia Summit (EAS)

The Kuala Lumpur Declaration on the East Asia Summit of 14 December 2005 provided that EAS would be a regular forum for dialogue, and strategic, political and economic issues would be of its interest, and its aim would be to promote peace, stability and economic prosperity in East Asia. It was also indicated that EAS activities in the area of promoting the community building process in this region would be complementary and inspiring with respect to the ASEAN Community project. The summit can be considered the first step towards establishing the East Asia Community (Oxford Analytica, 2005). At the sixth EAS summit, held in Jakarta (Indonesia) in November 2011, the group of members was expanded by the USA and Russia and, in the face of the 2007/2008+ financial crisis, it was decided to broaden the activity agenda by two issues: strategic relations between the members and arousal of interest in the problems of security from traditional and contemporary perspectives.

In the Kuala Lumpur Declaration of 22 November 2015 – on the occasion of the 10th anniversary of EAS establishment – the central role of ASEAN in the analysed diplomatic structure was confirmed, the necessity to ensure consistency with

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[6] At the summit in Bali in 2003, the ASEAN member states adopted a declaration which contained a decision on the establishment of the ASEAN Community in 2020. The document's entry into force on 1 January 2009 is evidence of ASEAN's interest in accelerating this process.

the ASEAN priorities and activity, to enhance the role of the EAS Chair in order to achieve synergy with the ASEAN Plus format, and to effective implement the decisions made at the summits was indicated. The purpose of making EAS a proactive structure capable of a timely response to the emerging challenges and threats is served by the postulates of creating a special dedicated Unit within the ASEAN Secretariat and a formula of regular engagement between the Committee of Permanent Representatives to ASEAN and the non-ASEAN Ambassadors of East Asia.

On the occasion of the 10th EAS anniversary, ERIA experts submitted the Comprehensive Asia Development Plan 2.0 (CADP 2.0), which expanded the concept of the original CADP by a new development strategy emphasising the selection of projects in the area of hard and soft infrastructure for connectivity and innovation. CADP 2.0 stresses the issue of quality with respect to both infrastructure and infrastructure projects promoting, above all, connectivity or innovation. The document outlines also the prospect for soft and hard infrastructure development until 2030 with the application of the IDE/ERIA-GSM Geographical Simulation Model (ERIA, 2015).

In short, the fundamental issues regarding the establishment of a regional community remain open to a similar extent as in the pre-EAS period[7]. However, it is worth stressing the significance of the step made by the region towards peaceful and constructive relations despite no clear progress in the real debate on the construction of the regional community.

Conclusion

1. The countries of the East Asia region seek their own integration model. High diversity is an obstacle in creating a strong and effective integration group but it should not prevent regional cooperation. It seems that the integration of the region will enforce the establishment of stronger and more efficient regional institutions sooner or later. Moreover, the gradual opening of the societies and search for the common cultural roots by leaders and politicians constitute an important platform for creating integration ties on the social plane.

2. There are large transnational corporations operating in the examined region, non-governmental organisations commence their activities increasingly more actively, the societies' awareness and openness grows, and an active role of governments in the East Asian countries in creating an environment facilitating multifaceted economic cooperation is noticeable.

3. The governments of the ASEAN member states and other Asian countries point to the increasingly more commonly recognised need of integration within specific institutional structures.

4. The divergence of political and military interests of the main powers in the region: China, Japan, the USA, South Korea, and India, results in ASEAN being more and more often perceived as the core of the integration process in East Asia.

5. In the ASEAN member states, the political elites and managers discern the benefits arising from the integration processes increasingly more clearly but at the same time they are aware of the threats and risks involved.

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[7] The ASEAN Charter adopted on 20 November 2007 restricts ASEAN membership to the group of countries the geographic "location" of which is the South East Asia region (Article 6(2)(a) of the Chart). Therefore, the future East Asian Community will be created as an institution separate from ASEAN, within which ASEAN, as a unit, will cooperate with the other six member states.

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A FIRM'S ORGANIZATIONAL INNOVATION AND ORGANIZATIONAL KNOWLEDGE MANAGEMENT ABILITIES

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Abstract. In advanced economies, ability to manage innovation, knowledge and organizational learning are firms' key assets for fostering long-term competitive advantage and sustainable development. The overall innovation activity depends on the synergy between introducing technological innovation and organizational innovation (ORI).

This study examines the relationship between a firm's innovation ability, in the context of ORI, and its organizational culture as well as knowledge management factors. Organizational culture is assessed through four dimensions – orientation towards team, development, results and consistency, while knowledge management is assessed through ability to generate, transfer and implement knowledge, as well as intention to learn. The study aims at contributing to the missing link between organizational culture, knowledge management and organizational innovation by finding the answer to the question, what impact these factors could have on ORI development in a firm.

A quantitative study of 134 small and medium-sized enterprises from various industries was conducted simultaneously in Latvia and Russia. The results provide evidence that organizational culture has strong, positive influence on both the knowledge management and ORI evolvement in a firm. Nevertheless the surveyed firms demonstrated different performance in context of the specific sub-types of the ORI. The relations between these ORI sub-types, dimensions of organizational culture and different knowledge management activities also varies.

Introduction

A significant part of a firm's overall strategy is innovation management. Innovation management strategy is a functional-level process aiming at increasing productivity of each business function of a firm, e.g. production, service, networking, R&D, finance (Nandakumar et al., 2011; Forsman, 2009; Wang and Ahmed, 2004; Dukeov, 2008). Different kinds of innovations within a firm are often closely interrelated with each other. According OECD-EUROSTAT (2005) the introduction of technological innovation, which encompasses product and process innovation, is complementary with the adoption of non-technological innovation, which encompasses marketing and organizational innovation (ORI).

According to many studies (e.g., Damanpour, 1987) to be successful in innovation management, firms must continuously develop appropriate ORIs to multiply the overall effect of innovation activity into profit. Some researchers stated that ORI underlie the efficient implementation of the other types of innovation as well as associates with one of the most significant factors increasing competitive advantages of a firm (Damanpour, 1996).

The term "new industrial organization" was introduced by Joseph Schumpeter (1934) in the beginning of the 20th century. Despite of that, organizational innovation has yet not attracted attention of the majority scholars and the most of the studies deal with product or process innovation leaving the ORI concept out of being researched and implemented (Klette et al., 2004; Sapprasert and Clausen, 2012). The scholars elaborating this area provided various definitions and classifications of ORI term evolving the understanding of the concept. Some researchers (e.g., Fagerberg et al., 2012) stressed the role that ORI plays in the theory of innovation. In this context generation, diffusion, and exploitation of knowledge play a central role in a firm development (OECD-EUROSTAT, 2005). Many studies have proved that knowledge generation and its accumulation as well as the process of organizational learning in a firm, affect positively the firm's overall performance. (Wu et al., 2006).

ORI is affected by many diverse organizational aspects, amongst those organizational culture. Organizational culture (OC) can play an important role fostering long-term thinking, risk-taking abilities and individual responsibility, thus increasing the innovation activity of a firm (King, 2007; Turró et al., 2014). Previous studies have demonstrated that organizational culture affects attitudes towards independence, risk and the distribution of power (Shane, 1994; Tan, 2002; Alvarez and Urbano, 2012). It also influences productivity by shaping decision-making process, increasing the ability to adjust to changes and forming attitudes towards social equality (Throsby, 2001). Culture affects tightness and effectiveness of leadership (Aktas et al., 2015).

Our study examines the relationship between a firm's innovation ability, in the context of ORI, and its organizational culture and knowledge management factors. We consider such factors as Knowledge Generation Ability, Knowledge Transfer, Knowledge Implementation and Learning Intention. It aims at contributing to the missing link between knowledge management and organizational innovations by finding the answer to the question, what impact these factors could have on ORI development in a firm.

Conceptual background and framework development

Knowledge is often viewed as a crucial driver of economy growth as well as for innovation flourishing (Delgado-Verde et al., 2011). Thus, knowledge management as a relatively new discipline is still building up its theoretical framework (Darroch, 2005). Knowledge management (KNM) can be seen as a process of creating, sharing, using and managing the knowledge in an organization (Girard and Girard, 2015). In our study we define them as knowledge generation (KNG), knowledge transfer (KNT) and knowledge implementation activities (KNS). Additionally, KNM can be considered as an enabler of organizational learning (Sanchez, 1996). In the knowledge-based economy innovation is one of the key concepts. Despite this fact and the broadly acknowledged perception of innovation as a complex phenomenon, it is not fully known, how knowledge affects innovation (OECD-EUROSTAT, 2005). Griese at al. (2012) stated that KNG has strong impact on innovation activity of a firm as well as in its turn provokes evolvement of the learning function (LEN) in the firm and KNS that positively influence the elaboration of ORI.

KNM and OC. Previous studies have listed OC as the most significant factor for effective KNM (David and Fahey, 2000). Schein defines OC as *"a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems"* (Schein, 1985: 17). It reflects the way, in which one group of people solves problems and makes choices, including the accumulated learnings that are further passed on to new members (Louis, 1980). As the OC is the underlying system of a firm, it further influences most of the internal and external processes. OC influences knowledge generation, shaping assumptions and relationships between individual and organizational knowledge (David and Fahey, 2000). Empowering and inclusive OC creates trust between individuals and groups (ibid), thus further encouraging dialogues and sharing of ideas and knowledge (Davenport

and Prusak, 1998). And organizational learning requires a high degree of commitment, where culture can provide basis for involvement and participation (Gupta et al, 2000).

López et al (2004) listed several attributes of a collaborative OC enhancing KNM and organizational learning: long-term vision, communication and dialogue, trust, teamwork, empowerment, ability to tolerate ambiguity, risk assumption as well as respect and diversity, and encouraged firms to create working environments that are favorable for progress.

To assess the impact of the OC on KNM and ORI, we structure the OC using four dimensions adopted from the competing values framework, developed by Denison and Spreitzer (1991). This framework explains the dilemmas between stability and change, and between internal and external environment. It is organized around two axes – centralization vs decentralization and competition vs the maintenance of the sociotechnical system (Denison and Spreitzer, 1991). Thus four dimensions of the OC emerge from this framework – human relations model (the team), open systems model (the adhocracy), rational goal model (the firm) and internal process model (the hierarchy). We've adopted them as the team, development, result, as well as consistency orientation to fit the interests of our research, refocusing the internal process model from hierarchy to consistency.

Thus, we propose the following hypotheses:

H1a: Team orientation of a firm has positive effect on KNG

H1b: Team orientation of a firm has positive effect on KNT

H1c: Development orientation of a firm has a positive effect on KNG

H1d: Result orientation of a firm has a positive effect on KNS

H1e: Consistency orientation of a firm has a positive effect on KNS

Organizational Innovation. Previous studies provide solid evidence that the innovation in general is a reliable source a firm's competitive advantage (Damanpour et al. 1989; Schulz and Jobe 2001). In 2005 OECD-EUROSTAT in the document titled "Oslo Manual" introduced the definition of organizational innovation that is widely used in the modern theory of innovation. This document understands by organizational innovation "the implementation of a new organizational method in business practices, workplace organization or external relations" (OECD-EUROSTAT, 2005, p.51). The ORI should be based on strategic decisions taken by the management of a firm to implement a new for the firm organizational methods in business practices, workplace organization or external relations.

The interest towards the problem of what impact organizational innovation has on the performance of a firm is continuously increasing. Quite a large number of definitions for ORI as well as interpretation of the term can be found in the literature (e.g., Mothe and Thi, 2010). There can be different levels of ORI - for instance, appropriate solutions on the level of particular departments or functions of a company. ORI can also relate to the overall structure or the functional principles of the firm (Wengel et al., 2002).

Many studies argue that ORI are firms' responses to technological innovations underplaying the success of the last. Nevertheless, ORI can also have independent role in firm development as a distinct form of innovation (Tidd at al., 2005).

Firstly, ORI might be aiming at implementing new procedures in processes, operation, or behavior in a firm for the first time (Som et. al., 2012). These ORI are related to innovations in management practices (IMP). As an example of such innovations one can consider a total quality management, lean, risk-management systems that impact directly on organizational performance of the firm. (Wheelwright and Clark, 1992; Reed et al., 2000; Ichniowski et al., 1997; OECD-EUROSTAT, 2005). IMP refers to new approaches in changing organizational structure or administrative procedure enhancing by that a firm's ability to take the risk and its transparency to new ideas originated both in the internal and external environment (Han et al., 1998; Lin and Chen, 2007)

The second subtype of ORI deals with innovations in workplace organization (IWO) in order to support the implementation of new workplace organizing methods (OECD-EUROSTAT, 2005; Som et al., 2012). The ultimate goal

of introduction the IWO is to improve the overall performance of a firm by introducing the innovations that refers to the process of providing new ideas, know-how and organizing more creative working environment in a firm (Scott and Bruce, 1994; Mothe and Thi, 2010). IWO is also closely linked to the OC – certain working practices will foster certain dimensions of innovation, through shaping attitudes towards independence, risk and the distribution of power (Shane, 1994; Tan, 2002; Alvarez and Urbano, 2012).

The third type of ORI deals with decreasing the organizational barriers of the external environment facilitating the firm's interaction with the external environment (Heidenreich, 2009; Rammer et al., 2009). It can be considered as an external relation subtype of ORI (IER). The IER is an indicator of how a firm is making its network activities (Mothe and Thi, 2010).

According to the OECD-EUROSTAT (2005, p.51), ORI can be "intended to increase a firm's performance by reducing administrative or transaction costs, enhancing labour productivity by improving workplace satisfaction, gaining access to non-tradable assets (such as non-codified external knowledge), or reducing costs of supplies".

Only a few studies (e.g. Camiso´n and Villar-Lo´pez, 2011; Apsalone et al., 2017) out of numerous ones on innovation focus on how knowledge management practices influence ORI activity of a firm.

KNM and ORI. Innovation activities are based on the firm's readiness and willingness to change. Griese at al. (2012) argues that if a firm aims at achieving a high level of innovation activities in product, process, or business models, it should focus on building knowledge generation competence within the firm. Many studies proved a very strong relation between knowledge generation, transfer and accumulation on one side and innovation process on the other (Nonaka and Takeuchi, 1995; Diaz et al., 2006)

According to many scholars (e.g., Prahalad and Hamel, 1990; Grant, 1996; Spicer and Sadler-Smith, 2006), knowledge management related practices in general enhance firms' innovation activity in general and the ORI in particular. Firms are more active in introducing innovations, when they effectively absorb knowledge from outside as well as when they make it circulate intensively within the internal environment (Nonaka and Takeuchi, 1995). In particular the IWO sub-type of organizational innovation significantly depends on knowledge transfer (Som et al., 2012). The need in knowledge generation and transfer enhances the demand in having internal vehicles for facilitating building relations with a firm's external environment including other firms, public institutions, research organizations, customers, suppliers in order enhance efficiency of production, procuring, distribution, recruiting and ancillary (OECD-EUROSTAT, 2005; Sapprasert and Clausen, 2012). Thus, a firm evolving knowledge management systems should most likely intensively introduce all sub-types of ORI.

Thus:

H2a: Knowledge generation ability of a firm has a positive effect on IMP

H2b: Knowledge generation ability of a firm has a positive effect on IWO

H2c: Knowledge generation ability of a firm has a positive effect on IER

H3a: Knowledge transfer ability of a firm has a positive effect on IMP

H3b: Knowledge transfer ability of a firm has a positive effect on IWO

H3c: Knowledge transfer ability of a firm has a positive effect on IER

Organizational Learning. Many studies (e.g., Sinkula, 1994; Sinkula et al., 1997; Baker and Sinkula, 1999; Calantone et al., 2002). Mavondo et al. (2005) emphasize that knowledge generation is closely related to organizational learning. The demand in knowledge generation enhances learning activities in the firm (Argyris and Schön, 1978; Dixon, 1992).The employees in a firm act as agents that make it learn (Dodgson, 1993; Kim, 1993). The critical aspects of

learning depend very much on organizational approaches in a firm (Senge, 1990; Sinkula, 1994). A firm that established its orientation on learning should continuously looking for the new forms of organizing this learning process (Biemans, 1995; Jaworski and Kohli, 1993; Stathakoloulos, 1998). In particular, new management practices and further development of working palaces to get them adapted to the purposes of facilitating the process of learning should continuously evolve.

Thus,

H4a: Learning abilities of a firm have positive effect on IMP

H4b: Learning abilities of a firm have positive effect on IWO

H4c: Learning abilities of a firm have positive effect on IWO

In order to test the hypotheses, this study used a structured, closed-ended questionnaire. Most of the questions were adopted from previous studies carried by Griese (2012) and Zortea-Johnston (2012). In addition, some of the questions were self-operationalized.

We developed the dependent variables measuring innovation performance based on the definitions in the Oslo Manual (OECD-EUROSTAT, 2005), as well as from other studies (Eurostat, 2012; Dadura and Lee 2011). Respondents were asked to compare the innovation performance of their company in comparison to the innovation performance of their competitors using a seven-point Likert scale (where 1 corresponds to ''strongly disagree'' and 7 corresponds to ''strongly agree''). Given that only meaning on the end-points was provided, we assume that the variables are measured on a continuous scale.

Few background questions were also included to understand the profile of organizations, such as annual turnover and dynamics, as well as the number of employees and the related changes. These variables were measured using a nominal scale. This study included firms with no more than 1000 employees. Such an approach allowed to include more businesses in the analysis, while still excluding very large businesses, who might be industry leaders and thus might have different factors affecting innovation processes.

We administrated the questionnaire amongst senior managers of Russian and Latvian companies in the second half of 2016. Participants were selected using a "snowball" method. In total, 134 completed questionnaires were collected - 45 Latvian companies and 89 Russian companies from various industries took part in the research.

Research results and discussion

Assessing the average knowledge indicators in the surveyed companies, a conclusion can be made that KNG and KNS were the most developed amongst the surveyed companies, while KNT was the lease developed (Fig. 1). Organizational learning (LEN) was rated on average slightly lower than KNG.
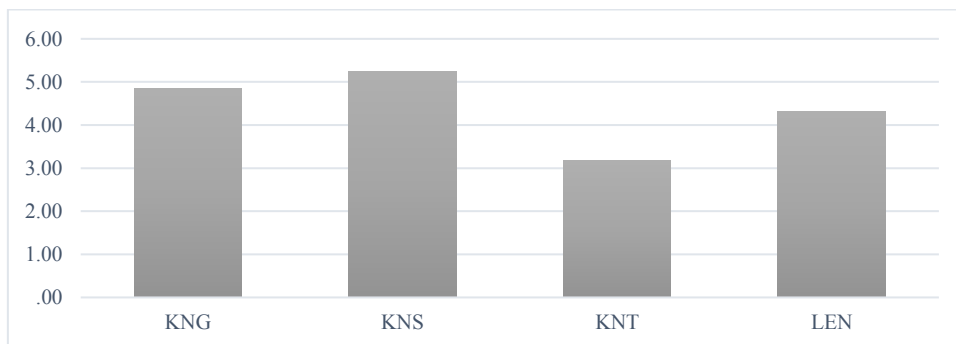
Source: authors' calculations based on survey data

Fig. 1. **Knowledge indicators and organizational learning**

And, by assessing the OC, team dimension was on average the strongest amongst the surveyed companies, while the result orientation was the weakest (Fig. 2). Similarly the dimensions of OC were positively linked to each other, not as originally foreseen in the competing values framework. The knowledge indicators were also positively related to each other, especially KNG and LEN (Pearson Correlation .629), KNG and KNT (Pearson Correlation .359) and KNT and LEN (Pearson Correlation .519) – all of those statistically significant at the 0.01 level (2-tailed). Considering this, the hypotheses H1a to H1e can be accepted as proposed in the paper.
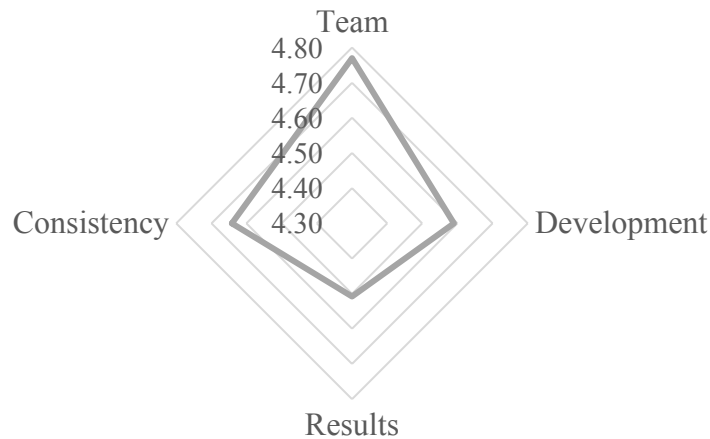
Source: authors' calculations based on survey data

Fig. 2. **Dimensions of organizational culture**

From the innovation indicators, IWO and IER were more developed in the surveyed companies, compared to IMP. IWO and IER were positively related to KNG, Team, Development and Result orientation. And IMP was positively linked to all 4 dimensions of culture.

By using multiple linear regression models, IWO can be seen as a function of result orientation that explains 33% variation in the IWO performance (Fig. 3).

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
.575	.331	.297	.960	.331	9.876	1	20	.005	2.027

Predictors: (Constant), RES, dependent Variable: IWO
Source: author's construction based on survey data

Fig. 3. **IWO regression model**

IER can be seen as a function of KNG and result orientation, the model explains 21% variation in the IER performance (Fig. 4).

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
.458	.210	.198	1.613	.040	6.676	1	131	.011	1.774

Predictors: (Constant), KNG, dependent Variable: IER
Source: author's construction based on survey data

Fig. 4. **IER regression model**

IMP is a function of LEN, consistency orientation and KNT. The model explains 42.9% of the variation in IMP (Fig. 5).

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
.655^c	.429	.416	1.019	.025	5.504^c	1	128	.021	1.947

Predictors: (Constant), LEN, CONS, KNT, dependent Variable: IMP
Source: author's construction based on survey data

Fig. 5. **IMP regression model**

Considering this, the hypotheses H2a to H2c can be accepted as proposed in the paper as well. Finally hypotheses H3a and H3c can be accepted as proposed, but H3b can be rejected – this study did not find a significant evidence that knowledge transfer ability of a firm would have a positive effect on IWO.

Conclusions, proposals, recommendations

In our study was aiming at finding relation between organizational culture, knowledge management and organizational innovation based on the sample of small and medium-sized enterprises of Russia and Latvia. The results provided evidence that:

1. Organizational culture has strong, positive influence on both the knowledge management activities and organizational innovation evolvement in a firm.

2. The knowledge generation ability is a crucial function for development of all three organizational innovation sub-types that are IMP, IWO and IER.

3. The knowledge transfer ability of a firm positively affects IMP and IER sub-types of organizational innovation. We did not find any considerable relations between knowledge transfer ability and IWO sub-type of organizational innovation.

4. KNS does not seem to have any statistically significant impact on any type of the assessed organizational innovation.

5. Organizational culture and knowledge management indicators could partly explain all sub-types of organizational innovation.

6. The surveyed companies demonstrate the best performance on IWO and IER sub-type of organizational innovations, while relatively lower performance on IMP sub-type of organizational innovations.

7. Stronger organizational culture positively contributes to knowledge management and organizational innovation processes.

Based on the study, we propose to consider organizational culture in a firm as an essential component for creating trusting environment and flourishing knowledge management evolvement. The last in its turn strongly affects organizational innovation related activities in that firm.

For further studies we would, firstly, recommend to assess the differences between Latvian and Russian companies in a more qualitative way by, in particular enlarging the sample. Secondly, it would be valuable to consider interrelation between large number of knowledge management components and organizational innovation. Thirdly, as the current

study is limited to Latvia and Russia, it would be valuable to extent the geographical scope collecting the surveys in other countries. Finally, it would be interesting to compare the results amongst different industries and between SMEs and large companies to learn how differently the firms perform regarding the organizational innovativeness depending on their antecedents.

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LEAN EFFECTIVENESS METHOD APPLICATION IN CREATIVE INDUSTRIES OF LATVIA

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Abstract. Creative industries occupy an increasingly important place in the Latvian and global national economy. These are the industries that grow fast, are associated with intellectual capital and able to create new jobs. Increasing effectiveness, in turn, is important for every organisation in order to preserve competitiveness in the rapidly changing external environment. It is an integral part of the companies' competitiveness in every industry and the basis of successful operation in the long-term.

The purpose of the research is to determine the possibilities of use of the Lean effectiveness method in creative industries of Latvia. The Lean Service approach that derived from the Lean effectiveness improvement method is a general way of thinking approach able to ensure balance between creativity and standardised work practices. This Lean approach is mainly focused on the optimisation of processes and services through the professionalisation of job functions. Within the framework of this research, the authors have proved that the use of the Lean Service in creative industries may have a positive impact on the turnover of such companies. In general it was concluded that entrepreneurs of Latvia's creative industries are aware of the Lean objectives, work at the reduction of costs and losses but in practice the majority of them do not find time to meet said objectives, do not develop standards for continuous improvement and do not conduct audits.

The research, at first, summarises the theoretical substantiation of peculiarities of implementation of the effectiveness methods in creative industries including the theoretical analysis of the Lean approach and the Lean Service approach. The following section specifies the research methodology as well as analyses practical use of the Lean methods and their connection with the growth and amount of turnover. At the end of the research, conclusions and recommendations are given to increase the effectiveness of companies in creative industries.

Theoretical and practical implications of the research entail the possibility to develop an analysis-based effectiveness improvement programme for Latvia's creative industries as a result of which the performance of said companies will be facilitated.

To meet the purpose of the research, the research methods were used as follows: document analysis, text analysis, content analysis, deconstruction, statistical analysis methods (grouping, comparison, statistical indicator analysis – calculation of the mean, mode, median and relative values, correlation analysis) and survey (questionnaire).

Key words: *effectiveness, Lean, Lean Service, creative industries, process optimisation*

JEL code: L26, L89

Introduction

Nowadays, organisations face constant changes in the external environment caused by stiffer competition and ever more demanding consumer expectations as well as under the impact of other external factors. More effective performance through the lowest costs, greater reliability and speed, greater capability to change and continuously improve performance, – these are just several strategic principles of the organisation trying to survive in this competitive environment (Drohomeretskia E. et al., 2014). Effectiveness is an integral part of the company's competitiveness in every

industry as well as the basis for successful long-term performance. The company's effectiveness may be measured by such company performance indicators as customer satisfaction, employee satisfaction, cycle time, production costs, return on investments, market share, labour productivity and result-to-standard ratio. (Alsmadia M., Almanib A., Jerisat R., 2012). Likewise, there are several approaches to improve effectiveness, including *Lean, Six Sigma, Lean Six Sigma, Total Quality Management*. However, the specific industry in which the company operates should be taken into account in order to choose, apply and implement the methods of effectiveness by the company.

Creative industries, in turn, are specific sectors demonstrating rapid growth, associated with intellectual capital and capable of creating new jobs. Creative industries occupy an increasingly important place in the Latvian and global national economy. It is essential to facilitate the development of creative industries by improving their effectiveness. Since creativity is an intangible factor which lies at the heart of innovations, is subjected to continuous change and is rather difficult to assess, creative industry companies may in reality have problems with the assessment of their own effectiveness, work standardisation and development of productivity improvement measures.

The research is focused on the use of the Lean management method in creative industries of Latvia. The purpose of the research is to determine the peculiarities of use of the Lean method in creative industries of Latvia as well as identify the key Lean method practices that may improve the effectiveness of creative industry companies. The theoretical and practical implications of the research entail the possibility to develop an analysis-based effectiveness improvement programme for Latvia's creative industries as a result of which the performance of said companies will be facilitated.

The primary task of the research is to summarise the theoretical substantiation of peculiarities of implementation of the effectiveness methods in creative industries including the theoretical analysis of the Lean approach and the Lean Service approach. The following task is to specify the research methodology as well as analyse practical use of the Lean methods and their connection with the growth and amount of turnover. At the end of the research, conclusions and recommendations are given to increase the effectiveness of companies in creative industries.

To meet the purpose of the research, the research methods were used as follows: document analysis, text analysis, content analysis, deconstruction, statistical analysis methods (grouping, comparison, statistical indicator analysis – calculation of the mean, mode, median and relative values, correlation analysis) and survey (questionnaire). The data sources used in the research are: official statistical data of Latvia, international and Latvian researches and scientific works, publications in collections of scientific articles, as well as information sources available on the Internet.

Research Results and Discussion

1. Peculiarities of Implementation of Effectiveness in Creative Industries

Creativity is the ability to come up with a new and potentially useful idea in order to meet the desired goal (Mumford M., Gustafson S., 1988, Bratnicka K., 2015). The Ministry of Culture of the Republic of Latvia defines cultural and creative industries as "activities originating from individual or collective creativity, skills and talent, and which have a potential for wealth and new job creation through the generation and use of intellectual property. Creative industries create, develop, produce, demonstrate, disseminate, and preserve products which have the economic, cultural and/or entertainment value" (Ministry of Culture of the Republic of Latvia, 2018). According to the creative industry mapping document published by the United Kingdom government Department for Digital, Culture, Media and Sport, creative industries are: advertising, architecture, the art and antiques market, crafts, design, designer fashion, film, video and photography, interactive leisure software (computer games), music, the performing arts, publishing, software and computer services, television and radio (Sung T., 2015). The Ministry of Culture of the Republic of Latvia includes similar sectors in creative industries, i.e. architecture, designer fashion, film, the performing arts, visual arts, music, publishing,

television, radio and interactive media, advertising, computer games and interactive software, cultural heritage, cultural education, leisure, entertainment and other cultural activities (Ministry of Culture of the Republic of Latvia, 2018).

The set of applicable effectiveness methods depends on the type of the product offered, and it should be adjusted to meet the line of thinking in the industry activities. Use of differentiated effectiveness principles based on the service type offers a greater potential for the improvement of effectiveness. Since creative industries are special and have a new and intangible idea, talent and intellectual capital behind them, special factors should also be taken into account in the use of the effectiveness methods because the improvement of effectiveness is usually based on measurable indicators and standardisation. Standardisation (which includes control) and creativity seem to be contradictory. Creativity may be regarded as a means of change used to implement innovations and mitigate insecurity, whereas standardisation determines that specialisation is the main means of dealing with complexity. Hence, a dilemma arises: on the one hand, employees of creative industry companies are to be creative in their work; on the other hand, it is desirable that standardised work practices lying at the bottom of effectiveness are complied with. Nevertheless, researchers claim that it is essential for the heads of creative industry companies to establish an instrument of official control in order to adjust thinking. Such companies tend to be dependent on creative skills of their employees and such skills need to be managed properly (Grabner I., Speckbacher G., 2016). Still, there should be a balance in order to rule out possible side circumstances that would have an adverse effect on creativity of employees. It is necessary to consider approaches encouraging the use of both creative teams and standardised work processes. One of the alternatives is training. Employees may be trained to be more creative; likewise, employees may be trained in the field of customer relations management. Companies should implement both approaches skilfully, whereas employees should learn to adapt to changing circumstances. Under normal circumstances standardised work processes and routine optimise effectiveness, while under unforeseen circumstances it is essential that employees find solutions and improvise (Gilson L., Mathieu J., Shalley C., 2005). Employees should identify the type of a situation and be flexible to adapt to it.

2. Lean Method Description

Latvian creative industries mostly operate in the services sector (The Central Statistical Bureau of Latvia, 2018), therefore the Lean Service tools may be practically used by creative industry companies ensuring balance between creativity and standardised work practices. To understand the Lean idea, it is necessary to firstly summarise the basic principles of this method which has its origins in the manufacturing sector. Lean as a term was defined approximately in 1990 mainly with the aim to achieve improvements in a cost-effective manner (Alsmadia M., Almanib A., Jerisat R., 2012). The Lean Enterprise Institute determines that "a Lean organisation understands customer value and focuses on its key processes in order to continuously improve them" (Bessette D., 2012). The key Lean principle is ensuring quality while reducing costs. The method is based on the fact that customers or investors will deliberately not pay and finance wastes in processes and services. Therefore, if a company wants to be more effective, it has to avoid tasks that are unnecessary and unproductive. In general, Lean is not a specific model but rather a general improvement technique - tools and methods mainly focus on behaviour and attitude rather than give a concrete advice (Cervone H., 2015).

The main Lean principles and tools are as follows (Carlborg P., Kindstrom D., Kowalkowski C., 2013):

- One of the Lean system's fundamental principles is ***Kaizen*** (Japanese for 'good change') – continuous improvement – which nowadays is quite a popular concept mainly associated with the total quality movement and the culture of continuous improvement through larger and smaller projects, everyday thinking, recommender systems and process improvements. The essence of this concept is improvement of quality and/or processes with the aim to reduce costs by streamlining work and improving quality (Drohomeretskia E. et al., 2014).

- **Value and Value Stream Identification** – to identify the sequence of activities required to produce a product or deliver a service. In terms of this concept, it should be assessed whether all activities in the process generate value

which may be received by the end user only (Womack J., Jones D., 2003). When trying to identify the reason of problems in performance, a company should start with the work process as such (Luecke R., Hall B., 2006). Therefore, to learn about the current state of business and recommend further improvements, Value Stream Mapping (VSM) should at first be carried out. It is a scheme including activities which generate value for the customer and are necessary to develop a product through the complete flow, and which are important for every product – from development and production till delivery of a service or product to the customer. It is the method helping to understand the flow of information and materials through the value stream. In VSM, diagrams are used to depict a value stream map. It allows creating a future value stream which, in turn, shows the extent to which a company can be managed effectively and without wastes. The goal is striving for perfection – total elimination of wastes in such a manner that all activities in the value chain generate value for the customer (Womack J., Jones D., 2003). VSM is also used in services; for instance, Tortorella G. et al. (2017) proved it in the research that the application of value stream mapping in the sterilised materials unit of a public healthcare organisation demonstrated the benefits of analysing healthcare processes using VSM; most notably reduction of wastes, inventory levels, and production lead times.

- **Flow** – to organise continuous flows of production of separate elements in the value chain under the Just-In-Time approach. In accordance with the Just-In-Time method, customer preferences are met to the extent and at the time as expected by them (Channon D., 2009). It allows reducing costs since it provides for the delivery of the right quantity of a product at the right time which reduces inventory and capacity of the areas used for equipment, materials and people.

- **Pull** – to manufacture only upon receipt of the customer's order. The main idea is that it is the demand which causes flow in the value chain rather than manufacturing of a product or deliver of a service "just to be on the safe side".

- **Quality Right The First Time** (perfection) – to manufacture commodities right the first time so that not to solve problems at a later stage.

- **Standardisation** – to determine standards and the procedure for continuous improvement. Standardisation makes it possible to control and compare the functionality of different units with different measurable values (Drohomeretskia E. et al., 2014).

- **Waste Identification** - to remove from the value stream all activities which do not facilitate the development or delivery of products or services. Waste is anything that uses resources but does not add value to a product or service from the client's perspective. Waste types: unnecessary inventory, overproduction, excess motion, waiting, unnecessary transporting, inappropriate processing, defects or poor quality, underutilised intellectual capital (Higor dos Reis L., Guilherme Ernani V., 2015). Wastes are created if there are deviations from standards, insufficient flexibility in satisfying the changing demand of customers.

- **Root Cause Analysis** or **The 5 Whys** is the method the purpose of which is to understand the root cause of a problem. It is simple and does not require special skills. The 5 Whys analysis starts with the identification of a problem and then gets to its root cause. To answer this question, it is necessary to identify the potential root cause of a problem. Afterwards, the question "why?" is to be asked again to get to a deeper root cause; the question "why?" should be asked until the relationship between the root causes and effects is determined leading to the root of the problem – the real cause (Sarkar D., 2006). Identification of the root cause of a problem helps to develop and implement effective counter-measures to make sure that the problem does not reoccur.

Organisations using the *Lean* method are to include several concepts into their corporate culture:
- Improvements are always possible;
- The ultimate goal is generating value for customers;
- There should always be movement forward even if it is insignificant;
- There is solution to everything;

- Focus on possibilities not limitations;

- Employees can do more together than an employee can do alone;

- Each person in the organisation is unique and has a distinctive feature needed by it (Cervone H., 2015).

Lean principles (continuously)

- Values and value stream
- Flow
- Pull
- Quality right the first time
- Standardisation
- Waste elimination

Lean concepts (continuously)

- Continous improvements
- The ultimate goal is value for customers
- Always move forward
- There is solution to everything
- Focus on possiblities not limitations
- Collective work
- Each person in the organisation is unique and important

Benefits (continuously)

- Productivity improvement
- Time and cost reduction
- Value increase
- Enhanced flexibility
- Improved general competitiveness

Source: author's construction based on Drohomeretskia E. et al., 2014; Panwar A. et al., 2018.

Fig. 1. **Benefits of the Lean Principles Implementation by the Company**

According to Kaizen approach implementation of the Lean principles and concepts should be practiced continuously in the corporate culture. It facilitates several improvements (please see Fig. 1). The largest benefits from the implementation of Lean are: improved productivity, time and cost reduction, value increase, enhanced flexibility and improved general competitiveness.

It has been proved by researches that application of the Lean philosophy in services turned out to be effective and valuable; companies demonstrated progress and increased sales (Higor dos Reis L., Guilherme Ernani V., 2015). That is why, in the last ten years it was increasingly used in services (including insurance, healthcare, state agencies, information technology, retail trade, financial sectors). For instance, Health Lean Management is usually implemented to enhance the operational performance in health care. Operational and sociotechnical performance, before and after the adoption of Health Lean Management, were assessed demonstrating the effectiveness and efficiency of visual management tools (Verbano C., Crema M., Nicosia F., 2017). Nevertheless, peculiarities of the service operations are to be understood to determine which Lean methods to use and how to apply them effectively.

Lean Service mainly focus on the optimisation of processes and services through the professionalization of work functions and help people to adapt to change (Cervone H., 2015). In the Lean Service philosophy there are two key principles: 1) continuous improvement; 2) respect for people.

The five objectives of the Lean Service are as follows:

1. Increased customer value: to do only the activities which generate value for the customer/owner.

2. Waste elimination: to eliminate the activities which do not facilitate processes or services.

3. Management as coordinator: managers do not appoint directly but give the possibility to others to do their work.

4. Involvement of all employees: regardless of the status in the organisation, each is valuable and can make his or her own contribution.

5. Continuous improvement: all activities are aimed at system perfection (Cervone H., 2015).

According to D. Bowen's and W. Youngdahl's (1998) researches, flow process generation as well as the use of the pull systems by the customer is also important in services. However, another significant contribution by these authors is the human factor involved in the process. High costs and focuses of manufacturing operations are associated with raw materials and equipment, whereas in service operations manpower is one of the most important factors. Therefore, the fundamental variables in the service provision relationship are the employees who deliver services and customers.

Lean principles applied to employees are focused on their training and increase of their autonomy thus reinforcing the significance of the human factor in the delivery of services (Higor dos Reis L., Guilherme Ernani V., 2015). In the Lean environment, people are never blamed. All efforts are focused on the identification and handling of problems so that solutions can be implemented. Problems belong to everyone, and everyone's contribution to the identification of root causes is important. Lean Service make considerable investments into behaviour and methodologies as well as mechanisms of organisational involvement of employees and participation at the team and individual levels.

In the Lean customer variable, the customer is placed at the heart of service both internally and externally since the first contact for selling service is the customer. To successfully apply Lean principles in the context of services and improve effectiveness, companies are to understand the processes of customer operations as well as the number of different types of services required to improve productivity. The customer's role is usually more active, therefore the customer's perspective is to be included to understand service productivity. This perspective includes customer inputs, for instance, time, knowledge and skills, as well as the output of customer satisfaction. Since customers perceive quality differently, customer satisfaction may vary; therefore, effectiveness improvements cannot be always justified by the company's improved economic results. When measuring productivity, both customer satisfaction (depending on the quality of services) and effectiveness are to be taken into account. The possibilities to improve service productivity and generate value may be found by identifying improvements in the customer processes and even by 'teaching' certain behaviours to customers (Carlborg P., Kindstrom D., Kowalkowski C.,2013).

Standardising services and increasing reliability through application of Lean principles may improve effectiveness. However, the customer's active role and a large variety make application of Lean principles more difficult. As a result, it may be concluded that Lean Service do not have a specific model of tools or practices and service standards. But, regardless of the lack of standards, it was specified that Lean Service may generate great economic and financial results as well as the desirable human behaviour.

3. Research Methodology

To determine the practical use of the Lean effectiveness method and it's principles in creative industries of Latvia an empirical research was carried out. The individual questionnaire was disseminated electronically via the homepage *visidati.lv*. The link to it was emailed to 1 093 representatives of creative industry companies in the period from 18 April 2016 till 07 May 2016. It was available both in Latvian and Russian. Contact details of the representatives of creative industry companies were obtained from the resources as follows: homepages of different sector associations, *Lursoft.lv* and *firmas.lv* databases; Latvian search engines *1188.lv*, *zl.lv*; social networks. As a result, out of all emailed questionnaires 12.4% or 136 filled out questionnaires were received.

Within the framework of the questionnaire, companies had to specify their line of business, duration and turnover. Such information was required to determine the analysis set and assess the relationship between the company's size and applied effectiveness methods. To find out the company representatives' opinions about the use of the Lean effectiveness method, various questions were asked concerning Lean and Lean Service thinking as well as the use of their tools by

companies. Based on those questions, it was possible to assess the companies' attitude and practice in the application of the effectiveness methods, for instance, it was determined whether companies apply the key Lean waste elimination principle, VSM tool, Kaizen technique. Statements concerned assessment of the employees' variable, their training, autonomy and attitude towards them which is one of the Lean Service fundamental principles. Two questions refered to the setting of standards for the internal processes and auditing. Likewise, it was assessed whether companies usually discover the root cause of a problem which is the goal of the Lean tool The 5 Whys as well as the practical implementation of the Just-In-Time idea. To determine the relationship between the use of the effectiveness methods and turnover growth, it was requested to assess whether companies experienced growth in their turnover in the last three years.

The analysed set is presented in Table 1.

Table 1

Lines of Business of Respondent Companies

No.	Questionnaire participant's industry	Percentage of analysable totality
1	Design, photographic services, translation, and interpreting sector	29.4%
2	Art and culture institutions	15.4%
3	Artisanship	13.2%
4	Architecture	12.5%
5	Film, television, music, radio	8.1 %
6	Computer programming and computer services sector	7.4%
7	Other creative industries	13.9 %

The annual turnover of analysed companies was different (Please see Fig. 2). In the majority of cases or in 17.4% of cases the turnover amounted to EUR 21-50 thousand. In 16.7% of companies, the annual turnover exceeded EUR 500 thousand.
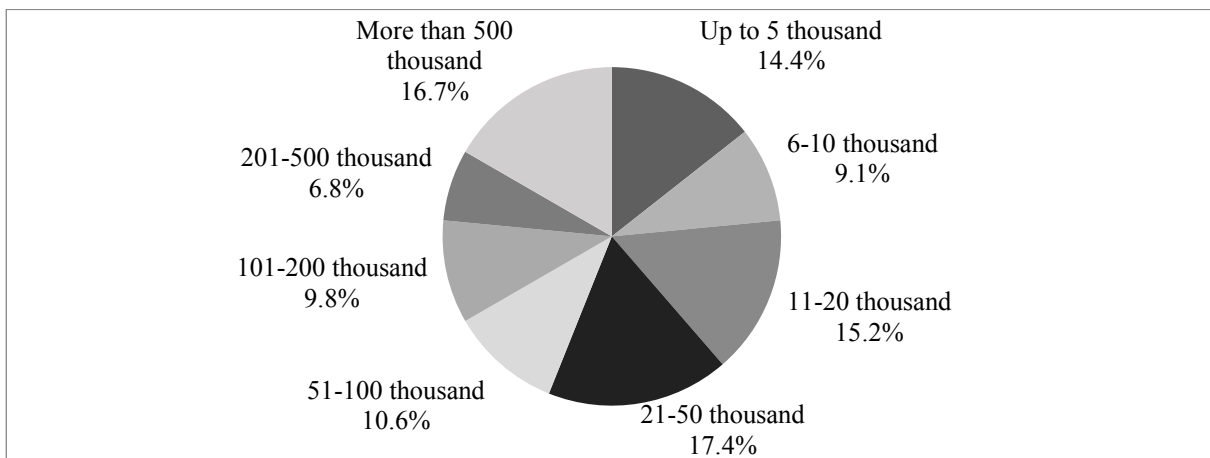
Fig. 2. **Annual Turnover of Respondent Companies (Euro)**

Within the framework of the questionnaire, the respondents were asked to assess the extent to which they agree to each of the statements about the effectiveness methods implemented by their companies on a scale from 1 to 5 (where 1 – strongly disagree and 5 – strongly agree). The results of the answers provided are presented in Table 2.

Different answers are given to the question about the specific time within the employees' work hours dedicated to the work process improvement. The mode and the median – 3, and the mean value – 2.78. Only 27.9% of the respondents strongly or rather agree with that, and 41.9% of the respondents rather or strongly disagree. Others find it difficult to answer this question. It means that approximately ½ of the respondent companies do not inform their employees about the necessity to regularly improve their processes and that there should be some time at work devoted to continuous improvement. It is one of the fundamental principles of the Lean system. It is slightly controversial in relation to the

statement that the absolute majority or 73.5% of the respondents strongly or rather agree that their companies are focused on continuous improvement which meets the Kaizen idea and the key principle of the Lean Service. The majority or 26.5% of the respondents give an average assessment or score 3 to the statement that there are specific standards for continuous improvement and internal processes the performance of which is assessed. The median is 3 and the mean – 3.07. 28.7% of the respondents rather or strongly disagree with that and only 14% strongly agree. Thus, almost ½ of the companies do not implement standardisation. Likewise, only 16.2% of the respondents strongly agree that audits are carried out at their companies on a regular basis which is an integral part of Lean. The most assigned value to this question is 1.

Table 2

Questionnaire Statement Results - Mean, Median, Mode of Every Statement, Response Breakdown

No.	Statement	Mean	Median	Mode	1	2	3	4	5	Not sure
1	Employees have specific time devoted to the work process improvement	2.78	3	3	29	28	32	18	20	9
2	Constant work is done on the cost and deficiency reduction possibilities	3.72	4	4	8	13	27	42	40	6
3	Customer needs are always identified with the purpose to satisfy them	4.32	5	5	1	7	11	44	71	2
4	Business process is divided into separate stages each of which is always analysed from the customer's perspective	3.50	4	4	10	19	31	36	34	6
5	The company's focus is on continuous improvement	4.03	4	5	7	9	17	40	60	3
6	You produce/deliver services on demand only rather than based on forecasts	4.00	4	5	7	12	19	28	64	6
7	There are specific standardised work practices in communication with customers	3.50	4	4	14	11	31	44	30	6
8	There are specific standards for continuous improvement and internal processes the performance of which is assessed	3.07	3	3	19	20	36	28	19	14
9	Audits are carried out on a regular basis	2.63	2	1	38	28	23	14	22	11
10	The root cause of a problem is always discovered instead of blaming a person	3.85	4	5	8	13	21	31	52	11
11	Operate under the principle: give exactly what the customers want, where they want and when they want it	3.73	4	4	7	9	36	41	39	4
12	The recommender system has been developed	2.91	3	4	27	20	27	29	17	16
13	Employees have constant access to visual information about performance, objectives, examples and other data	3.01	3	3	22	20	35	23	21	15
14	Employees openly share their creative ideas with others	3.87	4	5	4	15	22	34	48	13
15	There was growth in turnover in the last three years	3.97	4.5	5	9	10	15	25	59	18

The majority of the respondents point out that at their companies constant work is done on the cost and deficiency reduction possibilities, 60.3% strongly or rather agree with that. Therefore, waste elimination principle is practised. It is related to the satisfaction of customer needs since cost reduction also allows reducing the price and being more competitive. It is also proved by the fact that the absolute majority, i.e. 84.6%, strongly or rather agree that customer needs are always identified by their companies with the purpose to satisfy them which is at the heart of the Lean Service idea. A small number of companies divide their business process into several stages each of which is always analysed from the customer's perspective. Only a half or 54.5% of the respondents strongly or rather agree with this statement. It also proves the fact that businessmen pay more attention to the general end product delivered to the customer rather than to the analysis of the current state of business and components of every internal process in order to fully eliminate waste in all value chain operations. Thus, the VSM tool is not regularly used by creative industry companies in Latvia.

67.6% of the respondents strongly or rather agree that they use the pull system or produce or deliver services only at the customer's request rather than on the basis of forecasts. The mode – 5, and the median – 4. It proves that this Lean tool is used on a day-to-day basis. The majority or 58.8% of the respondents strongly or rather agree that they operate under the principle *Give exactly what the customers want, where they want and when they want it.* So the majority of companies operate under the Just-In-Time system which proves that Latvia's creative companies are customer-oriented. Even though creative industry companies place the customer at the heart of service and operate to satisfy customer needs, only 54.4% of the respondents strongly or rather agree that there are standardised work practices in communication with customers; the mean value – 3.5. Nevertheless, in accordance with the researches, standardised work practices have a positive impact on the relationships with customers and the level of their satisfaction. 61% of the respondents strongly or rather agree that at their companies the root causes of a problem are always discovered instead of blaming a person. It meets the basic idea of the Root Cause Analysis and The 5 Whys method. However, 39% of the respondents, which really is a large portion of all respondents, fail to regularly use this simple, fast and effective root cause identification method which would not only allow solving a problem but also eliminating its root in the long-term so that it never reoccurs.

There is almost even distribution of responses about the recommender system which is part of Kaizen. 34.6% of the respondents rather do not implement this recommender system and 33.8% - rather do implement it, whereas 31.6% of the respondents find it difficult to answer. The mean – 2.91 and the median – 3. It means that the recommender system depends on the specific company's culture. The responses are almost evenly distributed with regard to the statement that employees have constant access to the visual information about performance, objectives, examples and other data. The mode and the median are 3, and the mean is 3.01. 30.9% of the respondents strongly or rather disagree with this statement and 32.4% - strongly or rather agree.

To understand the relationship between the company's turnover growth, size and statements, Pearson's correlation coefficient was calculated in relation to the indicators of these companies and every questionnaire statement. In general, research interrelations are not strong; it means that responses to the statements have no strong correlation with the company's size and turnover. It should be pointed out that there is a weak and negative interrelation between the company's turnover and the statement that employees have concrete time at work dedicated to the work process improvement (Correlation coefficient R=-0.263 where the correlation coefficient is statistically significant with the probability value $p = 0.998$ or the significance level $\alpha = 0.002$). The statements *Customer needs are always identified with the purpose to satisfy them* (Correlation coefficient R=0.281 where the correlation coefficient is statistically significant with the probability value $p = 0.999$ or the significance level $\alpha = 0.001$) and *The company's focus is on continuous improvement* (Correlation coefficient R=0.284 where the correlation coefficient is statistically significant with the probability value $p = 0.999$ or the significance level $\alpha = 0.001$) have a positive correlation only with turnover growth.

Thus, customer need identification and continuous improvement thinking have a weak but positive interrelation with turnover growth. The interrelation of larger companies with a longer duration with these statements is weak and negative.

Analysing the correlation among statements it may be concluded that correlation in these statements is not strong. Averagely strong positive correlation exists between the recommender system development and availability of visual information about performance and objectives to employees (Correlation coefficient R=0.518 where the correlation coefficient is statistically significant with the probability value p = 1 or the significance level α = 0). Both these aspects are associated with the company's cultural openness – companies which internally share information also consider and ask others to give their opinion. They both have a positive impact on turnover growth. Averagely strong positive correlation exists between the statements *The employees have concrete time at work devoted to continuous improvement of the business process* and *Constant availability of visual information about performance, objectives, examples, and other data to employees* (Correlation coefficient R=0.482 where the correlation coefficient is statistically significant with the probability value p = 1 or the significance level α = 0).

The results of empirical research elucidated that some of the Lean effectiveness method principles are commonly used in practice in creative industries of Latvia. The companies understand Kaizen idea, work on waste elimination and are focused on customer needs. At the same time a considerable number of surveyed creative industry companies do not concentrate on internal process analysis, do not dedicate the specific time to work process improvement and the recommender system development.

Conclusions, proposals, recommendations

1. The main idea and objective of the Lean effectiveness method is practically understood and used in creative industries of Latvia, but there are possibilities of productivity improvement by continuous application of Lean principles and concepts in operative work process.

2. Creative industry companies should consider approaches stimulating the use of both creative teams and standardised work procedures depending on the circumstances.

3. Use of Lean principles in creative industries may improve effectiveness, improve performance and increase sales.

4. In general, businessmen in creative industries of Latvia are aware of the Lean principle of continuous improvement but practically fail to assign special time to their employees to meet this goal. It is implemented in the course of the business process by learning from experience.

5. Standardisation ensuring that the improvement achieved remains stable has not been implemented by a significant number of companies even though evidence proves that it may improve quality and prevent wastes at the service companies too.

6. At a majority of surveyed companies audits which are an integral part of the Lean method are not carried out.

7. Creative industry businessmen are focused on the end product, customer need identification, satisfaction of their needs and cost reduction but less on the analysis of the internal process stages.

8. Only ½ of the companies have determined standardised work practices in communication with customers which has a positive impact on the level of customer satisfaction. Since customers are interested mostly in the competence of their service providers as well as their ability to solve problems quickly and at low costs, businessmen should pay special attention to this question determining certain standards in communication with customers, for instance, standard email creation, filling out of forms, preparation of standardised phrases. As a result, the customer will perceive this service provider as a professional and customer-oriented company.

9. Latvia's creative industry companies have not yet developed an unequivocal corporate culture when measurable and specific objectives are set, information about their achievement is available to all employees. Visual information and

objective determination in writing is important for their achievement and helps to clearly see how employees move towards said objectives.

10. Customer needs identification and continuous improvement thinking has a weak but positive impact on turnover growth.

11. Companies in which information is shared and others' opinion is taken into account experienced growth in turnover over the last three years.

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APPLICATION OF GAMIFICATION IN HUMAN RESOURCE MANAGEMENT PROCESSES AT ENTERPRISES AND ORGANIZATIONS IN LATVIA

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Abstract. The aim of the given research was to establish how widely gamification is used within different Human Resource Management processes in Latvian enterprises and organizations, which processes are most commonly gamified and whether there are any differences between industries and size of the organizations.

As a result of the research it was found that learning and development is the process in which gamification is mostly used in Latvian enterprises. Conclusion is that here are differences between industries and those show that in trading organisation gamification is used mostly in recruitment and onboarding and reward and recognition processes. At the same time differences between sectors show that local government and non-governmental organisations and associations use gamification more in learning and development process, as it is in private sector organisations. It was also identified that gamification in HR is used more in larger organizations.

Research builds a solid base for further investigation of the impact of gamification within Human Resource management processes on employee satisfaction and engagement, as well as provides insight into the current trends in the field of Human Resource Management in Latvia. As such, it creates a useful reference for further academic endeavour, as well as for practitioners of the Human Resource Management field when considering gamification of internal processes.

Key words: *Human Resources, Employee Engagement, Gamification*

JEL code: M54

Introduction

The use of games, also called gamification, is innovative approach in contemporary human resource management. Gamification refers to the use of games and game related components outside the traditional playground with a serious purpose within organisations or training institutions (Grimson, 2012; Brownhill, 2013) with an aim to make everyday duties more attractive and pleasant (Sarangi & Shan, 2015). In the past few years, gamification has emerged as a trend within the business and marketing sectors, and has recently grabbed the attention of academics, educators and practitioners (Seaborn & Fels, 2015). Researchers and practitioners consider that gamification can be used in any process which involves employees (Callan, et al., 2015).

Use of gamification is promoted also due to generational shift since forward-thinking companies are adapting themselves to the demands of new generation by embracing the process of gamification (Savitz, 2012).

Millennials (born between early 1980ies and 2000) and generation Z (born between 1996 and 2010) has entered the labour market and these people are used to spend part of their free time playing digital games (Kastner, 2013), so it can be expected that gamification will engage them in their working life.

Gamification today is approach widely used in different fields of business. It is all around us in social media, websites, etc. Most customer oriented mobile applications will have game elements built in to either make people return more often, create additional loyalty to a brand or inspire people to try something new.

There are different explanations or definitions of what exactly the gamification is, nevertheless, the definition of Deterding is the most widespread; therefore, for the purposes of this research Deterding's definition of gamification is applied: 'the use of game design elements in non-game context' (Deterding, et al., 2011).

It is widely believed that gamification influences higher customer engagement with the brand, service or solution. To similar extent, Human Resource Management practitioners worldwide tend to believe that gamification can help boosting employee engagement when smartly built into people management processes (Jensen, 2012, Sarangi & Shan, 2015).

William Kahn was the first in 1990 to present the idea of employee engagement in academical literature. He researched individuals' engagement and disengagement at work. He found that variety of individual, interpersonal, group, intergroup and organizational factors shape people's engagement and disengagement (Kahn 1990). Kahn identified the high importance of safety, availability and meaningfulness, whose significance has been highlighted also in later researches. (May et al. 2004)

Michael Shuck and Karen Wallard (2009) approached Employee Engagement definition from individuals' perspective: *"Employee engagement is an emergent and working condition as a positive cognitive, emotional and behavioral state directed toward organizational outcomes*." From company's and executives' perspective engagement is defined to be the art of getting people to believe what you want them to believe (Whitehurst, 2015).

One of the popular models to reflect the elements of Employee Engagement is MAGIC- concept developed by Maylett & Warner (2014). It defines five key drivers - meaning, autonomy, growth, impact and connection. Authors' research is based on 12 million employee survey responses and almost two decades of work. These drivers are as follows:

Meaning: Work has purpose beyond the job itself. It must mean something personally to employee.

Autonomy: The power to shape work and environment in ways that allow to perform at your best.

Growth: Being stretched and challenge in ways that result in personal and professional progress.

Impact**:** Seeing positive, effective and worthwhile outcomes and results from work.

Connection**:** The sense of belonging to something beyond yourself.

Berdarkar and Pandita in their study (2014) emphasize the growing role of employee engagement in the past 10 years. The importance of the concept has reached a stage where engaged employees are seen as strategic partners in the business. In addition to in-depth research on the benefits, such as competitive advantage, provided to the organization by engaged employees, Berdarkar and Pandita also investigate what are the drivers of employee engagement, specifically focusing on communication, work-life balance and leadership. Also the study by Mishra et al. (Mishra, Boynton, & Mishra, 2014) uses interviews with human resource and public relations executives to investigate the increasing role that internal communication plays in employee engagement. Applying game elements to internal communication processes may trigger employees becoming more active in consuming and absorbing internal information, whereas more traditionally they are in a passive position of information recipients.

Shuck, Rocco and Albornoz (Shuck et al., 2011) also examine employees' experience of being engaged in their work. In order to reach the goal, Shuck et al. conducted multiple semi-structured interviews and recorded observations at a large international organization which is ranked as one of the best places to work. In addition, post data collection and content analysis was used to interpret engagement efforts and experiences. Authors found that the following three areas are crucial for employee engagement from employee perspective - relationship development and attachment to co-workers, workplace climate and opportunities for learning. Again, gamification at workplace, according to Jane McGonigal (2010) is well suited to support positive relationship development through boosting social collaboration.

What game techniques can offer in the context of employee engagement? Jane McGonigal (2010) believes that games have enormous potential in boosting engagement, as they help to achieve a number of engagement positive influences, including the following:

1) Increase optimism by holding out the possibility of an "epic win."

2) Help to build a social collaboration - multi-player games are collaborative; and they encourage socialization because we like people better when we have played with them).

3) Enable productivity (people like to be busy and are happier when playing a stimulating game than when just "relaxing").

4) Create meaning – a basic ingredient of any engagement program – by making it possible for participants to take on inspiring missions.

5) The constant feedback participants receive on their progress through scoring mechanisms – contrasted with the annual or semi-annual performance reviews that are standard practice in most companies.

6) Clear success criteria, rewards and, most important of all, public recognition – using achievement badges, Facebook-type "post a comment" features, sport-style leader-boards featuring employee photographs, and reward points as in consumer loyalty programs.

Aim of the Research and Methodology

While globally gamification in Human Resource Management processes is used more and more widely, little or no data exist regarding its use in Latvia. Employee Engagement in most Latvian organizations and enterprises still lags behind desirable levels (Kantar TNS, 2018). At the same time gamified Human Resource Management Processes hold the potential for increasing engagement levels. Therefore, the aim of the given research was to establish how widely gamification is used within different Human Resource Management processes in Latvian enterprises and organizations, which processes are most commonly gamified and whether there are any differences between industries and size of the organizations.

Quantitative research design was chosen. Data was gathered in Latvia using CAWI interviews: number of respondents 620, general pool of respondents – individuals employed in Riga and Riga region, age group between 18 and 65 years old.

Structured questionnaire was designed according to the research model. Scope of the survey included analysis of the impact of gamified human resource management processes on employee engagement and satisfaction. Therefore, the model was designed with two dependent variables: engagement and satisfaction. Four factors were designed as independent variables which impact engagement and satisfaction: job itself, management, colleagues and character of the employee. Respondents were asked to state the level of their agreement with the statement. As the scope of this article limits survey results analysis to the frequency of the application of game elements to human resource management processes in Latvia, the rest of the findings will not be analysed here.

The survey was prepared in Latvian language and included demographic variables like respondents' gender, age and whether they are currently employed. Only those who approved their employment where asked to continue. Further information about the industry sector, the size and age of the organisation were asked.

For more clarity questionnaire provided and explanation for gamification – respondents were asked whether they have experienced at their workplace within various Human Resource Management processes following game elements – electronic, online or virtual reality games, competition elements, leaderboards, badges, status or progress symbols, role plays, imitations, card or board games, team exercises, etc. Use of gamification in HR functions was measured with yes/no type question where "yes" was coded as 1 and "no" as 2. Respondents were asked to identify whether gamification is being used in their organizations in recruitment and on boarding, performance management, rewards and recognition, learning and development, internal communication, teambuilding and other processes.

Research results and discussion

Research was performed to provide an answer to the question what is the penetration rate of gamification use within different HRM processes in Latvian enterprises and organizations? Data was analysed to characterise the situation in Latvian organisations using MS Excel and SPSS 21 software. HRM processes that were considered, were as follows: Recruitment and Onboarding (RO); Performance Management (PM); Reward and Recognition (RR); Learning and Development (LD); Internal Communication (IC); Team Building (TB).
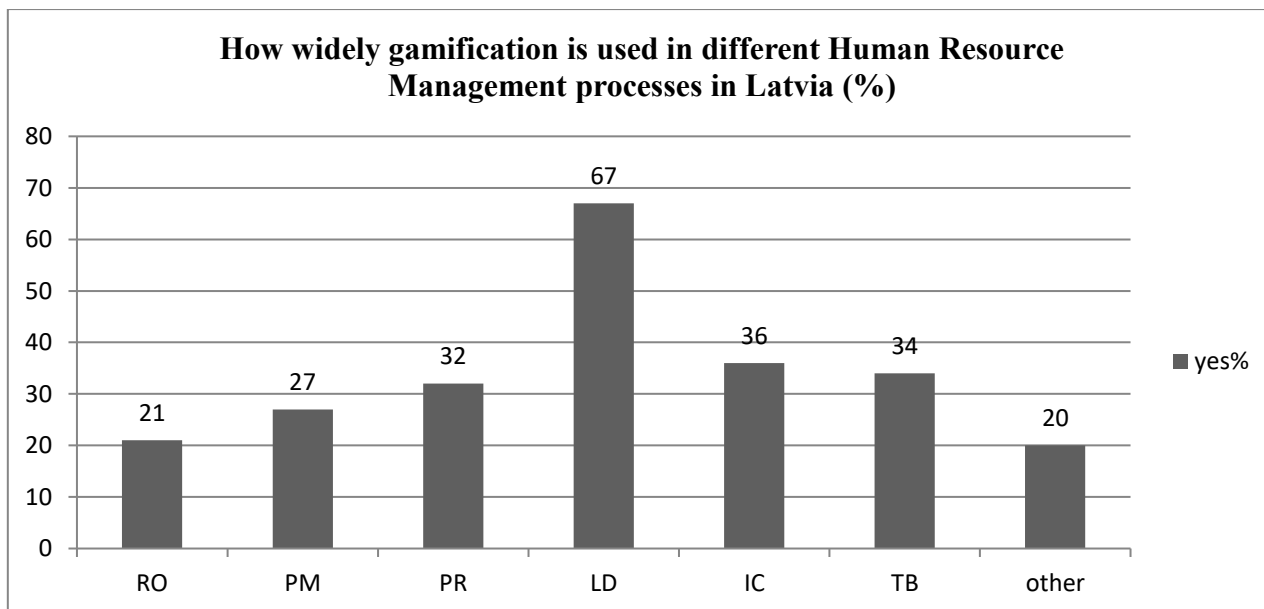
Figure 1. **Use of gamification in HR processes in Latvian organisations (n=620)**

Results of the survey showed that almost 70 % of all organizations in Riga city and its surroundings apply game elements at least within one HR process – Learning and Development. The other processes are less frequently gamified, however in at least 20% of cases gamification is in use within all the HR processes. It can be concluded, hence, that the concept of gamification is familiar to Latvian marketplace and we may expect the trend growing in the future.

The next task was to understand whether and what is the difference in terms of gamification in HR processes in different industries. For that purpose the Chi square test of independence was used. This test was chosen since it is used to determine if there is a significant relationship between two nominal (categorical) variables.

Table 1.

Number of respondents from all industries

Industry	Agriculture and forestry	Production	Trade	Service	Other	Total
Number of respondents	3	99	77	221	220	620

Chi square test results are summarised in the Table 2 below.

Table 2.

Summary of Chi square test of independence results

	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
RO*industry	14,238	4	,007	differences are statistically significant at 95%confidence level; in trade is used more than in others
PM*industry	2,633	4	,621	differences are not statistically significant

	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
RR*industry	8,738	4	,068	differences are statistically significant at 90%confidence level; in trade is used more than in others
LD*industry	4,217	4	,377	differences are not statistically significant
IC*industry	,631	4	,960	differences are not statistically significant
TB*industry	1,456	4	,834	differences are not statistically significant
other*industry	1,456	4	,834	differences are not statistically significant

Conclusions from this analysis are made that there is a relationship between industry and use of gamification in 2 HR processes: recruitment and onboarding (RO) and rewards and recognition (RR). However, there is no statistically significant differences between Industries and use of gamification in the following HR processes: performance management, learning and development, internal communication and team building.

Further down analysis of the gamification frequency within particular processes is provided. Figure 2 below shows the use of gamification in HR process Recruitment and Onboarding in different industries. In trade sector gamification is used more in recruitment and onboarding as it is in other sectors (36% use it) see figure below.
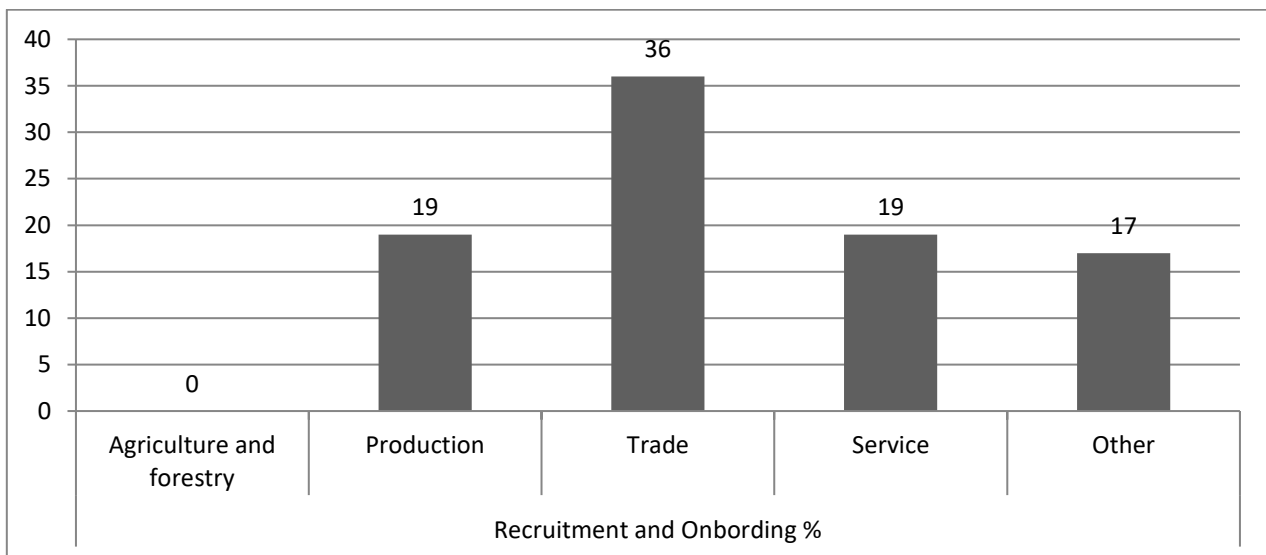
Figure 2. **Use of gamification in Recruitment and Onboarding (in %)**

Figure 3 below shows the use of gamification in Rewards and Recognition (RR) process in different industries. In agriculture and forestry gamification appears to be heavily used, however the number of respondents in this industry is too small to evaluate differences. Between other industries, trade is leader in RR HR process and differences are statistically significant.
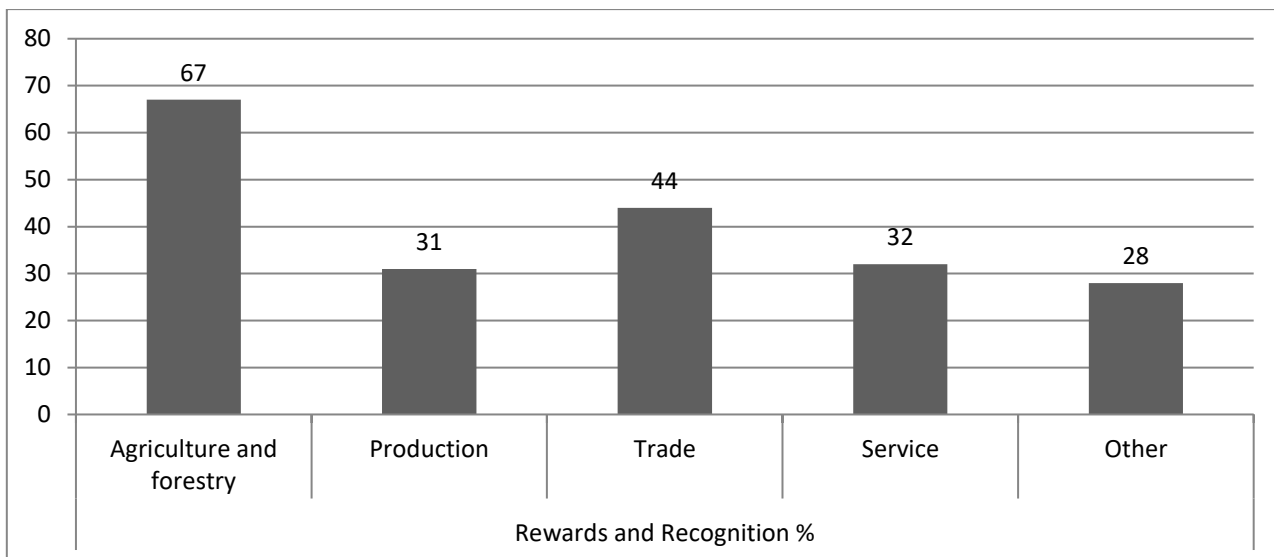
Figure 3. **Use of gamification in Rewards and recognition (in %)**

Further down the use of gamification in HR processes in different sectors is analysed.

Table 3.

Number of respondents from all sectors

Sector	State or local government (public sector)	Non-governmental organizations, associations, political parties	Private sector (SIA, AS, IK, etc.)	*Difficult to say / NA*	Total
Number of respondents	205	11	399	5	620

Figure 4 shows the use of gamification in HR processes in all sectors.
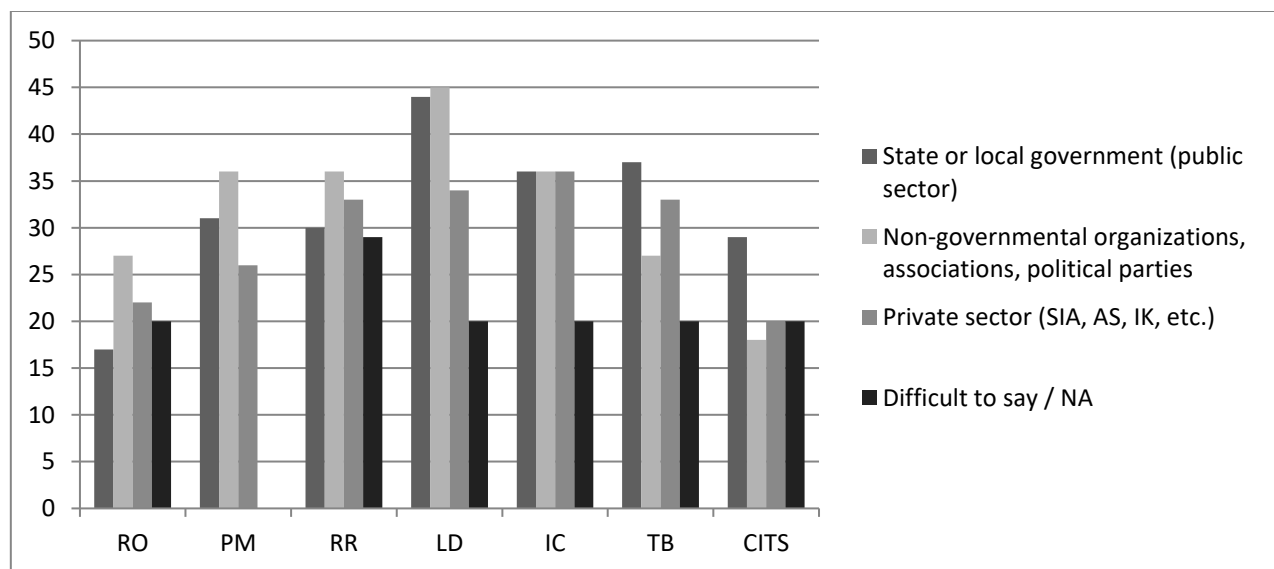
Figure 4. **Use of gamification in HR processes in different sectors (in %)**

Chi square test results are summarised in the Table 4 below:

Table 4.

Chi-Square test of independence results summary

	Pearson Chi-Square Value	**df**	**Asymp. Sig. (2-sided)**	
		Chi-Square Tests		**Conclusion**
RO*sector	2,564	3	,464	differences are not statistically significant
PM*sector	4,159	3	,245	differences are not statistically significant
RR*sector	,928	3	,819	differences are not statistically significant
LD*sector	6,525	3	,089	differences are statistically significant at 90% confidence level
IC*sector	,553	3	,907	differences are not statistically significant
TB*sector	1,763	3	,623	differences are not statistically significant
other*sector	,158	3	,984	differences are not statistically significant

According to the table it can be concluded that there is a relationship between the sector and use of gamification in 2 HR processes: learning and development (LD), however, there is no statistically significant differences between sectors and use of gamification in all the other HR processes.

Figure 5 below shows the use of gamification in HR process Learning and development in different sectors. In state or local government and non-governmental organisations and associations gamification is used more in learning and development as it is in private sector organisations (see figure below).
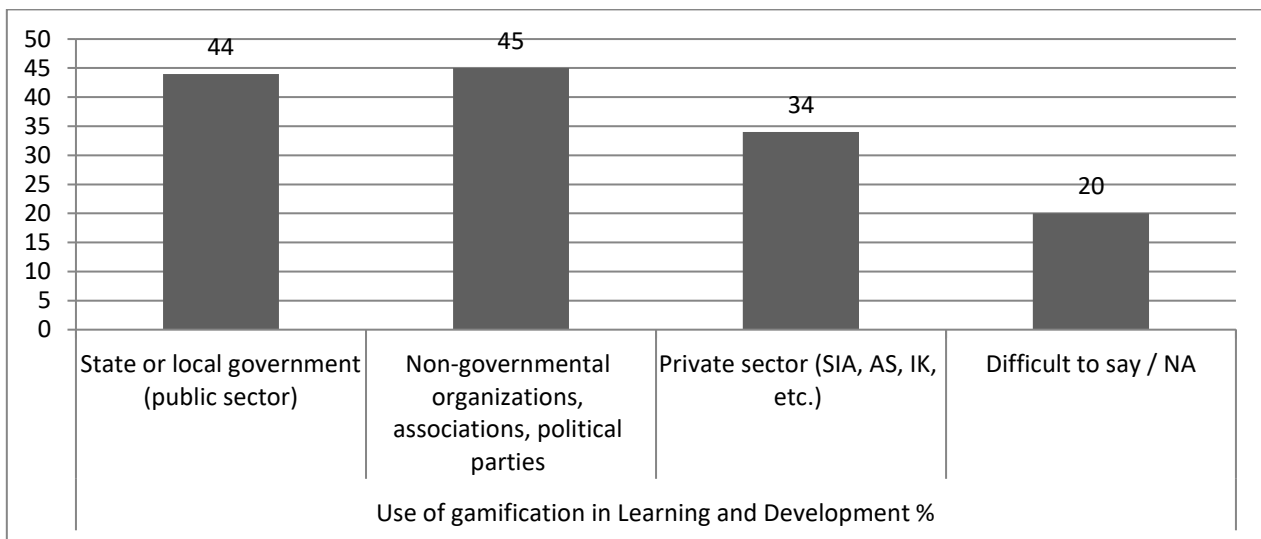
Figure 5. **Use of gamification in Learning and development (LD) in different sectors (in %)**

Further on, the use of gamification in HR processes in organisations according to the number of employees is analysed

Table 5.

Number of respondents from organisations with different size (number of employees)

Number of employees in organisations	1-9 (micro)	10-49 (mini)	50-249 (medium)	>250 (large)	hard to say / NA	total
Number of respondents	85	138	170	210	17	620

The next figure demonstrates differences in terms of gamified HR processes by the size of organization.
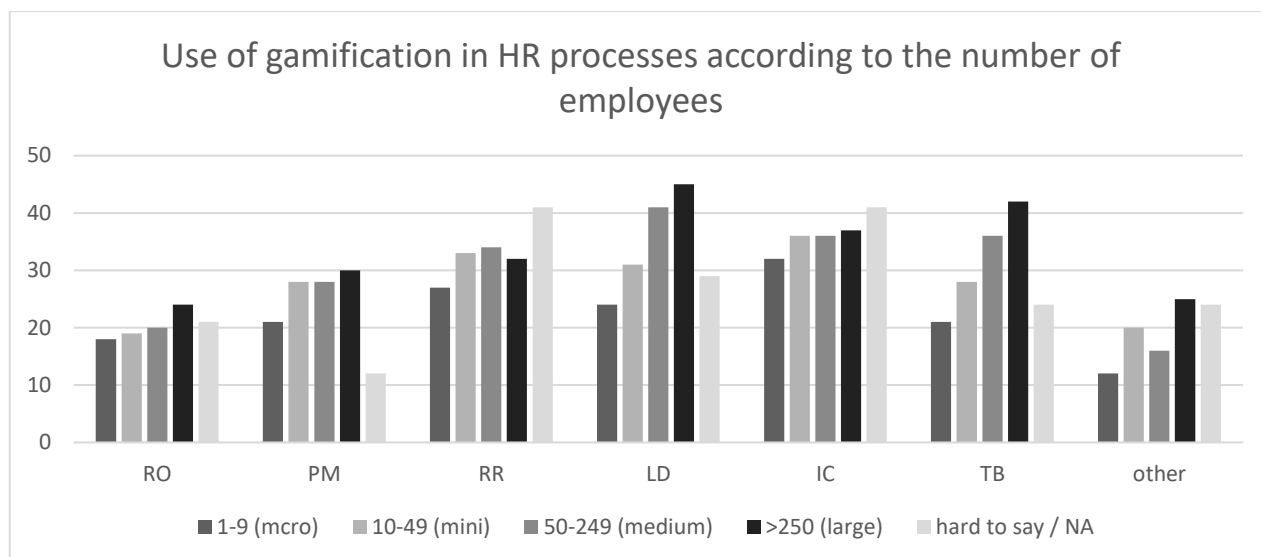
Figure 6. **Use of gamification in HR processes according to the number of employees in organisation**

From the Figure 6 it is evident that gamification in HR processes is used more frequently in larger organisations. For assessing whether the differences are statistically significant, chi-square test of independence is used. Chi square test results are summarised in the Table 6 below:

Table 6.

Chi-Square test of independence results summary

	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
RO * NOofEMP	2,161	4	0,706	differences are not statistically significant
PM * NOofEMP	4,75[a]	4	0,313	differences are not statistically significant
RR * NOofEMP	1,813	4	0,77	differences are not statistically significant
LD * NOofEMP	15,989	4	0,003	differences are statistically significant at 95%confidence level
IC * NOofEMP	,986	4	0,912	differences are not statistically significant
TB * NOofEMP	16,657	4	0,002	differences are statistically significant at 95%confidence level
OTHERhr * NOofEMP	8,710	4	0,069	differences are statistically significant at 90%confidence level

According to the Table 6 it can be concluded that there is a relationship between number of employees and use of gamification in 2 HR processes: learning and development (LD) and team building (TB), as well other processes. However, there is no statistically significant differences in use of gamification in HR processes between organisations with different number of employees: recruitment and onboarding, performance management, rewards and recognition, and internal communication.

Figure below shows the use of gamification in HR process Learning and development (LD) in organisations with different number of employees - in larger organisations gamification is used more often.
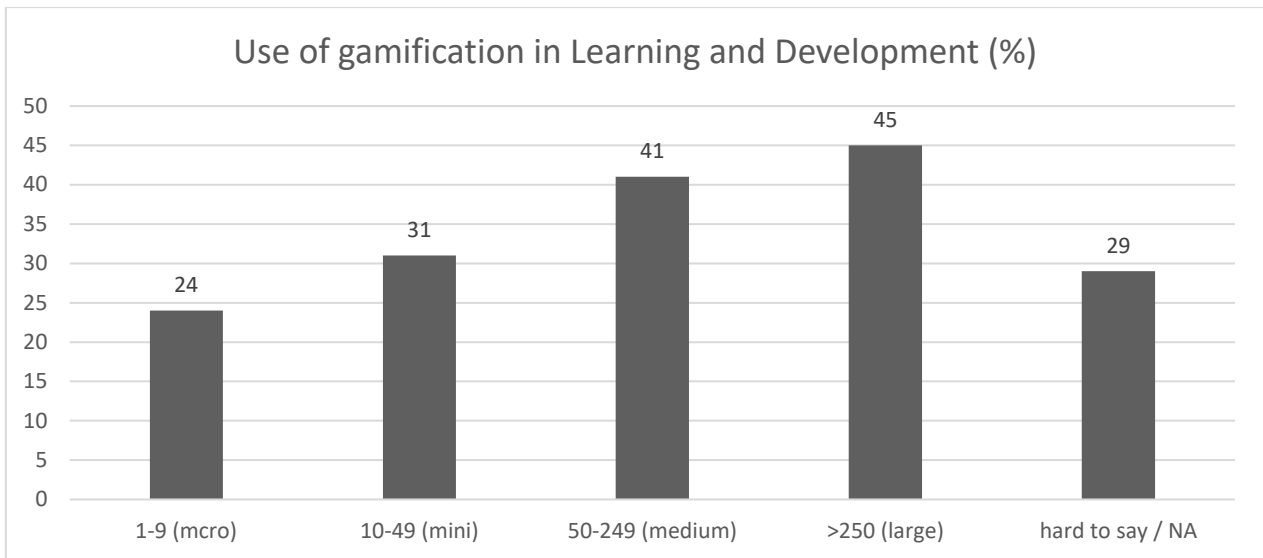
Figure 7. **Use of gamification in learning and development process according to the number of employees in organisation**

The next Figure demonstrates the frequency of gamification use within Team Building process, where it is obvious that larger organizations apply game elements more frequently.
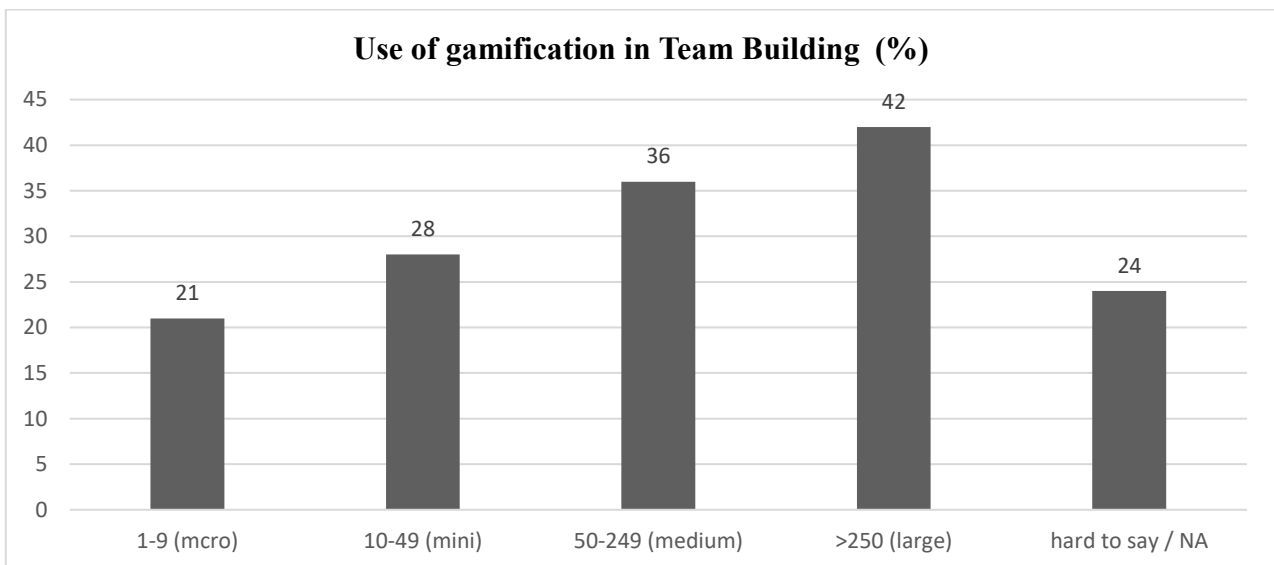
Figure 8. **Use of gamification in team building process according to the number of employees in organisation**

The next Figure demonstrates the frequency of game elements being used in different other HR processes, where for the most part respondents have not been able to differentiate between particular and specific processes, while still observing presence of certain game elements at their workplaces.
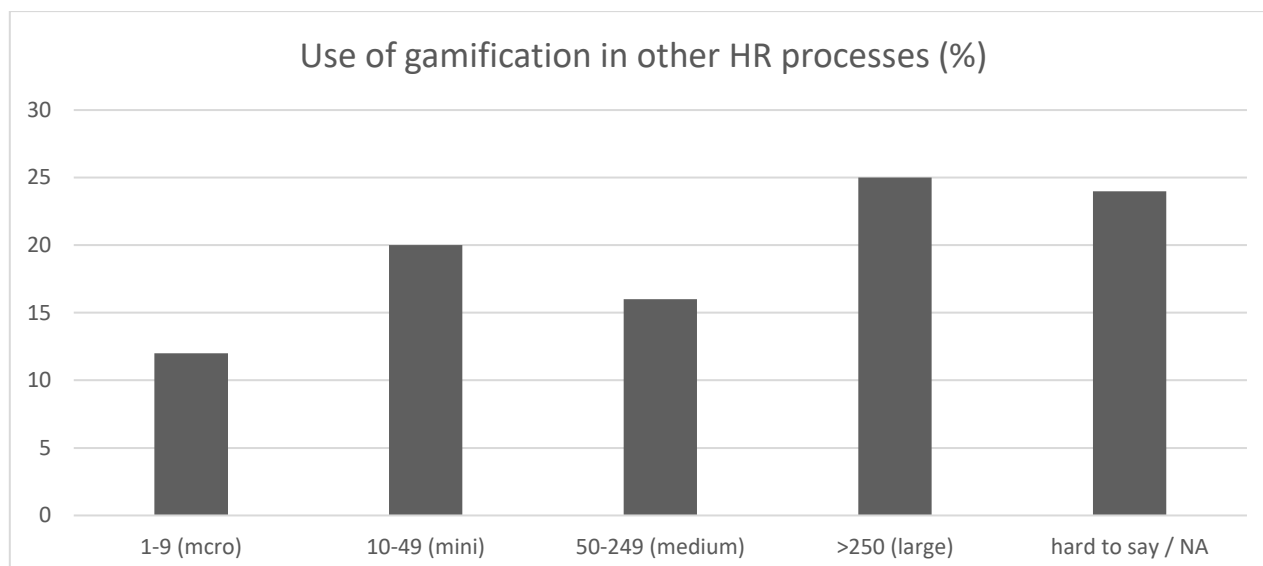
Figure 9. **Use of gamification in other HR processes according to the number of employees in organisation**

Conclusions and Recommendations

This research was aimed to discover the level of the use of gamification in different HR processes in Latvian organisations and whether any differences can be observed that are related to the size of the organization and industry the organization represents.

In Latvian organisations gamification is primarily used in learning and development process – 67% of respondents approved this. This finding is in line with DuVernet and Popp (2014) who identified that learning and development is one of HR processes where gamification is frequently used. In all other HR processes use of gamification is below 36%. Thus, it can be concluded that gamification is entering HR in Latvian organisations, however, not widely used yet. It is also visible from the survey results that medium and large organizations invest more in advanced HR processes, including application of game elements.

As it is regarded by Jensen that gamification is the next big hope in fostering employee engagement (Jensen, 2012) and Sarangi and Shan have demonstrated that gamification has positive impact on employee engagement (Sarangi & Shan, 2015), HR managers in Latvia can be advised to apply game elements to the HR processes more widely. As a result of this research it might be concluded that in Latvia Gamification is relatively new phenomenon and not widely used within Human Resource Management processes, except learning and development. Consequently, the impact on engagement is not felt yet and potential is underused.

Regarding managerial implications, managers should acknowledge the possibilities offered by use of gamification in HR processes.

However, gamification should be used carefully, and proper, engagement positive game design ensured. Since the purpose of this research was not related to identification of effective game design and game content, this could be proposed as subject of future research.

The findings should be considered in the light of the research limitations. Electronic survey method was used, and it might be affected by common-method bias.

Based on above analysis, the answer to the question of what the penetration rate of gamification is within HRM processes in Latvian business organizations can be summarized as follows:

1) The use of gamification in HRM processes in Latvia is relatively widespread – 67% of all organizations are using it at least in one process - Learning and Development;

2)   Between 20 % and 36% of organizations use gamification in other HRM processes, such as Team Building, Reward and Recognition, Performance Management, etc.

3)   Differences between industries show that in trading organisations gamification is used more in Recruitment and Onboarding and Reward and Recognition processes;

4)   Differences between sectors show that local government and non-governmental organisations and associations use gamification more in Learning and Development process, as it is in private sector organisations;

5)   Gamification in HRM is used more frequently in larger organisations.

According to M. Csikszentmihalyi (M. Csikszentmihalyi, 1990) people are most productive at work when they experience the state of "flow". This can be influenced through creating engaging, playful environment where gamified HRM processes are contributing a lot. Therefore, it is recommended that:

1)   Human Resource management professionals in Latvia should follow the global best practice for gamifying HRM processes;

2)   Explore use of gamification in other HRM processes beyond Learning and Development;

3)   Researchers to focus on analysing impact of gamification in different specific HRM processes to identify the highest potential for raising employee engagement and creating flow-positive work environment.

Overall conclusion is that organizations and enterprises in Latvia are following the global trends and developments in Human Resource Management, it is only a question of time, competence and resources, until a wider number of companies catch up with the global best practice.

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THE IMPACT OF RESIDENCE LONGEVITY ON LIFE SATISFACTION: THE CASE OF LATVIA CITIES

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Abstract. Life satisfaction has become very popular research object in many interdisciplinary fields of science in recent years. According to theoretical literature there is correlation between migration and migrants' life satisfaction after migration event since residential relocation increases housing satisfaction considerably. As it was observed in previous studies resident's place satisfaction increased with the age and length of residency: newcomers were more critical while those who had lived in their residence since birth were the most satisfied.

In order to evaluate how time lived in the residence influences people life satisfaction the data of survey "Quality of Life in cities" were analysed, which was conducted by Central Statistical Bureau of Latvia in year 2017, when respondents from the biggest cities of Latvia (Daugavpils, Rezekne, Jelgava, Jurmala, Jekabpils, Ventspils, Liepaja, Valmiera) were questioned about their satisfaction with life and life quality dimensions in their residence. All respondents were divided in 4 groups considering the time period they have lived in the city and their satisfaction level with life in the residence was compared with statistical methods. The results showed that the time lived in residence slightly influenced person's satisfaction with individual life, city of residence and its life quality dimensions, but statistical significance in major part of indicators was comparatively small. Newcomers were the most satisfied respondent group, while persons who had lived in city 5 to 10 or even more years were less satisfied with city life and its life quality dimensions compared with other respondent groups.

Key words: *life satisfaction, length of residence, place attachment*

Introduction

Taking into account that cities are the main economical, social and political centres and since major part of people have chosen residence there, it is not a surprise that in recent years cities and their inhabitants have become in the focus of various research fields, also in life quality studies. Since citizens of a city are not just "passive beneficiaries or place customers, but active partners and co-producers of public goods, services and policies" (Zenker et al., 2013) many authors have pointed out that the main aim of cities management should be providing residents' quality of life and satisfaction with their residence (Insch et al., 2008; Zenker et al., 2013a; Insch & Florek, 2010). The first step towards achieving this aim is to learn satisfaction level with life and life quality in a city of current inhabitants, and therefore an importance of studies about life quality and satisfaction with it increases each year.

Previous studies typically describe *satisfaction with life* as a unifying term of other similar terms such as *life quality*, *wellbeing* and *happiness.* Shin and Johnson (Diener et al., 1985, cited Shin and Johnson, 1978) in the 1970s have defined satisfaction with life as "a global assessment of person's quality of life according to his chosen criteria". Diener et al. (1985) points out that person's satisfaction with his present state of affairs is based on a comparison with a standard which each person sets for himself. According to Pittau et al. (2010) life satisfaction is not the same term as happiness: happiness is more volatile concept of current emotional state, while satisfaction with life is closer to the concept of an overall and more stable living flourishing.

Overall satisfaction with life influences also person's satisfaction with residence. Residential satisfaction is usually described as person's perception that the community meets personal goals and needs, and how content that person is with the environment (Smith, 2011). There is an extensive body of literature about factors which influence person's satisfaction with life, residence and life quality in it. Satisfaction with a residence is both connected with subjective and objective factors of individual as well as place. Zenker and colleagues (Zenker et al., 2013) argue that there are four basic factors which explain about 50% of the total variance of a citizen's satisfaction with a place (Table 1) – urbanity and diversity, nature and recreation, job chance and cost-efficiency.

Table 1

The factors that influence citizen's satisfaction with place

Factor	Sample items
Urbanity and diversity	• openness and tolerance of a city; • many different cultures and subcultures; • the energy of a city; • the urban image of a city; • a variety of shopping opportunities; • a wide range of cultural activities (theatre, nightlife)
Nature and recreation	• a number of parks and open spaces; • tranquillity of the place; • access to water; • low pollution; • a wide range of outdoor-activities
Job chances	• professional networks in the city; • general economic growth of the particular region; • good job and promotion opportunities; • the general level of wages
Cost-efficiency	• the general price level in the city; • costs of living; housing market; • availability of apartments and houses

Source: Zenker et al, 2013.

The length of residence as an influencing factor in life satisfaction is studied widely in different research fields. For example migration studies (Ballas, Tranmer, 2012; Nowok et al., 2013; Switek, 2016) approve that the change of residence influences individual's satisfaction with life. Correlation between satisfaction with life and length of residence has been found also in place attachment studies (Potter et al., 2012; Florak, 2011; Anton, Lawrence, 2014). Ties have been found between the time lived in a place and physical and mental health (Keene et al, 2013), which is connected with social integration and individual's subjective wellbeing. While life quality and life satisfaction studies are increasing also in Latvia (Upmane, Sebre, 2010;), researchers have paid less interest about the length of residence and its impact on life satisfaction.

The above mentioned brings up the question does the length lived in a residence influence satisfaction with life and life quality in a city? Therefore **the aim of this paper** is to evaluate the impact of length lived in the residence on inhabitants' satisfaction level with living environment and life quality in the cities and as **research object** is defined residents' satisfaction in the biggest cities of Latvia. In order to reach the aim following **tasks** are set: 1) to study theoretical framework and previous research on satisfaction with life and life quality in the cities; 2) to investigate if the length lived in the 8 biggest cities of Latvia (except the capital city Riga) influences residents' overall life satisfaction, satisfaction with life in their residences and life quality dimensions in them.

To achieve the second task the data of survey "Quality of Life in Cities" was analysed which was conducted by Central Statistical Bureau of Latvia in year 2017 when 4063 persons from the biggest cities – Daugavpils, Rezekne, Jelgava, Jurmala, Jekabpils, Ventspils, Liepaja, Valmiera - were questioned about their satisfaction with individual life, life in the city and its characteristics. In order to evaluate correlation and statistical significance the data was processed with such **research methods** as Pearson correlation, ANOVA and Tukey HSD, as well as analyse of theoretical literature was conducted.

1. Research results and discussion
1.1. Theoretical frame of residential time and satisfaction

In previous migration studies it was revealed that migration influenced positively individual's satisfaction with life and wellbeing. According to study of internal migration in Great Britain (Nowok et al., 2013) it was revealed that migration event caused a boost in migrants' happiness compared with feeling before moving, especially right after the relocation took place. However these positive feelings did not last long and in the year after migration returned to its original level. Results of research about Swedish young adult migration and their life satisfaction (Switek, 2016) described that internal migration positively influenced life satisfaction, but its persistence depended on the reason to move. Significant improvement in life satisfaction was observed both work and non-work migrants following moves within the past six years; however only migrants who moved for work reasons displayed a significant increase in life satisfaction also 6 – 10 years after the migration event. Also study of Ballas and Tranmer (Ballas, Tranmer, 2012) about satisfaction with life, happiness and wellbeing in Great Britain illustrated that people who lived in their residence for more than five years evaluated their general happiness and especially subjective wellbeing higher than those individuals who lived in their address for less than a year. Authors have explained it with high importance of social support networks and local community in individual's life, which are connected with financial stability and therefore also with better life quality.

The length of residence as an influencing factor is studied widely in previous researches and the results vary among different authors. There are studies that approve correlation between the length of current address and level of life satisfaction (Insch, Florek, 2010 cited Kasarda, Janowitz, 1974; Azevedo et al., 2011; Florak, 2011). Insch and Florek (2010) discovered that there were significant differences in satisfaction with city life between newcomers and those who lived for long-term. They argue that resident's place satisfaction increases with the age and length of residency: newcomers are more critical and especially dissatisfied during their first year of residence while those who have lived there since birth are the most satisfied. They point out that those who have lived in residence since birth have more positively skewed assessment because they have no other experience and no basis for comparison. Similar to Ballas and Tranmer (2012) Inch and Florek explain it with complex network of social relationships and other commitments, that are stronger for those who have lived in residence longer time period. Their study also reveals that there is period (about 5-10 years) at which residents consider other residential options and therefore in this period their satisfaction level with residence can be lower than previously.

From above mentioned it is revealed that life satisfaction and satisfaction with place increase with the years lived in residence. In theoretical literature this tendency is widely explained by place attachment, which describes the affective bond between a person and a particular place (Zenker, Rutter, 2014; Hernịndez et al., 2007). Researchers (Hernandez et al, 2007; Florak, 2011; Zenker, Rutter, 2014; Azevedo et al., 2011; Fleury-Bahi et al., 2008) argue that place attachment arises with the length of residence. It is considered that people who have lived longer in a place feel a greater sense of attachment to it. As Potter and colleagues (Potter et al., 2012) have discovered the longer is the residency, the stronger the attachment to the community and better perception of the quality of life. Zenker and Rutter (2014) explain it with potential experience with the place and experience with a place generally lead to more place attachment. Several authors

(Florak, 2011; Zenker, Rutter, 2014; Casakin et al., 2013; Anton, Lawrence, 2014) have pointed out that the strongest place attachment have to those persons who live in the place from the birth; as Morgan (2010) explains a pattern of positively affected experiences of place in childhood are generalised into an unconscious internal working model of place which manifests subjectively as a long-term positively affected bond to place. They are high loyalty residents and usually satisfied with the conditions their neighbourhood, town or city has to offer.

A greater sense of place attachment leads to several positive results. According to Florak (2011) people with high psychological attachment to the place are especially valuable for city, since they feel such a strong positive link with a city that they want to live there; they feel safe and happy within its boundaries, therefore they are more satisfied than those who do not have so strong sense of place attachment. When individuals are attached to a place with a strong emotional commitment, they may engage active citizenship behaviours in order to contribute to a better overall quality of life (Azevedo et al., 2011).

Despite above mentioned there are research where the results show that time lived in a residence does not influence individual's satisfaction with life and life quality in residence. Węziak-Białowolska (2016) in her study investigated aspects of urban quality of life in 79 biggest European cities and discovered that length of residence was not significantly associated with satisfaction with life in a city. Similar results were revealed in studies about life satisfaction in urbanizing China (Chen et al., 2015) and residential satisfaction of young households in neighbourhoods in Kano, Nigeria (Abdu et al., 2014).

1.2. Satisfaction with life and life quality dimensions in the biggest cities of Latvia

In this study Data of survey "Life quality in cities" of Central Statistical Bureau of Latvia was used and respondent answers about their satisfaction with individual life, life in cities and life quality dimensions in cities were included in the analysis. From total number of all 4063 respondents 4042 respondents' answers were analysed and all respondents were divided in four groups based on time period they have lived in their residence city: those who have born in city or have lived less than 5 years, from 5 to 10 years and more than 10 years. In order to classify respondents' answers five-point scale was applied from "1" for "not at all satisfied" to "5" for "very satisfied" where "3" was for answers with no opinion.

Firstly, Pearson correlation was analysed among length lived in city and satisfaction with person's individual life, for example overall satisfaction with life, satisfaction with financial situation and housing. As it is shown in Table 2, there is very small correlation between length lived in a residence and satisfaction with household's financial situation while no correlation is found with overall satisfaction and satisfaction with housing.

The same method was applied for comparison between length lived in a residence and satisfaction with life in the city and satisfaction with several life quality dimensions that influence life quality in city, such as public transport, health services, green space, educational facilities and others (Table 3). Also there correlation at the 0.01 level was very small with satisfaction with life in city, health services and small negative correlation with sport and shopping facilities, while correlation was not found with satisfaction with public transport, cultural facilities, state of roads and houses, public places, green space, shopping facilities, air quality, noise level and cleanness.

Table 2

Pearson correlation matrix about satisfaction with person's individual life

	Length lived in a residence	Satisfaction with financial situation	Overall satisfaction	Satisfaction with housing
Length lived in a residence	1			
Satisfaction with financial situation	0.044*	1		
Overall satisfaction	0.025	0.431*	1	
Satisfaction with housing	-0.003	0.251*	0.420*	1
*. Correlation is significant at the 0.01 level (2-tailed).				

Source: author's calculations based on data of Central Statistical Bureau of Latvia

Table 3

Pearson correlation between length of residence and satisfaction with life in the city and life quality dimensions

	Pearson correlation
Satisfaction with life in the city	0.046*
Public transport	0.011
Health services	0.074*
Sport facilities	-0.051*
Cultural facilities	-0.025
Roads, houses	0.030
Public places	-0.022
Green space	0.008
Shopping facilities	-0.003
Educational facilities	-0.052*
Air quality	0.028
Noise level	-0.007
Cleanness	-0.012

*. Correlation is significant at the 0.01 level (2-tailed).

Source: author's calculations based on data of Central Statistical Bureau of Latvia

Secondly, in order to analyse respondents' satisfaction level among respondent groups based on the length of residence, means of satisfaction level were compared. Taking into account that the higher is mean, the higher is persons' satisfaction level, it can be observed (Table 4) that in the individual level the lowest satisfaction level is with households' financial situation and the lowest satisfaction is observed among respondents who have lived in the residence relatively long time period– more than 10 years (M=2,91) and persons who have lived from birth (M=2,95), while the most satisfied

group is those who have moved in the residence recently and lived there less than 5 years (M=3,40). Also overall satisfaction with life and satisfaction with housing is higher for recently arrived residents.

Table 4

Satisfaction with individual life, means

Length lived in a residence	Mean		
	Satisfaction with financial situation	**Overall satisfaction**	**Satisfaction with housing**
From birth	2.95	3.99	4.31
>10 years	2.91	3.95	4.24
5-10years	3.18	4.16	4.38
<5years	3.40	4.18	4.37

Source: author's calculations based on data of Central Statistical Bureau of Latvia

In order to verify if there is no real difference among the means, ANOVA was applied and results confirmed that the mean satisfaction of all the groups was not the same for individual life indicators: for satisfaction with financial situation (F = 7.77, p = 0.000), overall life satisfaction (F = 4.29, p = 0.005) and satisfaction with housing (F=2.87, p = 0.04). With Tukey HSD test, which allows to determine which means among several are different, it was found that means vary the most among respondent groups with financial satisfaction: the results showed that the highest significant difference was between 1) the recently arrived respondents and those who have lived in the residence more than 10 years (mean difference = 0.499, p = 0.000) and 2) recently arrived respondents and those who have lived there from birth (mean difference = 0.458, p = 0.001). It means that with 95% confidence it can be argued that those who lived in the residence for less than 5 years were satisfied from 0.2 to 0.8 points more than those who lived in residence more than 10 years and at the same time they were satisfied from 0.16 to 0.76 points more than those who lived in residence from birth. The highest significant difference with overall satisfaction was observed between recently arrived persons and those who lived more than 10 year (mean difference = 0.235, p = 0.040) since with 95% confidence those who lived in the residence less than 5 years were 0.01 to 0.46 points more satisfied than those who have lived more than 10 years. However results about satisfaction with housing illustrated that although there were differences among respondent groups based the length lived in a residence – long-term residents were slightly less satisfied than newcomers - thou results were not statistically significant.

The above mentioned method was applied also for satisfaction with city and its life quality dimensions. As it is illustrated in Table 5, total satisfaction with life in city is relatively high (Mean of all groups = 4.31), it differs a little among respondent groups based their residential time – respondents who live in the city from birth are slightly less satisfied with life in the city than other respondent groups – but differences are statistically significant, although significance is small, only between respondents who live in residence the longest time period (mean difference = 0.093, p = 0.009).

In the survey respondents were asked to evaluate how satisfied they are with life quality dimensions of the city where they live. The results illustrate that respondents of biggest cities of Latvia are mostly satisfied with shopping facilities, green space, cultural facilities, noise level and cleanness while lower satisfaction is observed with state of roads and houses, health services and public transport. Overall results (Table 5) show that people who live in the city for less than 5 years are relatively more satisfied with life quality dimensions in their residence, while those who have arrived in city 5-10 years and more than 10 years ago are more critical. With ANOVA test it was discovered that difference among the means of respondent groups based on their residential time was observed for satisfaction with health services, sports facilities, cultural facilities, public space and educational facilities (Table 6). However means of satisfaction were not

found statistically different among groups with public transport, state of roads and houses, shopping facilities, air quality, cleanness and noise.

Table 5

Satisfaction with life in a city and life quality dimensions in residence, means

Length lived in a residence	Mean												
	Public transport	Health services	Sport facilities	Cultural facilities	Roads, houses	Public places	Green space	Shopping facilities	Educational facilities	Air quality	Noise level	Cleanness	Satisfaction with life in a city
From birth	3.67	3.02	3.87	4.14	3.02	3.87	4.18	4.26	4.02	3.92	4.02	4.02	4.26
>10 years	3.70	3.12	3.67	4.03	3.08	3.78	4.13	4.23	3.86	3.93	3.97	3.98	4.35
5-10years	3.59	3.14	3.69	4.04	2.97	3.69	4.19	4.19	3.94	4.02	3.99	3.95	4.39
<5years	3.77	3.58	4.02	4.24	3.27	3.98	4.34	4.34	4.01	4.12	4.07	4.06	4.34
Total	**3.68**	**3.09**	**3.78**	**4.09**	**3.05**	**3.83**	**4.16**	**4.25**	**3.94**	**3.94**	**4.00**	**4.00**	**4.31**

Source: author's calculations based on data of Central Statistical Bureau of Latvia

Table 6

Mean of satisfaction with life quality dimensions comparison considering length of residence, ANOVA test

	F	*p-value*	*Significance at 0,05*
Health services	8.867009	0.000	yes
Sports facilities	19.285	0.000	yes
Cultural facilities	6.08768	0.000395	yes
Public spaces	4.10233	0.006454	yes
Green space	2.876	0.034833	yes
Education	11.12143	0.000	yes
Satisfaction with city	3.955876	0.007909	yes
Public transport	1.005406	0.389247	no
Roads, houses	2.228814	0.082764	no
Shopping	0.799561	0.493957	no
Air quality	1.676894	0.169746	no
Cleanness	0.935526	0.422521	no
Noise	0.91935	0.430553	no

Source: author's calculations based on data of Central Statistical Bureau of Latvia

Results retrieved with ANOVA test, which showed that the means were not all equal, was compared with Tukey HSD test (Table 7). Results approve that people who have lived in residence less than 5 years are significantly more satisfied with health services in their city compared with respondents from all other groups. Newcomers are also significantly more satisfied with sport facilities and green space compared with those who have lived in the city longer. At the same time persons who have born in the same city are significantly more satisfied compared with those who have lived for more

than 10 years with sport facilities, cultural facilities, public places and educational facilities, and these results correspond with previous mentioned studies about stronger place attachment with the place where person has born (Florak, 2011; Zenker, Rutter, 2014; Casakin et al., 2013; Anton, Lawrence, 2014).

Table 7

Statistically significant mean differences of satisfaction with life quality dimensions in the biggest cities of Latvia, Tukey HSD test

	Length lived in rezidence (I)	Length lived in rezidence (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Health services	<5 years	From birth	0.559*	0.115	0.000	0.26	0.85
	<5 years	>10 years	0.456*	0.115	0.000	0.16	0.75
	<5 years	5-10 years	0.436*	0.150	0.019	0.05	0.82
Sport facilities	From birth	>10 years	0.208*	0.030	0.000	0.13	0.29
	<5 years	>10 years	0.350*	0.084	0.000	0.13	0.56
	<5 years	5-10 years	0.328*	0.109	0.014	0.05	0.61
Cultural facilities	From birth	>10 years	0.108*	0.029	0.001	0.03	0.18
	<5 years	>10 years	0.212*	0.080	0.042	0.01	0.42
Public places	From birth	>10 years	0.091*	0.035	0.041	0.00	0.18
Green space	<5 years	>10 years	0.213*	0.081	0.042	0.00	0.42
Educational facilities	From birth	>10 years	0.163*	0.029	0.000	0.09	0.24

*. The mean difference is significant at the 0.05 level.

Source: author's calculations based on data of Central Statistical Bureau of Latvia

The results of this study show that in the case of 8 biggest cities of Latvia the time lived in residence slightly influences person's satisfaction with individual life, city of residence and its life quality dimensions, but statistical significance in major part of indicators is comparatively small; thereby these results are closer to results of Węziak-Białowolska study (2016) who found that duration of residence and city of birth were not significantly associated with satisfaction from life in a city. Despite above mentioned some general linkage can be found: those who live in their residence less than 5 years are comparatively more happy and satisfied with their life than those who have not changed their residential city for longer time period. It can be linked with happiness which the migration event causes and was discovered also by Nowok and colleagues (2013). At the same time retrieved results are not consistent in context of newcomers to study of Insch and Florek (2010) who argue that newcomers are more critical than long-term residents; perhaps in the case of Latvia residents who have changed their residence recently have improved their living conditions and therefore feel more comfortable and happier than those who live at the same place longer. In addition this research similar to previously mentioned study (Insch, Florek, 2010) has revealed that there is time period in person's or household's life when satisfaction with current residence decline as persons who have lived in city 5 to 10 or even more years are less satisfied with city life and its life quality dimensions compared with other respondent groups.

Conclusions

1) In the case of 8 biggest cities of Latvia - Daugavpils, Rezekne, Jelgava, Jurmala, Jekabpils, Ventspils, Liepaja, Valmiera - the time lived in residence slightly influences person's satisfaction with individual life, city of residence and its life quality dimensions, but statistical significance in major part of indicators is comparatively small. It was discovered that the length lived in the residence influence satisfaction with household's financial situation and overall satisfaction, a little satisfaction with life in a particular city and such life quality dimensions as health services, sports facilities, cultural facilities, public space and educational facilities. However satisfaction were not found statistically different among groups with public transport, state of roads and houses, shopping facilities, air quality, cleanness and noise.

2) Those who live in their residence less than 5 years are comparatively more happy and satisfied with their life than those who have not changed their residential city for longer time period. Newcomers are also significantly more satisfied with sport facilities and green space compared with those who have lived in the city longer.

3) The study has revealed that there is time period in person's or household's life when satisfaction with current residence declines as persons who have lived in city 5 to 10 or even more years are less satisfied with city life and its life quality dimensions compared with other respondent groups; this trend can be explained with possibility that residents consider other residential options therefore current residence could be evaluated less satisfactory.

4) Residents who live in the same city they have born are a little more satisfied with their residence and its life quality dimensions compared with long-term residents who have born in the other place, especially with sport facilities, cultural facilities, public places and educational facilities; thereby these results approve the role of place attachment which is connected with positive experience in childhood.

Acknowledgments

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CONSIDERING THE INFLUENCE OF JOB CHARACTERISTICS ON ORGANIZATIONAL COMMITMENT IN EMPLOYER BRANDING

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Abstract. Employer branding, a human resource management tool, has been developed as a method to implement an efficient approach to employee recruitment and retention. It is applied through the identification, establishment and communication of unique and attractive job characteristics to a company's internal and external target personnel. Associated benefits are among others a high level of organizational commitment.

To add to this topic, this paper examines the influence of employees' satisfaction with job characteristics on organizational commitment. The underlying research question is whether the satisfaction with different categories of job characteristics lead to a different type of organizational commitment. Furthermore, it shall be analysed, whether different demographic or work-related groups show different levels of satisfaction with certain job characteristics.

An empirical study with 183 participants has been conducted. A factor analysis revealed three components for the employees' satisfaction with job characteristics: (1) social, (2) status and perspective and (3) independence and interest. A regression model tested the explanatory power of these components on affective, continuous and normative commitment and explained 20.5% of variances for affective organizational commitment. The models for continuous and normative organizational commitment showed no statistical significance. Differences in their satisfaction with job characteristic's categories were found for the groups age, nationality, management responsibility and type of employment.

Derived from these results, a practical recommendation for a company could be to include a regular examination of employees' satisfaction with certain job categories in their employer branding process in order to maintain a high level of organizational commitment.

Key words: *Job characteristics, affective organizational commitment, continuous organizational commitment, normative organizational commitment, employer branding*

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Introduction

Companies that want to sustain a competitive advantage, need to generate and maintain control of strategic resources. In this context, human capital is considered to be one of the fundamental strategic key-resources to create organizational success (Barney, 1991) (Trost, 2013). In times of demographic change and due to increased competition for experts and managers, companies strive to find efficient methods to recruit and retain key personnel (Stock-Homburg, 2013) (Berthon, et al., 2005). Employer branding as a human resource management tool has been developed as such a method to implement an efficient and sustainable approach to employee recruitment and retention. It is applied through the identification, establishment and communication of unique and attractive job characteristics to a company's internal and external target personnel. Associated benefits are among others a higher level of organizational commitment (Backhaus & Tikoo, 2004). However, a lot of companies face difficulties to align the job characteristics they offer (e.g. a high salary, innovative products, a high degree of job security, added social value, etc.) to the different work-related preferences of a diverse workforce. This leads to the practical problem that often the job characteristics deemed as important and satisfying by a

workforce are not exactly identified by an organization and therefore the positioning of the company as an attractive employer is not possible. As a consequence of this problem, valuable company resources are not used efficiently and the benefits of employer branding are not realized (Trost, 2013). The purpose of this study is to contribute to this topic through examining a crucial part of successful employer branding: The impact of the satisfaction with job characteristics on organizational commitment, an expected positive outcome of employer branding (Backhaus & Tikoo, 2004). The novelty of this study lies in the identification of categories of job characteristics considered as satisfying by the workforce and consequently the analysis of the role of these categories as a predictor for affective, continuous and normative commitment. The results of this study should encourage organizations to identify the categories of the job characteristics employees are satisfied with and lead to organizational commitment and are therefore worth to focus on. This focus leads to an efficient use of company resources and effective employer branding. Additionally, this study shall analyse whether different demographic or company-related groups such as age, gender or management responsibility show differences in their satisfaction with certain job characteristics. The results shall support the consideration of a diverse workforce in the appropriate design of job characteristics.

The main underlying research questions R_1 and R_2 of this study are formulated as follows: R_1: Is the satisfaction with different categories of job characteristics a predictor for different types of organizational commitment? R_2: Do different demographic or company-related groups such as age, gender or management responsibility show differences in their satisfaction with certain categories of job characteristics?

The research methods used to work on these research questions are an extensive literature review and a cross-sectional web-based survey with 183 participants (primary data). Based on the research questions and the intermediate results of the literature review, detailed hypotheses were formulated and tested. Relevant standardised questionnaires were used to test the satisfaction with job characteristics and affective, continuous and normative commitment. Appropriate statistical tests like factor analysis and multiple regressions as well as t-tests, ANOVA, Mann-Whitney-U and Kruskal-Wallis tests were performed. The main information source are relevant scientific articles published in international peer-reviewed scientific journals to ensure that the assumptions and discussions of this study are based on current and established scientific knowledge. In addition, university text books have been used as well to build the theoretical foundation. A limitation of this study is that only the satisfaction with job characteristics has been considered as a predicting variable for organizational commitment. Further variables like the importance of job characteristics or personality types should be added in future studies in order to increase the statistical explanatory power and to gain a more holistic picture of the mechanisms for successful employer branding.

Research results and discussion

1. Literature Review

Employer branding has been developed to promote the qualities of a company to its future and present employees (Trost, 2013). In general, it suggests the differentiation of a firms' characteristics as an employer from those of its competitors (Backhaus & Tikoo, 2004). It aims to attract, motivate and retain current and potential employees through a company's value system, policies and behaviours, by using principles from product and company branding and applying it to human resources. The goal of employer branding is to create a high level of employer attraction and to increase employee productivity (Backhaus & Tikoo, 2004). Besides helping to create a workforce that is hard to duplicate, employer branding also contributes substantially to employee retention by using the brand to reinforce the concept of quality employment and thereby contributing to employee willingness to stay with the organization (Ambler & Barrow, 1996).

Moreover, it is posited that companies with strong employer brands can potentially reduce the cost of employee acquisition, improve employee relations, increase employee retention and even offer lower salaries for comparable staff to firms with weaker employer brands (Berthon, et al., 2005). Consequently, employer branding is defined as a targeted, long-term strategy to manage the awareness and perceptions of employees, potential employees, and related stakeholders with regards to a particular firm (Sullivan, 2004). It can also be defined in terms of benefits and incentives. From this perspective, it is explained as the package of functional, economic and psychological benefits provided by employment, and identified with the employing company (Ambler & Barrow, 1996). To sum up a crucial part of employer branding is among others the appropriate design of job characteristics in order to create favourable conditions for potential and existing employees.

The work experience and the behaviour of employees is significantly determined by the actual labour situation and the job characteristics an occupation offers (Felfe, 2008). Trost (2013) emphasises the importance of job characteristics in the employer branding process as well. He suggests that the creation of a competitive advantage on the labour market is mainly ensured through the design of attractive employer characteristics in order to create a positive employer image. The different preferences of the targeted employees are hereby seen as a crucial influence for this design process. A classification of relevant characteristics is presented in Figure 1 (Trost, 2013).

Offers	Tasks	Company	Employees	Values
Pay	Interesting tasks and projects	Products and services	Personality	Organizational culture
Incentives	Internationality	Company success	Level of education	Quality of leadership
Career opportunities	Innovation	Location	Teamwork	Trust and flexibility
Work-life balance	Influence	Reputation	Diversity	
		Job Security		

Source: Trost (2013) (translated by the authors)

Figure 1: **Employer characteristics**

The first category 1) offers is oriented towards achievement and benefits. Pay and work-life balance are given as examples for monetary and non-monetary incentives. The second category 2) tasks contains job characteristics regarding the attractiveness of the work itself, that means how interesting and exciting the tasks are for an employee. The category 3) company contains specific hard and soft-facts about the employer, e.g. the offered products and services, the location and the reputation. The fourth category focusses on the 4) employees, their personality and their level of education. In addition, the social aspects of the employer like teamwork are also included in this category. Finally, the 5) values of the employer are stated as an own category, represented by organizational culture or the quality of leadership.

Berthon et al. (2005) used a factor analysis to identify different categories for employer attractiveness, using a questionnaire with 32 items. In this context, employer attractiveness is a closely related concept to employer branding and defined as the envisioned benefits that a potential employee sees in working for a specific organisation. It is considered to be an antecedent of the more general concept of the employer brand. (Berthon, et al., 2005). The 32 used items cover a wide field of job characteristics, are comparable to the ones suggested by Trost in Figure 1 and range from pay to teamwork to innovation and job security. The study examined the importance of the characteristics of a potential employer to the sample group and led to five components presented in Table 2. These components are the 1) interest value, the attraction to an employer that provides an exciting work environment, novel work practices and that makes use of its employee's creativity to produce high-quality, innovative products and services. Second the 2) social value, representing characteristics like a good relationship with colleagues and superiors. As a third component, the 3) economic value was obtained. This component uses characteristics like compensation package, job security and promotional opportunities.

The fourth component 4) development value, assesses the extent to which an individual is attracted to an employer that provides recognition, self-worth and confidence, coupled with a career-enhancing experience and a springboard to future employment. Finally, the fifth component labelled 5) application value, assesses the extent to which an individual is attracted to an employer that provides an opportunity for the employee to apply what they have learned and to teach others, in an environment that is both customer orientated and humanitarian (Berthon, et al., 2005).

These results are in line with conducted research, where comparable components have been obtained for the importance of job characteristics based on a 13-item questionnaire (Hager & Seibt, 2017). The following four components were obtained using a factor analysis: First the 1) social component, including socially relevant job characteristics like team-work, importance for society or a meaningful work. The second component 2) status and perspective represents monetary benefits, good promotion prospects or a respected and honoured position. The third calculated component 3) independence and interest shows the importance of job characteristics like an interesting job or the possibility to work independently. Finally, the 4) avoidance of responsibility has been retrieved as a fourth component, representing a preference for a lot of free time and low responsibility (Hager & Seibt, 2017). The different approaches to categorize job characteristics are summarized in Table 1.

Table 1

Categories of job characteristics

	Trost (2013)	Berton et al (2005)	Hager & Seibt (2017)
1	Tasks	interest values	independence and interest
2	Offers	economic value	status and perspective
3	Employees	social values	social orientation
4	Company	development value	avoidance of responsibility
5	Values	application value	

Source: author's construction

Although the job characteristic categories suggested by the authors are partially different, three common categories can be found and are sorted from number 1 to 3. First the category of social job characteristics has been included by every above-mentioned author. Then a second category which includes monetary or economic benefits and career opportunities is included in all categorizations as well. Finally, the attractiveness of the tasks, if they are perceived as interesting and exciting, is seen as a third common category.

The knowledge about the importance of job characteristics is important for companies to appeal to prospective and current employees (Trost, 2013) (Berthon, et al., 2005). But research indicates, that not just the perceived importance of job characteristics is relevant for beneficial outcomes like e.g. organizational commitment, but rather the satisfaction with these job characteristics (Leite, et al., 2014). Job satisfaction is defined as an attitude, or emotional response to one's tasks as well as to the physical and social conditions of the workplace (Schermerhorn, et al., 2008). Studies reveal a high correlation between job satisfaction and organizational commitment (Mathieu & Zajac, 1990). The following paragraph aims to summarize the main theories regarding organizational commitment and to highlight its potential influence on organizations. The desired benefits of employer branding on the existing workforce of a company are among others an increase of performance and a decrease of negative work-related withdrawal behaviour. This shows similarities to the positive consequences assigned to (affective) organizational commitment, namely a positive attitude towards the organization and beneficial work-related behaviour (Meyer & Herscovitch, 2001). Research suggests, that successfully implemented employer branding directly influences organizational commitment positively (Backhaus & Tikoo, 2004). This is in line with already conducted research, which assigns an important role to job characteristics for the development of organizational commitment (Felfe, 2008). Due to the multifaceted use of the term commitment, its definition and the clear

separation from other psychological constructs like employee engagement, motivation or satisfaction is a challenging task (Mowday, et al., 1979). The limited space of this paper allows only a summary of the core concepts of commitment. A detailed comparison of the mentioned psychological constructs to commitment can be found in the work of Macey and Schneider (Macey & Schneider, 2008). Commitment is defined as the willingness to give your time and energy to something that you believe in, or a promise or firm decision to do something (Cambdridge University Press, 2018). It is the readiness to act self-dependent and without restrictions in order to reach a certain goal (Szebel-Habig, 2004) and a stabilizing or obliging force, that gives direction to behaviour (e.g. restricts freedom, binds a person to a course of action) (Meyer & Herscovitch, 2001). Workplace commitment can take various forms including commitment to organizations, unions, occupations and professions, teams and leaders, goals and personal careers (Meyer & Herscovitch, 2001). Based on the behavioural and attitudinal perspective of organizational commitment, Meyer and Allen (1991) introduced the three-component model of organizational commitment (Meyer & Allen, 1991) which got further refined into the general model of workplace commitment (Meyer & Herscovitch, 2001). The core of the model is commitment itself, the "sense of being bound to a course of action of relevance to a particular target". The outer circle shows three different mind-sets that can characterize any commitment. These mind-sets are affective commitment, continuous commitment and normative commitment and are the consequences of different bases. Affective commitment reflects commitment based on emotional ties, e.g. the ones that an employee develops with the organization or a profession via positive work experiences. Normative commitment reflects commitment based on perceived obligation, for example rooted in the norms of reciprocity. Continuance commitment reflects commitment based on the perceived costs, both economic and social, of leaving the target the commitment is oriented towards, e.g. the perceived costs of leaving an organization or changing one's profession. According to the model, commitment can reflect varying degrees of all three mind sets (Meyer & Herscovitch, 2001) (Meyer & Allen, 1991). The three-component model of commitment has been used by researchers to predict important employee outcomes, including turnover and citizenship behaviours, job performance, absenteeism, and tardiness (Jaros, 2007). Research indicates that organizational commitment is positively associated with motivation and involvement, expressions of positive affect and loyalty, some aspects of job performance and pro-social behaviour. In addition, studies suggest that organizational commitment is negatively linked to potentially costly behaviours such as absenteeism and the likelihood of turnover (Caldwell, et al., 1990). In line with these findings, a meta-analysis of 124 studies showed that organizational commitment was positively correlated with job attendance and had a negative linear relationship to lateness and turnover (Mathieu & Zajac, 1990) (Goulet & Frank, 2002). Another meta-analysis that reviewed 58 studies highlights the emphasis on the management of affective commitment, since this base presents the most significant relationships with desirable work-related behaviours (Morrow, 2011).

2. Hypotheses

Based on the literature review, certain propositions can be made. Employer branding is a process that evolves around the identification and establishment of job characteristics which are meaningful to a workforce. A desired outcome of employer branding is the creation of organizational commitment. Affective organizational commitment has been identified as the preferred type of organizational commitment because it presents the most significant relationships with desirable work-related behaviours. Research suggests similar categories of job characteristics which are important for existing or prospective employees. These categories are social, economic and task-oriented job characteristics. However, not only the importance of job characteristics is deemed as an important influence on organizational commitment, but also the satisfaction with these. This paper aims to add to this topic by combining these two topics and researching the influence of the satisfaction with job characteristics categories on organizational commitment. First it shall be tested whether the satisfaction with job characteristics leads to similar categories compared to the importance of job characteristics. Next,

the influence of these supposed categories on affective, continuous and normative organizational commitment shall be analysed. As affective commitment has been described to be based e.g. on emotional ties or interest in the work itself, it is assumed that the satisfaction with job characteristics which represent such aspects of an occupation (e.g. a meaningful and interesting work, a lot of contact to people, etc.) predict affective organizational commitment. In contrast, continuous commitment reflects the perceived costs of leaving an organization or the tangible and intangible efforts already invested in a company, e.g. money and time. Therefore, it is assumed that the satisfaction with job characteristics regarding e.g. status and perspective predicts continuous organizational commitment. Normative organizational commitment has its base on reciprocity, that means with social relationships which exerts pressure on employees to stay in an organization. These relationships can take place inside as well as outside of the organization. Derived from these propositions and the underlying research questions, the following hypotheses are formulated.

H_1: The satisfaction with job characteristics can be clustered in similar categories compared to categories derived from the importance of job characteristics

H_2: The satisfaction with social and task-oriented job characteristic categories is a predictor for affective organizational commitment

H_3: The satisfaction with economic job characteristic categories is a predictor for continuous organizational commitment

H_4: The satisfaction with social job characteristic categories is a predictor for normative organizational commitment

H_5: Different demographic or company-related groups such as age, gender or management responsibility show differences in their satisfaction with certain categories of job characteristics

3. Approach and participants

This study used a cross-sectional approach and aimed to investigate the work-related preferences and organizational commitment of working people. The study was conducted among a random sample and has been available on the online platform social science survey (run by SoSci Survey GmbH) from August 2017 to January 2018 through a public link. Participants of the study were recruited among the students of the University of Applied Management (Ismaning, Germany) and the private University Seeburg (Seeburg, Austria). In addition, employees of Austrian companies were directly invited by the authors to participate in this study. A restriction regarding the branch, age, type of employment or similar of participants has not been applied. All participants were encouraged to pass information about the survey on to other potentially interested contacts in order to increase the sample size. Participants received no incentives for their contribution and were assured that their privacy would be protected (e.g. the results would not be linked back to participants and be used only for research purposes).

4. Materials: Questionnaires

The composition of the online-survey followed the recommendations of Bortz and Doring (2006) for questionnaire design. Demographical and company related questions were put at the beginning of the survey and a clustering of homogeneous items was avoided (Bortz & Döring, 2006). Consequently, the survey started with questions regarding the gender, age, level of education, type of employment, nationality, size of company and managerial responsibilities of the participants. Next organizational commitment was tested by a questionnaire for affective, normative and continuous commitment to the organization, the profession and the type of employment (part-time or full-time) (Felfe, et al., 2005). The satisfaction with work characteristics was tested based on the questionnaire importance of job characteristics (ZA & ZUMA, 2005). The satisfaction with each job characteristic was tested by a single item using a Likert-type format ranging from 1 (not satisfied) to 7 (very satisfied). In total 13 items for job characteristics were tested and are presented in table

1. Organizational commitment was tested by 14 questions using a Likert-type format ranging from 1 (strongly disagree) to 5 (strongly agree). Subsequently the dimensions affective, normative and continuous commitment were calculated.

5. Research results

One hundred eighty-three participants have fully completed the survey. The participants were between 18 and 69 years old, with a mean age of 30.99 years (SD =12.99) and originated mainly from Germany (116 participants) and Austria (61). 6 participants were from not otherwise specified countries. The study was completed by more females (126; 68.9%) than males (57; 31.1%). The majority of the participants had at least Abitur or Matura (German and Austrian Diploma from the secondary school) (64; 34.0%) or a university degree (80; 43.7%). 29 participants (15.8%) have completed a vocational school and 10 (5.5%) have finished compulsory education. About a quarter of the sample holds a management position (43; 23.5%) compared to 140 people (76.5%) without such responsibilities. Most of the participants of this study were employed full-time (84; 45.9%) or part-time (71; 38.8%), followed by 14 self-employed and 14 work-seeking participants (each 7.7%). Regarding company size, the majority of participants worked in a company with more than 250 employees (63; 34.4%). The other participants were relatively even distributed between companies with less than 10 employees (46, 25.2%), companies with between 11 and 50 employees (38; 20.8%) and companies with between 51 and 250 employees (36; 19.7%).

In order to calculate the distribution of the different commitment dimensions in the sample, the mean was used as the tool of choice. Consequently, for affective organizational commitment (M = 3.460) 83 participants were below and 100 participants were above this border. Continuous organizational commitment (M = 2.936) had 100 participants below and 83 participants above the mean, while normative commitment showed a relatively even distribution with 91 participants with a value below and 92 participants above the mean (M = 2.718).

In order to test H_1 a principal axes factor analysis was conducted for the questionnaire satisfaction with job characteristics in order to identify whether the correlations between the set of items stem from their relationship to one or more latent variables in the data. The factor analysis was conducted on the 13 items with rotation (oblimin). The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis, KMO = .806. A value described as "great" (Field, 2009). Bartlett's test of sphericity χ^2 (78) = 971.490, p < .0001, indicated that correlations between items were sufficiently large. Four components had eigenvalues over Kaiser's criterion of 1 and in combination explained 54.29% of the variance. However, the item "satisfaction with secure working condition", showed a loading between .35 and .4 for two components, making a distinct assignment to a component impossible. Therefore, the principal axes factor analysis has been repeated without this item in order to retrieve an unambiguous result. That time, three components have been obtained. The item "satisfaction with the occupation that allows a lot of free time" didn't show a factor loading > 0.3 at all. Therefore, the principal axes factor analysis was calculated again, resulting again in three components.

The final factor analysis was conducted on 11 items with rotation (oblimin) and is presented in table 1. The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis, KMO = .801. Bartlett's test of sphericity χ^2 (55) = 863.352, p < .0001, indicated that correlations between items were sufficiently large. Three components had eigenvalues over Kaiser's criterion of 1 and in combination explained 54.806% of the variance. Table 1 shows the final factor loadings after rotation. The items that cluster on the same components suggest that component 1 represents the satisfaction with socially relevant job characteristics (M = 4.954, SD = 1.329) component 2 with status and perspective (M = 4.805, SD = 1.165) and component 3 with independence and interest (M = 5.525, SD = 1.181).

Table 2

Summary of principal axes factor analysis results for the satisfaction with job characteristics questionnaire

No.	Item	Components 1	2	3	
		1	**2**	**3**	
1.	A job where you can help other people	0.948			
2.	Important for society	0.901			**Social**
3.	A meaningful work	0.574			
4.	A lot of contact to people	0.388			
5.	High income		0.753		
6.	Good promotion prospects		0.746		**Status and perspective**
7.	A respected and honoured profession		0.607		
8.	Secure and healthy working conditions		0,418		
9.	Work independently			-0.808	
10.	A job that demands a high sense of responsibility			-0.703	**Independence and interest**
11.	Interesting occupation			-0.539	
12.	An occupation that allows a lot of free time*				
13.	High job security*				
	Cronbach's α	0.832	0.760	0.796	

Source: author's construction
*Excluded from the final factor analysis because the factor loadings were too small or not distinct.

After obtaining three categories of the satisfaction with job characteristics, differences between demographic and company-related groups in their satisfaction with these job characteristic categories shall be calculated in order to test H_1. Therefore, the sample was analysed to check whether the conditions for parametric or non-parametric tests are present. Depending on the preliminary results, t-tests and ANOVA or Mann-Whitney-U tests and Kruskal-Wallis tests were run to test the differences between the groups. The results reveal statistically significant differences for the groups management responsibility, type of employment and age. Managers and employees differ in their level of satisfaction in all three components. For the component social ($U = 2088$, $p < .005$) managers ($Mdn = .661$) show a statistically significant higher value than employees with no such responsibilities ($Mdn = -.07$). The same applies for the component status $t(181) = 3.735$, $p < .001$ with managers ($M = 0.428$, $SD = .866$) reporting a higher level of satisfaction compared to employees ($M = -.013$, $SD = .857$). In contrast employees show a higher value for the factor independence and interest ($Mdn = .113$) compared to managers ($Mdn = .772$) with $U = 1312$, $p < .000$. Regarding the type of employment, there was a statistically significant difference between the groups for the component independence and interest ($\chi2(3) = 13.604$, $p < .005$), with a median rank of -1.00 for part-time employees and .147 for self-employed. Other pairwise comparisons showed no statistically significant differences. The variable age was divided in three sub-groups (< 25 years, 26 – 45 years and above 46 years). ANOVA showed the effect of age on the satisfaction with job characteristic components was significant for the component social ($F(2,179) = 4.380$, $p < .05$. Bonferroni post-hoc analysis revealed a difference between the group of under 25 years old ($M = -.179$, $SD = .968$) and the group of older than 46 years ($M = .325$, $SD = .874$), which means that the older participants showed a higher satisfaction with the social job characteristics than their younger peers. Other pairwise comparisons showed no statistically significant differences. Regarding nationality, comparisons between Austrians and Germans have been calculated. Participants from the subgroup other countries have been excluded from this analysis because of the small sample size of only 6 participants. Differences have been found for the component status and perspective ($t(174) = 2.465$, $p < .05$) with Austrians showing a higher level of satisfaction ($M = .219$, $SD = .835$) than Germans, ($M = -.122$, $SD = 0.896$) and the component independence and interest ($U = 2548$, $p < .005$) where Germans

show a higher value (Mdn = -.007) than Austrians (Mdn = -.417). No statistically significant differences were found for the variables gender and level of education.

To test hypothesis H_2, a multiple regression was calculated to predict affective organizational commitment based on the above-mentioned components for the satisfaction with job characteristics. A significant regression model was found ($F(2,12)$ = 16.628, $p < .001$), with an R^2 of .205. The first components social (T = 2.030, $p < .05$, β = 0.167) and the second component status and perspective (T = 3.619, $p < .001$, β = .281) showed significant regressions-coefficients. The third component independence and interest (T = -1.486, $p > .139$, β = - .139) is not a statistically significant predictor in the model. Next, a multiple regression was calculated to test hypotheses H_3 and H_4. No statistical significance was found, that the satisfaction with certain components of job characteristics predicts continuous organizational commitment or normative organizational commitment.

To test the relationship between the overall satisfaction with job characteristics and the different dimensions of organizational commitment, the mean score of all 13 items of satisfaction with job characteristics was calculated and correlated to the different dimensions of organizational commitment. It was revealed that the satisfaction with job characteristics was statistically significantly correlated to affective organizational commitment (r = .428, $p < .001$) and normative commitment (r = .174, $p < .05$). No correlation has been found for continuous commitment.

6. Discussion

This study revealed three statistically significant categories for the satisfaction with job characteristics, namely the categories social, status and perspective, and independence and interest. Similar categories for the importance with job characteristics have been found by other studies (Trost, 2013) (Berthon, et al., 2005) (Hager & Seibt, 2017) and marked as important in the process of employer branding. However, these studies list also additional categories of job characteristics, which have not been found for the satisfaction with job characteristics. These categories represent the values of the organization (e.g. organizational culture or quality of leadership) and company related attributes (e.g. reputation or products) (Trost, 2013) or the orientation towards leisure time (Hager & Seibt, 2017). Other suggested categories for job characteristics are the development and application value a job offers (Berthon, et al., 2005). The importance and satisfaction with job characteristics can be clustered in central categories revolving around social, economic and interest-orientated job characteristics, but other categories of characteristics are possible.

The model revealed a statistically significant influence from the satisfaction with job characteristics components on affective organizational commitment, by explaining 20.5% of variances. Two out of three components were statistically significant predictors, the social component and the status and perspective component. Status and perspective showed a higher influence on organizational commitment than the social component. Surprisingly, the component independence and interest was not a predictor for affective organizational commitment. Former research has already confirmed a statistically significant relationship between an interesting and diversified job as a predictor for affective commitment, as well as between intrinsic satisfaction and affective commitment (Felfe, 2008). According to the calculated regressions, the satisfaction with job characteristics is neither a predictor for continuous organizational commitment nor for normative organizational commitment. This result is surprising as well, because, although explaining less variances than for affective commitment, according to research job characteristics have also been confirmed to be predictors for continuous commitment and for normative - (Felfe, 2008). Especially economic aspects are considered to be key in influencing continuous organizational commitment (Mathieu & Zajac, 1990), but cannot be confirmed for this study.

Regarding the satisfaction of different demographic groups with categories of job characteristics, differences have been found. Managers show in general a higher level of satisfaction than employees without such responsibilities. This

could be a sign, that managers are receiving more favourable working conditions or that only people with a high enough level of satisfaction stay long enough in a company to reach the levels of management. This is supported by the fact, that according to research managers show less normative commitment than employees (Felfe, 2008). Full-time employees showed a higher level of satisfaction with the category independence and interest, than their peers who are employed part time. Although research suggests, that full-time and part-time employees do not differ in their organizational commitment, a shift towards flexible working hours has influenced commitment positively by increasing satisfaction. (Felfe, 2008). A practical implication could be, to increase satisfaction and commitment through offering flexible working hour models which are more than a simple division between part- and full-time employment. Employees older than 46 years felt a higher satisfaction with social job characteristics than employees younger than 25 years. The reason for this could be socialization- and selection processes within the organization, the same suggested reason, why commitment increases with age (Mathieu & Zajac, 1990). Regarding nationality, differences have been found between Austrians and Germans in the categories status and perspective and independence and interest. This is in line with already conducted research which suggests, that culture influences differences in job satisfaction between nations (Hauff, et al., 2015).

A score for the satisfaction with all job characteristics items has been calculated and statistically significant correlations with affective and normative organizational commitment have been revealed, showing a higher correlation with affective commitment than with normative commitment. In line with the results of this study a meta-analysis confirms the strong correlation between job satisfaction and affective commitment as well as a weaker but still statistically significant correlation with normative commitment. Contrary to the results of this study, research also suggests a correlation between job satisfaction and continuous commitment, albeit the weakest correlation of all dimensions of organizational commitment. (Felfe, 2008)

7. Limitations and suggestions for further research

Considering the multifaceted nature of job characteristics, job satisfaction and organizational commitment, further variables should be added as predictors to this model to increase its explanatory power, as several work and employment conditions were not integrated into this analysis. Among others, recent approaches contend that setting the focus on job characteristics as a predictor for desirable employee behaviour overlooks the character traits of an individual. In order to obtain a more holistic picture, these character traits should be included in scientific studies (Barrick, Mount, & Li, 2013). Possible variables to add are therefore dimensions of personality or personality types of participants. Already conducted research confirms, that depending on the personality type different dimensions of organizational commitment are present (Hager & Seibt, 2017) (Felfe, 2008) and that different personality types also show differences in their preferences for job characteristics. These job characteristics are e.g. high income, good promotion prospects, an interesting job or a job that demands a high sense of responsibility (Hager & Seibt, 2017). Further studies could analyse whether these results also apply to the satisfaction with job characteristic. Although the sample size was big enough to allow a statistically meaningful processing, an increase of the sample size could probably lead to a more distinct result of the factor analysis and to more factors. In addition, subgroups like gender or managers would be represented in greater numbers. Therefore, a testing with an increased sample size is recommended for future studies.

Conclusions, proposals, recommendations

C_1: According to the results of this study, the categories for the satisfaction with job characteristics are comparable to the main categories for the importance of job characteristics. The obtained three categories are social, status and perspective, and independence and interest. Although research indicates that other categorizations of job characteristics are also possible, these three categories seem to be of vital importance for employees.

C_2: A statistically significant regression model was calculated for the influence of the satisfaction with job characteristics on affective organizational commitment. However, it was revealed that not all components are statistically significant predictors. Affective organizational commitment is predicted by job characteristics of the categories social and status and perspective. It is remarkable, that contrary to the hypothesis and reviewed literature this study doesn't confirm the category independence and interest as a predictor for affective organizational commitment. The results implicate that companies should focus in their employer branding process on job characteristics representing social and status and perspective aspects, as only the satisfaction with these two categories of job characteristics lead to the desired presence of affective organizational commitment.

C_3: H_3 cannot be confirmed, since the regression model has not been of statistical significance. Therefore, the satisfaction with economic job characteristic categories is not a predictor for continuous organizational commitment.

C_4: H_4 cannot be confirmed, since the regression model has not been of statistical significance. Therefore, the satisfaction with social job characteristic categories is not a predictor for normative organizational commitment.

C_5: Regarding the satisfaction with job characteristics of different demographic groups, differences have been found for management responsibility, type of employment and nationality, making a case for the consideration of individuality in employer branding.

P_1: The design of job characteristics is a vital part in the process of employer branding. Based on the results of this study, affective organizational commitment is predicted by the satisfaction with the job characteristic categories social and status and perspectives. A possible practical recommendation is therefore a regular examination of a company's offered job characteristics and the employees' satisfaction with them.

P_2: The results of this paper indicate differences in the individual satisfaction level with these categories of job characteristics. A practical application is to consider these individual differences in employer branding and to routinely test if the offered job characteristics meet the expectations of the employees in order to create organizational commitment.

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WHAT DRIVES EARNINGS OF RETURN MIGRANTS? EVIDENCE FROM LATVIA

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Abstract. Since the beginning of the 21st century, Latvia has lost to emigration 12% of its population. Facilitating return migration is one of the ways to minimize negative economic and social consequences of emigration in Latvia and other sending countries. According to survey of return migrants, detailed information on employment possibilities and earnings in Latvia targeted on emigrants has a potential to increase return migration. This paper analyzes determinants of earnings of return migrants using very rich information on jobs and earnings in Latvia, as well as foreign experience of more than 1000 returnees surveyed in 2016. After controlling for personal characteristics and hours worked, we find significant and sizable positive effects on returnees' earnings at the main job for various components of specific human capital accumulated abroad: duration of work abroad in particular sector and occupation; any knowledge acquired abroad which is used at the job in Latvia; foreign experience in occupation related to one's education or qualification; specific skills which make the respondent a difficult-to-replace employee at his workplace. These results hold true also after controlling for a rich set of job characteristics. By contrast, general experience accumulated abroad (proxied by duration of stay abroad) positively affects earnings in Latvia only for those return migrants who have completed abroad (in EU or OECD country) some tertiary education. Higher education obtained abroad (in EU or OECD) is shown to positively affect post-returning earnings also through number of other channels.

Key words: *return migrants, earnings*, *foreign experience, specific experience, general experience*

JEL codes: F22, J24, J31

Introduction

Since the beginning of the 21st century, Latvia has lost to emigration 12% of its population (Hazans, 2016a, 2017). Facilitating return migration is one of the ways to minimize negative economic and social consequences of emigration in Latvia and other sending countries. The positive effect of return migration might materialise through different channels. First, return migration partly compensates decrease of population and demographic potential of the sending country caused by emigration. Second, if returnees are successfully integrated in the labour market, return migration mitigates loss of labour force (and hence the productive potential) caused by emigration. Third, it is well documented in the literature that in many cases foreign experience enhance returnees' human and social capital, which make them, on average, more productive than stayers and/or more likely to become entrepreneurs or innovators. This latter effect is known as *brain gain* or *brain circulation* effect (Hazans 2008, 2013, 2016c, 2017b; Wahba 2015a, 2015b; Wahba & Zenou 2012; Ambrosini et al. 2015; Kureková & Žilinčíková 2016; Masso et al 2016; Bensassi & Jabbour 2017 among others). This latter effect is known as *brain gain* or *brain circulation* effect (Beine et al 2008, Mayr and Peri 2009, Wahba 2015b, Zaiceva & Zimmermann 2016, among others).

One method to identify and measure the brain gain effect is to look at earnings of employed return migrants. If returnees earn, on average, more than otherwise similar employees without foreign experience, this suggests that foreign experience has a positive impact on productivity (see Barrett A. & O'Connell 2001; De Coulon & Piracha 2005; Hazans 2008, 2013, 2016c, 2017b; Ambrosini et al 2015; Wahba 2015a; Kureková & Žilinčíková 2016 for empirical evidence [1]).

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[1] Kureková & Žilinčíková (2016) use reservation wages rather than at actual earnings.

However, an in-depth analysis is needed to disentangle this impact from a possible positive selection of emigrants and to prove that there is indeed a causal relationship (Hazans 2008; Ambrosini et al. 2015; Wahba 2015a). Moreover, the value of foreign experience might vary substantially across demographic or skill groups or across destination countries; it might be even negative for some groups (Barrett A. & O'Connell 2001; Hazans 2008; Masso et al 2014; Wahba 2015a; Kureková & Žilinčíková 2016).

Previous literature has studied the returns to foreign experience either in the context of earnings of immigrants in highly developed countries (Akee & Mutlu 2008; Chiswick & Miller 2005, 2009; Cousineau & Boudarbat 2009, Dean 2010 among others) or in the context of earnings premium (or penalty) commanded by returnees (see references in the previous paragraph), while estimates of the impact of various components of foreign experience on earnings of return migrant have been, to our best knowledge, absent (plausibly, due to data limitations).

The aim of this study is to shed light on the relationship between earnings of return migrants and different dimensions of their foreign experience, including total time spent abroad; the last destination country and time spent there; duration of work abroad in particular sector or occupation; quality of job - qualification match in the last job abroad. For this purpose we use a very rich information on jobs and earnings in Latvia, as well as foreign experience of more than 1000 returnees surveyed in 2016. Thus the theoretical contribution of the paper is new evidence on the value of foreign experience. The paper provides also contribution to diaspora policy-making: According to survey of return migrants, detailed information on employment possibilities and earnings of return migrants in Latvia targeted on emigrants has a potential to increase return migration (Hazans 2016c).

1.   Data: Return Migrant Survey

The paper employs data of survey of return migrants conducted in Latvia in November-December 2016. In the literature (see Zaiceva and Zimmerman 2016; Hazans 2016c; Kureková & Žilinčíková 2016) it is well-established that traditional quantitative methods of sociology (based on random population or household samples) are not efficient in studying return migrants. This is because in a given country return migrants constitute a relatively small group which nevertheless could be very heterogeneous in terms of socioeconomic status and foreign experience. Such a group requires a sufficiently large sample - at least 1000 return migrants for which detailed information is available. It would be too costly within the framework of traditional methods. Therefore the survey of return migrants in Latvia was organized as online survey supported by social media, several news portals and the most popular job-search portal. Note that Masso et al (2014) and Kureková & Žilinčíková (2016) also rely on web surveys data for studying return migration.

The following channels have been used to attract respondents:

(i) social media portal Draugiem.lv sent a banner with a request to participate in the survey to users which have for a long time used to login into their profiles from abroad but then switched to logging from Latvia;

(ii) job-search portal CV-Online has invited its users to take part in the survey;

(iii) information about the survey and links to the questionnaires (available in Latvian and Russian languages) have been posted by a number of news portals, including the Latvian and Russian versions of the most popular in Latvia news portal DELFI, as well as Baltcom radio, portals mixnews.lv and press.lv, the University of Latvia website, websites of several emigrants' organisations, etc.

According to the literature (see Zaiceva and Zimmerman 2016), most studies of return migration use either ten-year or five-year reference period for identifying foreign experience. The group of primary interest in our study consist of migrants who returned to Latvia during and after the crisis, i.e. in 2008-2016; this nine-year reference period is in line with studies which have used a ten-year period. However, during the data collection stage we adopted a more inclusive

(at no cost) approach, covering all respondents aged 18+ who were born in Latvia and at least once since year 2000 lived or worked abroad for a period of 3 month or more. In fact, 98.4% of the working sample are aged 18-64 and 94% used in this paper appear to have spent at least 12 months in their last destination country.

The Return Migrants Survey (RMS hereafter; see Hazans 2016c for details) was available for 25 days and attracted 3055 respondents aged 18 to 64, of which 1812 have delivered fully or almost fully completed questionnaires. For the analysis in this paper, we exclude about 200 transnationals which "live both in Latvia and abroad" and "have not in fact returned", as well as 93 pre-crisis returnees, reducing the working sample to 1523 return migrants.

Given non-random selection, we assess representativity of the RMS sample by comparing its composition with that of *the reference group* - a representative sample of return migrants identified in the 2009-2015 datasets of the Latvian Labour Force Survey (LFS hereafter). Such a comparison is complicated by changes in the profileof returnees' population between their return and the time when RMS was conducted (information in the LFS refers to the one-year period after return). Two processes which change the profile of returnees' population are repeated emigration of returnees and their participation in formal education after return. Given that young returnees and (recently) non-Latvians are more likely to emigrate (Hazans 2016a, 2016b), and that returnees without completed tertiary (or secondary) education can complete it after return, one can expect that the shares of the youth, non-Latvians and persons without tertiary education in the RMS sample are smaller than in the LFS samples for comparable years, and that the differences tend to increase with the time elapsed since return.

Non-weighted RMS data in Table 1 confirm these expectations; moreover, males seem to be under-represented in the RMS (this is a a common problem in self-administered surveys). The weights in the RMS data (used in the shaded columns of the RSM part of Table 1) have been developed to match the gender, age and ethnicity distribution of the migrants which returned to Latvia in 2013-2016 with that of returnees found in 2014-2015 datasets of the LFS (they returned in 2013-2015), while the share of the tertiary-educated have been left by 5 points higher to account for post-return education. Note that 2013-2016 returnees account for 80% of the RMS sample. The same weighting rules have been applied also to returnees of 2008-2012 - given large time lag, no extra effort has been applied to match their profile with the respective profile in found in LFS 2009-2013; comparison of the two light-grey columns in Table 1 reveals, however, almost perfect match in gender distribution and acceptable match in age and ethnic distribution; expectedly, RMS features lower shares of youth and minorities but substantially higher share of tertiary-educated.

Table 1

Demographic profile of return migrants: Return Migrant Survey vs LFS

| | | Labour Force Survey | | Return Migrants Survey 2016, by time of returning | | | |
| | | | | 2008-2012 | | 2013-2016 | |
		2009-2013	2014-2015	Non-weighted	Weighted	Non-weighted	Weighted
Gender	Men	63.0	51.6	50.7	61.8	41.4	51.1
	Women	37.0	48.4	49.3	38.2	58.6	48.9
Age of return	18-24	19.7	23.1	24.0	24.7	20.4	23.6
	25-34	44.7	40.7	47.7	43.6	44.1	42.8
	35-44	19.7	18.7	14.0	17.7	18.1	17.9
	45-64	15.9	17.6	14.3	14.0	17.4	15.7
Ethnicity	Latvian	61.2	68.0	79.2	65.7	82.2	69.3
	Other	38.8	32.0	20.8	34.3	17.8	30.7
Education	Tertiary	20.1	25.1	67.9	47.9	49.7	30.6
	Other	79.9	74.9	32.1	52.1	50.3	69.4
	N obs	569	282	308	308	1215	1215

Notes: Unlike Table 1 in Hazans (2016c), RMS data here exclude transnationals. Source: Calculations with LFS and RMS microdata.

Overall, we conclude that weighted RMS data can be considered representative of the returnees' population.

2. Methodology

We apply the traditional method of estimating the Mincerian earnings equations with dependent variable being monthly earnings at the main job (in the home country, i.e. Latvia) during the survey. However, we amend the commonly used determinants of earnings with characteristics of foreign experience and some factors closely related to both returnees' foreign experience and their current jobs in Latvia (Table 2).

Table 2

Control variables used as determinants of (log) monthly earnings at the main job

General foreign experience	*Specific foreign experience*	*Other factors related to foreign experience*
Host: Last destination country (5 categories)	*Exp_spec_ab:* Duration of work abroad in particular sector and occupation, years	*Dur_home* Time spent in the home country after returning, years
N_hosts: Number of foreign countries where lived for 3+ months (4 categories)	*Match_ab*: Job - qualification match in the last job abroad	*Reas_job:* Return triggered by a job offer or business plans in Latvia
Dur_host: Time spent in the last destination country, years *Dur_ab*: Total time spent abroad, years	*Uniq_ab:* Unique or scarce job-related skills obtained abroad	*Use:* To what extent knowledge acquired abroad is used at the workplace
		In **Specification 2** only:
	Edu_ab: Tertiary education at least partly completed abroad	*Foreign_own:* Current employer is a foreign-owned (at least in part) firm
		HQ_cntry: The country of headquarters of the current employer or its mother firm (3 categories)
		Match_home: Job - qualification match in the current job
Other controls		

Specification 1: Education (5 categories); Gender (in pooled models); Age and its square; Latvian, Russian and English language skills (3 categories each); # Hours usually worked per week (main job); Tenure; Type of settlement of the main job (4 categories); Self-employed; Working student.

Specification 2 (in addition to Specification 1): Industry (13 categories); Firm size (7 categories); Supervisory responsibilities; Type of contract or employment relationship (4 categories).

Notes: Only one of the variables Dur_host , Dur_ab, Exp_spec is used in any specification. Source: Author's compilation

We estimate two specifications of the earnings equations. Specification 1 does not control for the characteristics of the post-return job (industry, firm size, contract type, supervisory responsibilities, as well as variables *Match_home, For_cap* and *HQ_cntry* described in Table 2). This way, the effects of foreign experience variables in Specification 1 reflect not only the productivity gains but also better access to "good jobs". Specification 2 controls for the above-mentioned characteristics of the post-return job; hence, it measures only within-job returns to foreign experience. The difference between effects of the same experience variable between Specifications 1 and 2 can be attributed to the access effects. Combining each of these specifications with three measures (one at a time) of foreign experience (*Dur_host*, *Dur_ab*, and *Exp_spec_ab*, see Table 2) gives 6 models for the pooled men/women sample. We report below only 4 of those models because the results with *Dur_ab* are very similar to those with *Dur_host*. Out of 1523 respondents in the working sample 1052 (or 69%) were employed. Due to missing data for some of the variables, number of observations for the earnings equations is 1000 or 1002 for specifications with general foreign experience and 839 for specifications with specific foreign experience.

3. Results

According to estimation results reported in Table 3 (col. [1], [2]), *the "amount" of general foreign experience*, expressed as total time spent in the last destination country (variable *Dur_host* in Table 2), *does not have a significant effect on returnees' earnings* - disregarding which of the two specifications (without or with current job attributes) is used. This conclusion does not change if the earnings equation is quadratic (rather than linear) in *Dur_host* or includes *Dur_host* in non-parametric way (as categorical variable); these results are not reported to save space. Moreover, *total time spent abroad also does not have a significant effect on returnees' earnings* (Table 3, col. [3]). However, *among return migrants who have completed some tertiary education abroad* (in EU or OECD country), *total duration of stay abroad positively affects earnings*: an extra year of overseas duration raises earnings by 2.6%, all else equal (Table 3, col. [6]).

Returnees whose last destination was Ireland (respectively, some non-English speaking EU/EFTA country) earn, on average, by about 15% (respectively, 8%) more than those who returned from the UK, other things equal (the differential varies by model specification, see Table 3, col. [1]-[5] [2]).

By contrast with the general experience, *the "amount" of specific foreign experience, measured as duration of work abroad in particular sector or occupation, has in most cases a strong positive effect on returnees' earnings* (Table 3, col. [4], [5]). The estimated relationship is in fact inverse U-shaped, with earnings maximum at about 8 years. However, for 93% or respondents specific foreign experience does not exceed 8 years, so they are in the upward-sloping part of the inverse U. In fact, the average marginal effect of the specific foreign experience is 0.0235 (s.e. 0.0105), implying that *on average an extra year of such experience raises earnings by 2.4%, other things equal.*

However, not any specific foreign experience is good for earnings: other things equal, *those who were overqualified for their last job abroad* (which was the case for 38% of respondents) *earn in their current main job, on average, by about 13% less than those whose last job abroad matched well their qualification and/or experience at that time*.

One in four employed returnees reported *unique or scarce job-related skills acquired (completely or in part) abroad*. Other things equal, they earn by about 14% more than returnees without such skills (Table 3, col. [1] -[5]). Among graduates of foreign universities the earnings premium for unique or scarce skills acquired abroad reaches 24% (Table 3, col. [6]). Note that the premium for unique or scarce skills is even larger for those returnees who acquired such skills only in Latvia, but this is a much smaller group (just 6% in our sample).

Next we turn to the effects of factors related to both returnees' foreign experience and their current jobs in Latvia. First, the time spent in Latvia after returning (2.2 years on average, varying from 0 to 8 years) has positive but only weakly significant effect on current earnings in specifications without current job attributes and with general (rather than specific) foreign experience (Table 3, col. [1], [3] and [6]). This effect, however, becomes significant (with p-value 0.012) and sizeable (2.4% per year) when tenure at the current employer is dropped from the model (this specification is not shown in Table 3). One can conclude that there are two (more or less obvious) channels through which time spent in Latvia after returning affects earnings: longer time helps to find better jobs but also is associated with longer tenures.

About one-third of employed returnees report that they "to a very large extent" or "to a large extent" *use knowledge acquired abroad at the current job*. However, only half of them (the former group of course) enjoy earnings premium (13% to 17% depending on specification) compared to returnees which do not use knowledge acquired abroad (Table 3, col. [1] -[5]). This earnings premium is larger (26%) among returnees who have completed some tertiary education in a foreign EU or OECD country (Table 3, col. [6]).

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[2] Coefficients reported in Table 3 can be interpreted as earnings differentials (premiums or penalties) in log points. The text refers to differentials in per cent, which are obtained from coefficients b as $e^b - 1$, e.g. $e^{0.129} - 1 = 0.138 = 13.8\%$.

Table 3

Estimated effects of foreign experience on (log) earnings of return migrants in Latvia

	Means	[1]	[2]	[3]	[4]	[5]	[6]
Variables		M1	M2	M1	M1	M2	M1
		General foreign experience					
Last host country (vs. UK)							
Ireland	0.111	0.119*	0.129**	0.118*	0.161**	0.162***	0.187
EU/EFTA other	0.296	0.075*	0.050	0.077*	0.084*	0.069*	0.056
OECD other	0.032	0.060	-0.010	0.059	0.004	-0.082	-0.078
Rest of the World	0.033	0.006	-0.023	0.009	0.039	0.027	X
# of host countries (vs. 1)							
2	0.422	-0.012	-0.005	-0.012	-0.046	-0.034	
3	0.128	0.123**	0.135***	0.122**	0.150**	0.147***	
4+	0.076	-0.146*	-0.102	-0.133	-0.085	-0.066	
Dur_host	4.397	-0.005	-0.003				
Dur_ab	4.727			-0.003			0.026*
		Specific foreign experience					
Exp_spec_ab	3.843				0.041*	0.043**	
Exp_spec_ab squared	23.90				-0.003	-0.003(*)	
Was overqualified for the last job abroad							
Yes	0.382	-0.137***	-0.117***	-0.136***	-0.146***	-0.113***	-0.045
Not sure	0.202	-0.101**	-0.086*	-0.100**	-0.095	-0.074	-0.116
Unique or scarce job-related skills (vs. No)							
Yes, acquired (only or partly) abroad	0.248	0.137***	0.135***	0.139***	0.133***	0.124***	0.217**
Yes, acquired only in Latvia	0.060	0.231**	0.188**	0.236***	0.262***	0.214**	0.248
Tertiary edu. abroad	0.122	0.069	0.031	0.068	0.059	0.003	X
		Other effects related to foreign experience					
Dur_home	2.196	0.017(*)	0.003	0.017*	0.015	0.003	0.041*
Use of knowledge acquired abroad at the current job (vs. No)							
To a very large extent	0.167	0.159***	0.136**	0.159***	0.123*	0.117*	0.235**
To a large extent	0.173	0.056	-0.015	0.058	0.011	-0.032	0.170
Return due to a job offer or business plan in Latvia							
Yes	0.155	0.192***	0.136**	0.190***	0.171***	0.122**	0.154*
Current employer foreign-owned	0.293		0.103**			0.110**	
Current employer - headquarters' country (vs. Baltic countries)							
other EU or OECD	0.133		0.164***			0.168***	
Overqualified for the current job in Latvia							
Yes	0.252		-0.153***			-0.174***	
Not sure	0.067		-0.171*			-0.192**	
N		1000	1000	1002	839	839	162
R-squared		0.407	0.504	0.406	0.407	0.506	0.582

Notes: See Table 2 for definitions of variables Dur_host, Dur_ab, Exp_spec_ab, Dur_home. Other controls - see Table 2 (Specifications 1 and 2 for models marked M1 and M2 in Table 3). Means refer to the sample with 1000 obs., except for Exp_spec_ab (N= 839). Empty cells refer to omitted variables. "X" in col. [6] indicates variables which are constant (and hence dropped) in the respective subsample: all respondents have Edu_ab=1 and host countries in EU/EFTA or OECD. Legend: (*) - $p < 0.13$; * - $p < 0.10$; ** - $p < 0.05$; *** - $p < 0.01$, based on robust standard errors. Source: Calculation with RMS data.

Returnees whose return was triggered by a job offer or business plans in Latvia earn, on average, by about 14% more than other returnees, all else equal (Table 3, col. [2] and [5])*; this differential increases to about 20% in specifications without detailed job characteristics*(Table 3, col. [1], [3], [4]) . This difference between Specifications 1 and 2 (though not statistically significant) signals an access-related effect: it is highly plausible that a good job offer improves one's chances to end up with a decent job.

Returnees whose current employer is a foreign-owned firm earn, on average, by about 11% more than other returnees, all else equal. On top of this, returnees whose employer is a firm with headquarters (or mother enterprise) in another (non-Baltic) EU or OECD country earn by 18% more (other things equal) than those with headquarters in one of the Baltic countries. Together these two effects give a 32% earnings advantage to returnees working for a firm of non-Baltic EU or OECD origin.

The "foreign employer" effects are related to foreign experience via two channels. First, there is an access effect: the largest incidence of a foreign employer in general, as well as the largest incidence of an employer with headquarter in a non-Baltic EU or OECD country is found among those with 1 to 4 years of specific foreign experience (Fig.1); the difference with other returnees is statistically significant at 5% level (this holds true also after controlling for gender, education, age and language skills). Furthermore, one can expect a positive interaction effect between specific foreign experience and working for a firm of non-Baltic EU or OECD origin (indeed such effect is found in a model with interaction, which is not reported here to save space).
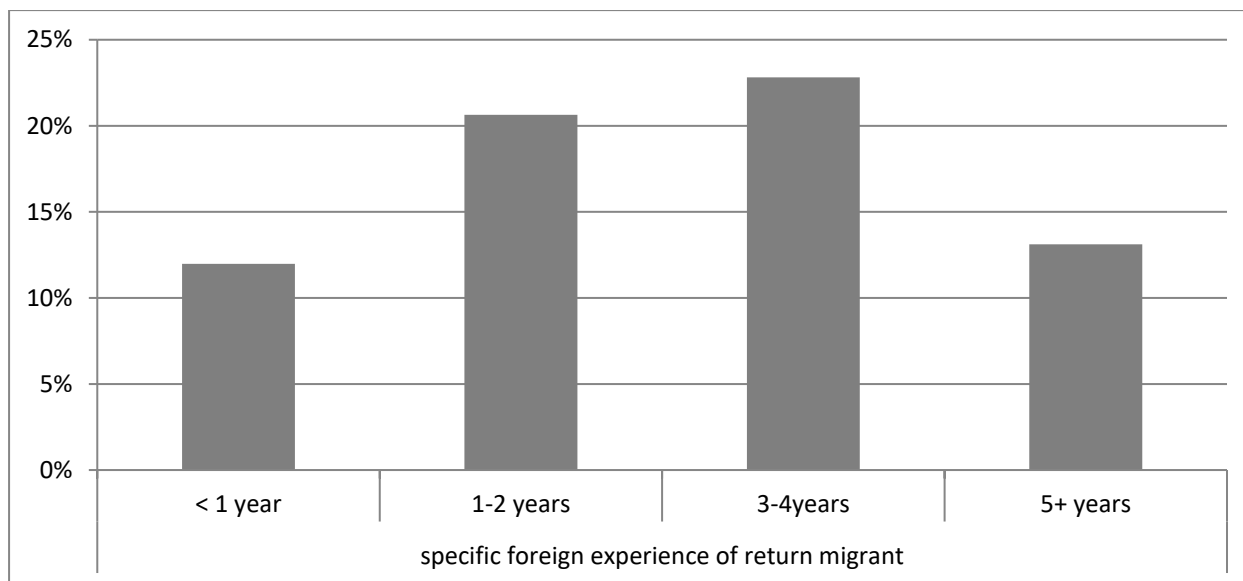
Source: Calculation with RMS data. Base: post-crisis return migrants, excl. those who have not answered this question (N=692).

Fig. 1. **Proportion of return migrants employed in Latvia by a firm with headquarters in a non-Baltic EU or OECD country vs. specific foreign experience**

Those return migrants who are overqualified for their current job in Latvia, as well as those who are not sure whether their job matches their qualification, earn by 16% to18% less than other returnees, all else equal (Table 3). This category accounts for almost one-third of employed returnees. Half of this group were overqualified also for their last job abroad, and almost a quarter found it difficult to answer whether their last job abroad matched their qualification. Thus, for three out of four overqualified returnees poor job match in Latvia is likely to be related to (if not caused by) professional downshifting (a.k.a. *downskilling*) experienced abroad.

Tertiary education completed abroad (*Edu_ab*) does not appear in our models as having a significant positive effect on post-returning earnings (Table 3, col. [1]-[5]), but such a conclusion would be misleading. One reason is that *Edu_ab*

enters models in addition to detailed control for education level (distinguishing between two-year college, Bachelors and Masters degrees). Furthermore, as documented above, returnees with tertiary education completed abroad enjoy larger earnings premium for use of knowledge acquired abroad at the current job. Finally, as shown in Fig. 2, graduates of foreign universities (in EU or OECD countries), compared to return migrants who completed tertiary education only in Latvia,

- are less likely to be overqualified for their last job abroad
- are more likely to acquire abroad unique or scarce job-related skills
- are more likely to a very large extent use knowledge acquired abroad at the current job
- are more likely to return because of a job offer or business plans in Latvia

In other words, tertiary education completed abroad has a positive effect on post-returning earnings through above mentioned (and, plausibly, other) channels .
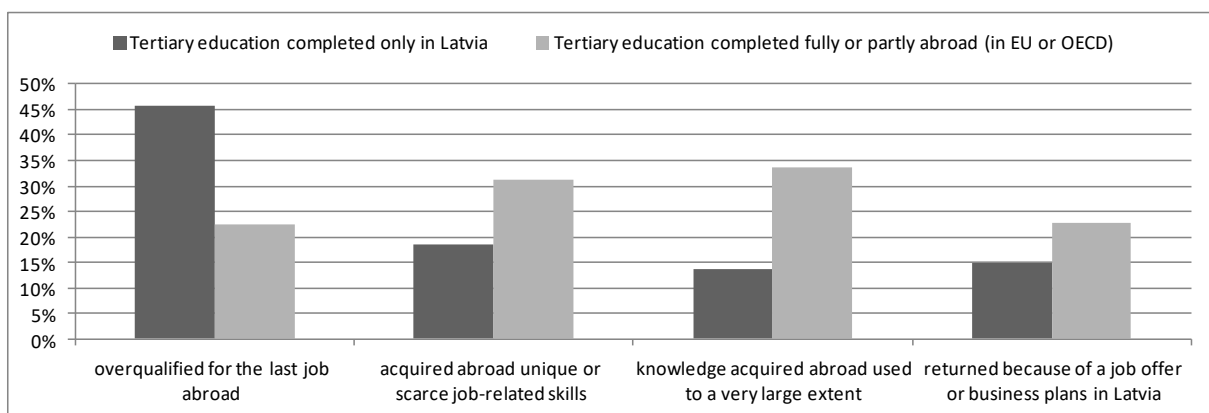
Source: Calculation with RMS data. Base: post-crisis return migrants with tertiary education (N=815).

Fig. 2. **Mean values of selected determinants of post-returning earnings among high-educated returnees, by country of completing higher education**

Conclusions

This paper employs a recent survey of return migrants to study the impact of various components of foreign experience on earnings of return migrant in Latvia. After controlling for personal characteristics and hours worked, we find significant and sizable positive effects on returnees' earnings at the main job for various components of specific human capital accumulated abroad: duration of work abroad in particular sector and occupation; any knowledge acquired abroad which is used at the job in Latvia; foreign experience in occupation related to one's education or qualification; specific skills which make the respondent a difficult-to-replace employee at his workplace. These results hold true also after controlling for a rich set of job characteristics.

Unlike specific experience, amount of general experience accumulated abroad (proxied by duration of stay abroad or in the last host country) is not found to have a significant effect on earnings as long as the whole population of returnees is considered. However, among return migrants who have completed some tertiary education abroad (in EU or OECD country), total duration of stay abroad positively affects earnings, mainly via better access to well-paid jobs.

Previous literature has studied the returns to foreign experience either in the context of earnings of immigrants in highly developed countries or in the context of earnings premium (or penalty) commanded by returnees, while estimates of the impact of various components of foreign experience on earnings of return migrant have been, to our best knowledge, absent. Our paper fills this gap in the literature. The paper has also policy relevant implications because, according to

survey of return migrants, detailed information on employment possibilities and earnings in the home country has a potential to increase return migration.

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THE INLUENCE OF DIGITALIZATION ON DECISION MAKING IN ORGANIZATIONS – A PROFESSIONALS INTERVIEW ANALYSIS

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Abstract. The research aim of this paper is to analyse the relevance of digitalization on decision making. Nowadays the trend of digitalization captures all areas of life especially in business, also the management task of decision making. This leads to the question, how relevant is digitalization for decision making in organizations. Triggered by digitalization, organizations will move toward an autonomous decision making of machines or cyber systems. The important step toward autonomous decisions or decision support (cyber systems will prepare a decision, but finally executed by humans) is an ongoing trend in decision making. Algorithmic models for these decisions will use the content of classical decision models to reach maximum utility. Hence a view on classical theories of decision making will illuminate the basis for these models, from researchers like Bernoulli, Fermat or von Neumann & Morgenstern. Furthermore digitalization changes the process of decision making, especially focussing on the behavioural part of decisions, discussed from Simon, Selten or Kahneman & Tversky, because the human aspect of decision making is relevant, in organizations and research. The research methods for this paper had been secondary research to shed a light on the theoretical concepts of decision making and digitalization. In the next step, to understand the relevance of digitalization on decision making, a qualitative empiric research was done and the tool was a structured professional interview. The idea of these interviews had been, to get the view of senior managers and executives on the impact of digital decision making in organizations including the related influencing factors. As a result from this qualitative empiric research, high attendance of top management for digitalization of decision making is given. They rate the relevance of the topic quite high, but the readiness in their organization for digital decision making is still lacking. Finally a positive feedback for digital decision making was given, with a plan to improve the set up of digital decisions in the future.

Key words: *decision making, digitalization*

JEL code: D22 Firm Behavior: Empirical Analysis

Introduction

These days the megatrend of digitalization offers new challenges for all areas in business. These exogenous changing elements permit organizations to regenerate their way of doing business, even to verify and to rethink their business model. Every activity, which is possible to move from analogue to digital, will be transferred. Not only the internal part of an organization will be challenged by digitalization, even the interface to customers will be defined completely new, including all possibilities of smart products and services. As a consequence, the management attention for the topic digitalization should be given in organizations. The question, if management will evaluate this topic on a necessary level, will be answered in this paper. The detailed focus of digitalization, will analyze the part of digital decision making, the relevance of digitalization and the influencing factors toward digitalization. These influencing factors become important, to understand all aspects of decision making and the correlation to digitalization. A more rational view enables a structured mathematical model, the emotional view on decision making is the challenge of digitalization.

Theory of Digitalization & Decision Making

"Digitalization refers to the practice of taking processes, content or objects that used to be primarily (or entirely) physical or analogue and transforming them to be primarily (or entirely) digital. The effect of digitizing processes, aside from potential efficiency gains, is to make processes more tailorable and malleable" (Fichman R., 2014). Not only based on data, moreover targeted on markets, organizations and processes digitalization will deploy its full value to businesses and industries. The new era of digitalization has started already and shows today a first step of a new business world with a change in division of work. In the early 20th century a "computer" was an employee calculating tables the whole day. In a first step, an automated computer (as we understand today) took over this task and increased quality and efficiency of this process. Since then, the automation of our world was ongoing and influenced by computers and machines. Important for the development was the definition of rules for computers, because computers are perfect in following algorithmic rules. (Brynjolfsson E. and McAfee A., 2014). Further actions took place to develop more feasibilities of machines, i.e. Apple iPhone is now with the software Siri able to understand and direct the user. This is a real quantum leap, because to automatize language and transfer this into instructions was a giant step change for the industry. Currently the speed of development is increasing, either the trend of "Industry 4.0" with full automation of the production flow (Zelinski P. 2016) or "artificial intelligence" that robots tend to make autonomous decisions and developed self-awareness and self-maintenance (Lee J. 2014) .

Referring to the effects of digitalization, this trend will completely change the way of making business and making decisions. Flexibility and transformability are key attitudes of successful organizations in the future and drive them on the road of digitalization (Bauer W., 2015). Digitalization will have an effect on customer structure and behavior, increase the efficiency of operations including their supply chain and at the end may change the entire business model. (Westerman G., 2014) Important to understand is the logic of digitalization and to realize the 4 levers of transformation. These 4 levers have to be in scope of the decision maker: (BDI, 2015)

Digital data (big data): Due to recording, processing and analysis of mass data, high-quality and more predictable forecasts and decisions are possible in organizations. The structure of big data is (Goes P., 2014):

• Volume: measured in Giga- or Terabyte

• Velocity: One time snapshot frequency streams

• Variety: structured, numeric, alpha, unstructured, text, voice / sound, image / video, genomics

• Veracity: Validation, noise level, deception, detection, relevance, ranking

Big data is a huge trend in digitalization, because the usage of data is important for an organization. As "the economist" wrote in 2010, "Data are becoming the new raw material of business." And data are increasing day by day. A strong increase of data traffic had happened and will further increase; in the future driven by digitalization, e.g. machine to machine communication or the trend of mobile data from every user of the internet. This traffic is permanently increasing, all devices are moving toward mobile and smart functions. The latest trend of data shows the movement from big to smart data which means data including utility, semantics, data quality and security (S. Jähnchen, 2015)

Automation: The traditional trend of automation is an ongoing process pushed by new technology and the need for efficiency to enable a competitive cost base. The combination of traditional work and technology with artificial intelligence will enable autonomous work in self-organization systems with high quality and high efficiency. As an effect, production speed will increase and unit costs will drop. Automation has different aspects of realization. First, the work volumes between man and machine are changing. Second, the trend toward a higher automation is still ongoing, up to entire fully automated factories without human beings. A work flow from machine to machine without human interaction

is today possible and works without variances on a repeatable high quality level. The third step, artificial intelligence, is a self-learning system, with a set of different reactions based on environmental conditions. As an example, one new technological process is rapid manufacturing, which means that traditional production types will be replaced by new technology. This new technology uses directly digital data for production, without a tooling procedure. Cost intensive tools are replaced by new manufacturing applications. These procedures are very flexible on an acceptable cost level and permit small batches. 3D printers are today on a level beyond testing and started their usage in business. Different possibilities of 3D printing enable a wide range of applications. (Bopp F. 2010)

Integration: Connecting the entire value chain by high quality broad band, will enable synchronized supply chains with shorter production cycles and faster innovation cycles (mobile or fiber opic net).An important integration in the era of digitalization is a deeper collaboration in the entire supply chain. Based on a more flexible consumption behavior a more agile supply chain has to deliver this flexibility. As a result a strong cross-company collaboration is a must, and online information has to be exchanged between the different entities. Cross-linking of organizations and their IT systems are the requirement for an efficient supply chain. And today's technology enables this process, based on standard software tools and open interfaces for an optimal data exchange between them. A fast changing world, with a drop in product life cycles, the integration between supplier and customer has to be on the level of a partnership, because a cross-company product development process needs to have speed in "time to market" on a cooperative relationship. (Wannenwetsch H. 2007) .

Digital customer access: New competitors, new services and new transparency will increase competition and market position of companies and brands. For customers the next opportunity is just one click away, hence a well thought out strategy is necessary to position against competition, no matter from which industry it's coming from. For the car manufacturer BMW the competitor isn't anymore only Audi or Daimler, now it's Tesla and Google, with their new approach of mobility. (Brynjolfsson E. & McAfee A., 2014).The consumer and customer, is again back in the center of scope of organizations. In the recent years consumer behavior and hence customer activities changed dramatically toward a less loyal, more flexible and quick response relationship. Increased mobile services, e.g. via smart phone increased this trend, and Kreutzer/Land described the consumer buzzwords as follows: "me, all, immediately and everywhere"; which is exhibited in table 1 "Customer Expectation: Me, all, everywhere and immediately".

Table 1 "Customer Expectation: Me, all, everywhere and immediately" (Kreutzer R. & Land KH. 2015)

Me	All	Everywhere	Immediately
Appreciation as must	Wide choice	Time independence	Instant contacting
(correct) Personalization	High quality	Location independence	Fast transactions
Tailored offers	Low prices	Independence of technologies, channels, devices	Short response time
Approach based on permissions	Good service		

The mentioned customer expectations are increasing, but in today's flexible world, this expectation is covered by competition, hence this has to be the mantra in an organization. The trend of "smartization" is still ongoing and will further move on, making all devices via networks intelligent. Starting with mobile phones, developed to smart phones, now we see smart TVs and smart watches. Also housekeeping is going smart, with refrigerators or washing machines, even energy consumption is steered with smart technology (Kreutzer R. & Land KH. 2015). As Porter describes new

smart products for consumers with 3 core elements: physical, smart an connectivity. All 3 elements deliver customer value improvements and are substantial for a future market position (ME Porter & JE Heppelmann, 11/2014)

Decision theory is a wide area in science, with a long tradition. The first idea of decision theory reaches back over hundreds of years and is still relevant in the presence. Rational models were discussed from the neoclassical economists (e.g. Adam Smith or Max Weber) with a view on rational behaviour of agents which maximize their utility – the homo oeconomicus. A more scientific approach of Pascal and de Fermat shows a calculation of probabilities and Bernoulli laid the foundation of risk science by examining random events. Further developed by von Neumann/Morgenstern economic behaviour in a strong rational and mathematical approach, decision making follows utility maximization. Today's view of decision theory as an interdisciplinary science (economics, psychology, sociology, philosophy, mathematics, computer science and statistics) with different approaches is generally accepted (Buchanan L. and O'Connell A., 2006). One of the most popular is still the theory of games and economic behaviour (von Neumann J. and Morgenstern O., 1944). The theory of von Neumann/Morgenstern explains a rational behaviour of market participants (either consumers or entrepreneurs). Consumers strive for a maximum utility or satisfaction and entrepreneurs strive for maximum profits. Meanwhile a wide area of mathematical approaches and models of rational theories were further developed on the foundation of von Neumann/Morgenstern theories. The opposite of the rational view, is a behavioural view on decisions. In the late 1940ies Simon discussed the theory of bounded rationality, which means a certain influence of human attitudes with not pure rational decisions (Simon H.A., 1997). A deeper view in the psychology science shows that theories on behavioural economy are currently quite popular, because human behaviour is one part of organizational actions. In the 70ies Kahneman/Tversky developed the prospect theory. Also Reinhard Selten contributed research to the field of behavioral decision making.

1. Rational View: In the classical field of the economical view on decision theory, a rational, mathematical founded approach is discussed. The process of pure calculating to find a maximum of utility or profit is a typical rational procedure. In the dimensions of decision fields the alternatives are very important to analyse. There is only a decision problem, if there are minimum two alternatives. Hence a determination of these alternatives must be reflected in the decision model. In the next step an evaluation of these alternatives must be done. These consequences will lead to a result of the alternatives into the decision model. Important figures of the decision maker are defined as targets, these values are the result. (Laux H., 2014).

For a structured process the environmental conditions are very important. Measures are not manipulable by the decision maker, these measures are called decision relevant data. These data are no variables for the decision maker. These characteristics are decision relevant environmental conditions. The illustration of figure 2 "Structures of Environmental Conditions" (Laux H., 2014) shows different environmental situations and a possibility of designing decision conditions.
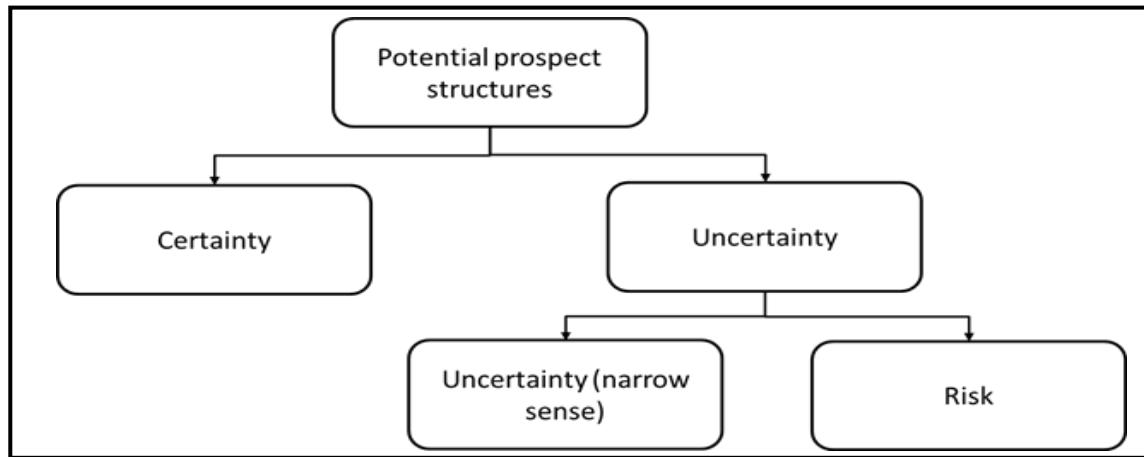
Fig. 2. Structures of Environmental Conditions (based on Bamberg G., 2012)

A decision structure under certainty means, that the decision maker has the real condition of the alternatives, hence all relevant information for the decision are given. Therefore the result is known and alternatives are certain. In reality quite often decision models are formed as models of decision under certainty, because the set up and the usage of this model type is easier to handle (Bamberg G., 2012).

A decision structure under uncertainty means, that the decision maker has minimum two possible alternatives, but not all relevant information for a decision are given. Therefore the result is not known and alternatives are uncertain. In the case of uncertainty there are two more possibilities. Either for the decision maker it's not possible to calculate a likelihood of conditions (uncertainty – narrow sense) or for the decision maker the probability of occurrence of a condition is computable (risk); (Laux H., 2014).

This differentiation of the environmental conditions is important to define; especially decision making in the context of globalization and digitalization. While globalization creates more complexity and uncertainty, a more sophisticated model for decision making is substantial for an organization. In terms of digitalization a need for algorithmic structures is a must, computers need a mathematical logic to calculate a result for the decision.

2. Emotional View: Important developments in decision theory took place over the recent decades, though a trend to a behavioural approach was supported by psychological science. An outstanding contribution to the development of behavioural economies was made by Kahneman and Tversky. A collection of their scientific contribution and analysis is made in the book "Thinking, Fast and Slow" (Kahneman D., 2011). Describing decision theory with a strong psychological view makes decision more emotional than rational. Depending on the activated system in the mind; Kahneman named it system 1 and system 2. "System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control" (Kahneman D., 2011) Examples: answer of 2 + 2 =?; Drive on an empty road, orient the source of a sudden sound. "System 2 allocates attention to the effortful mental activities that demand it, including complex computations. The operations of system 2 are often associated with the subjective experience of agency, choice, and concentration." Examples are to tell someone your mobile number or fill out a form. The human structure is based on usage of system 1, only if really necessary, system 2 is activated. (Kahneman D., 2011)

This concept of system 1 and system 2 set the basis for a human behaviour of decision making, which absolutely defers from a rational decision view. Continuing this idea, the question what prevents a rational decision should be answered with Kahneman/Tversky's prospect theory. The fact that lot of decisions have both elements, a risk of loss and an opportunity of gain, effects a decision to gamble or to deny. Focussing on loss aversion (Kahnemann D. and Tversky A., 1974) means, people avoid losses while there is a huge opportunity to gain this particular option. As a result people deny this option and this is controversial to a rational choice, with a pure calculation of probability. On the other hand the

"optimistic bias" means that chances for success are overestimated. Risks are undervalued or not in scope of the decision maker (Kahneman D., 2011). Following the process, the maximum utility for the decision should be made. The main question is, if in an organization this strict process will be executed. As H.A. Simon explains, "all decision is a matter of compromise". In an organization with different interests of members, the question of a maximum utility for the decision problem is to be questioned. In an organization there is never a perfect achievement of targets reachable. The environment of the organization limits the alternatives and the maximum of utility (Simon H.A., 1997).

This opposite view to a rational decision process raises the question how the decision process in organizations is really made. Are organizations as rational as expected or are they emotional driven which have effects on decisions. The behavioural influence in organizations has to be respected and the result is based on this set up (March J. & Simon H.A., 1993).

Research Question & Hypothesis & Research Model

Taking the described topic into scientific context, the research question is asking for a relationship between an intelligent digital setup for decision making and the quality of the strategic decisions. The intelligent digital setup means a well customized system for an organization which enables a more efficient process. The type of customizing has to respect the industry, customers and the organizational set up of a company, because every single organization has its own perfect fit in a competitive environment. A digital setup means all organization's procedures transferred into a digital context, either fully digital in machines or executed by a cyber physical system. The quality of the strategic decision has to be taken into context to the origin of the decision. A profit improvement is not necessarily an indicator for a quality increase of a strategic decision, because not all strategic decisions are directly linked to profit increase vice versa sometimes profit happens by coincidental effects. The main hypothesis of this paper will analyse the dependency of the efficiency of strategic decisions and the digital set up for decision making in organizations (H0).
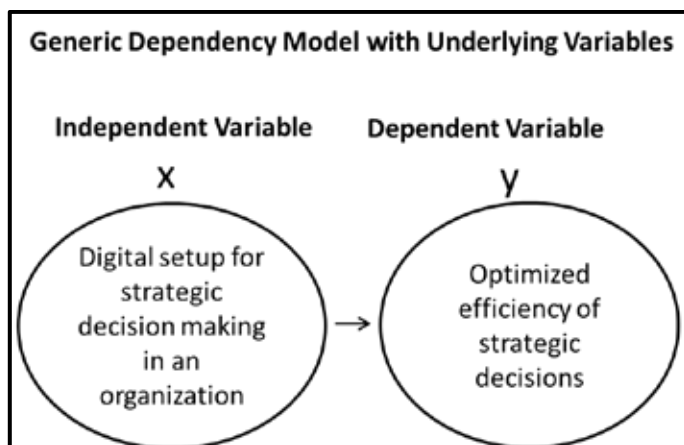
Fig. 3. Generic Model of Digital Setup for Optimized Decision Making (designed by the author)

The generic dependency model with the relevant variables is displayed in figure 3 and the basis for the subsequent research model. Based on the generic model, which has to be seen as an open model for various business cases is the initial point for further analysis. In the generic model the independent variable "x" is the mathematical representative for "digital set up for strategic decision making in an organization" and the dependent variable "y" is the mathematical representative for "optimized efficiency of strategic decisions". To set the variable into relation, the following expression will be proved on validity:

- The more intelligent the digital setup for decision making of an organization, the better the quality of strategic decisions.

- The more human (manual) procedures for decision making of an organization, the worse is the quality of the of strategic decisions.

In the further analysis of the hypothesis the generic model has to be set in context with a real business case, to make assumptions and the prove these assumptions. The idea of this paper is to evaluate the relevance of digital decision making in organizations. Therefore a pre-study seems reasonable.

Empirical Design & Research Method

The empirical design and the research method for the above described pre-study is a qualitative empiric research. To get an indication for the importance of the topic digitalization in organizations and especially in the context of digital decision making, a preliminary analysis is this empiric investigation to understand the contemporary relevance of the topic. As explained, managers with their view on organizations and their power of execution need to plan the development of their organization. Therefore goal oriented actions have to take place; as a conclusion, these actions have to be planned and structured. Finally managers are used to implement new ideas and processes with the highest probability for designing a successful and efficient organization. From that follows, that managers engage with these relevant topics and guide these into the organization. Currently digitalization is a contemporary topic on management level. For a scientific analysis of this topic, a qualitative empiric study will be supportive to get the relevance and ideas of these managers into context. As a tool, a structured professionals interview was chosen with experienced managers and executives. The idea behind a structured interview is to provide reliable and comparable qualitative data (Cohen D., 2006) to get an objective view without any heuristics. The structure of the interview enables a better understanding of this topic. Important to get the full content of the interview a combination between closed questions and open questions seems to be supportive. On the one hand a structured evaluation of the topic is possible and on the other hand all relevant information of the interviewee will be respected and processed for further analysis.

Characteristics of a structured interview (Cohen D., 2006):

• The interviewer and respondents engage in a formal interview.

• The interviewer develops and uses an 'interview guide.' This is a list of questions and topics that need to be covered during the conversation, usually in a particular order.

• The interviewer follows the guide, but is able to follow topical trajectories in the conversation that may stray from the guide when he or she feels this is appropriate.

The interview processed in this paper, is based on the above mentioned research question and was done to analyse the relevance of digitalization on executive level. The interview was named "The Impact of Digitalization on Decision Making". The entire interview sheet is displayed in appendix A. The structure of the questions was designed in a first personal part, with job title, work experience and area of expertise to get a first view on the experience level of the interviewee. In the second part of the interview general questions of digitalization in organizations was asked including the relevance of influencing factors. In the third part of the interview the areas of digitalization had to be evaluated on relevance for organizations, in general, the current state in the own organization and the desired state for the own organization. To respect to dynamic possibilities of an interview, for each question remarks were possible. Finally an overall evaluation was asked and open questions to give further ideas to digitalization of decision making in organizations. The most questions had been structured on a Likert scale from 1 to 5, with 1 as low and 5 as high evaluation possibilities.

Research Findings

Analysing the data from above described interview interesting insights will be carried out. Finally 21 interviews with professionals had been made in different styles, from personal meetings (face to face) up to "Skype"-interviews and telephone interviews.

In the first part of the interview, the personal part, the decision level of each manager was asked. As a result, 21 senior managers and executives took part in this interview over different industries and different functions in their organization.

In the second part, the general part for digitalization, a trend for digitalization of decision making in organizations is visible. The general relevance of digitalization in organizations was rated with a Likert scale (1 low to 5 high) on a 4.5 average. The correlated question with the view on the own organization was rated with only 4.2. The relevance of digitalization of decision making in the own organization on the current state (status quo) was evaluated with 2.8, but the relevance for the future state was rated with 4.5, as shown in figure 4 "Relevance of Digitalization & Digital Decsions". This tremendous difference between the current state and the future state shows, that decision makers in organizations evaluate that their organizations are lacking today and don't have the right answers for this topic now. But in the future, organizations will focus on this topic, because senior managers see the relevance for it. Within the influencing factors for digital decisions, the top rating was given to "technology" with 4.5, "increased reaction time" and "new organizational challenges" with 4.2. On a similar level is with a 4.1 evaluation the influencing factor "increased complexity of decision making". With a huge distance, "emotional factors" with a 3.1 rating, is the influencing factor on the last position.
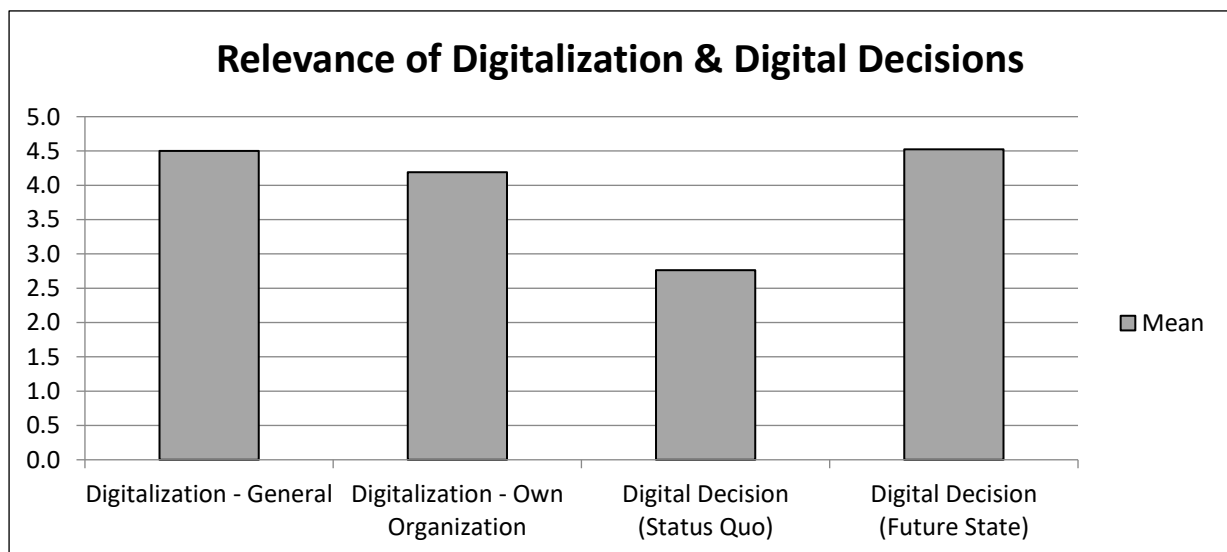
Fig. 4. Relevance of Digitalization & Digital Decisions (designed by the author)

In the third part of the interview, areas of digitalization had been evaluated on their relevance within a Likert scale (1 low and 5 high). In a set of questions, first of all, the general relevance was asked, then the current state in the own organization and then the planned future state within the next 24 months.

The areas are defined on the following positions:

- Big Data
- Automation
- Integration
- Customer Journey

- New Business Models

- Further Areas of Digitalization

For the desired state, answers had been on a quite high level, between 4.0 and 4.6 with a mean of 4.4. This shows very strong that managers and executives understand the necessity of digital decision making. For the current state of digital decision making in organizations an evaluation between 2.6 and 2.9 was made over all areas of digitalization, the mean is 2.8. The future state for their organizations was evaluated between 3.5 and 4.2, with a mean of 3.8. A more detailed view is shown in figure 5 "Relevance of Digitalization Areas". This shows a very clear situation in organizations. First of all, the topic shows a high relevance seen by responsible managers and the urgency to work on this topic. Secondly, the current situation in organizations is evaluated on a quite low level, with the aspiration to develop within the next 24 months. The aspiration level for the next 24 months and the value for a desired state shows, that the topic will last longer in organizations.

In the fourth part of the interview a simple yes/no question was asked, by evaluation, if digital decision making will improve the result of decisions. A surprisingly "yes, but..." was the answer. A more qualitative respond was given to the interviewer with the following remarks. Some answers had been, that the parameters of the decision model will influence the improvement of digital decisions. Further remarks had been to the amount of digital decision will increase, but human decisions will remain to a certain extend. And human/human communication will be in some areas quite effective and be a robust process for good decisions.

Relevance of Digitalization Areas

	Big Data	Automation	Integration	Customer	Business Models	Average
☐ Desired State	4.43	4.38	4.57	4.52	4.00	4.38
■ Status Quo	2.76	2.62	2.86	2.90	2.62	2.75
▨ Future State	3.57	3.67	4.00	4.19	3.52	3.79
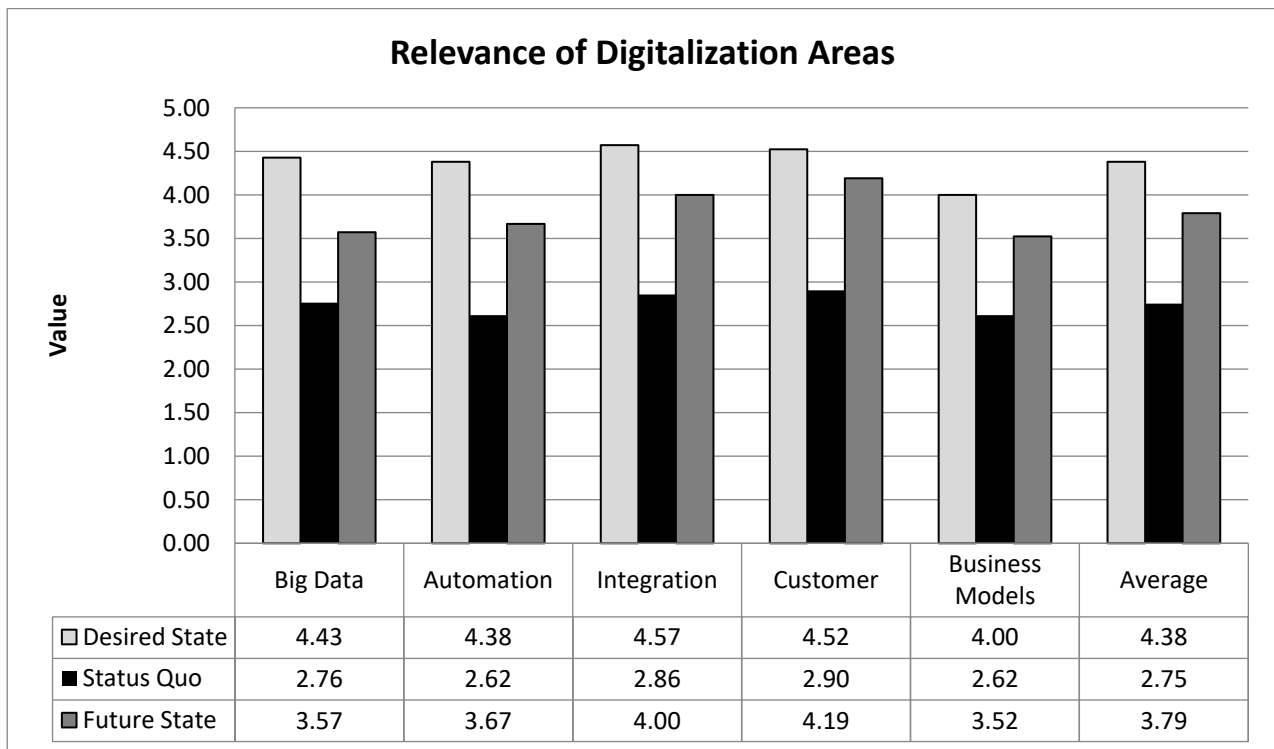
Fig. 5. Relevance of Digitalization Areas (designed by the author)

Conclusion

The impact of digitalization on decision making is given, from the theoretical view, the type of decision making vary from a rational to an emotional approach. Digitalization will move decision making by cyber systems from emotional to rational decisions whenever it's possible. This is based on algorithmic models. The idea to reach maximum utility, based

on discussions from early economists to von Neumann/Morgenstern, seems to be the first time realistic, in the era of automated decisions. Emotions and side effects, which influences decision making will be ongoing eliminated by advanced progress of digitalization. Finally, some decisions will remain by humans, whenever emotional factors have a considerable relevance.

Summing up the interview results for digital decision making in organizations, senior managers and executives are focussed on the topic digitalization in general and more in detail on digital decision making. The current level in organizations regarding the discussed topic is still low, but the ideas to improve in this area is clearly announced for the next 24 months and will be on the agenda of every manager for the next years and decades.

To analyze the massive effect of digitalization on organizations further research has to be done in different areas of science. This paper focussed only on the relevance of digital decision making on senior management level to understand a current view on the topic.

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Appendix A

Professionals Interview: „*The Impact of Digitalization on Decision Making*"

1. **Interviewee**
   a. Name:
   b. Job title:
   c. Work experience in current position:
   d. Area of expertise:

2. **Organization**
   a. Industry:
   b. Size revenue/employees:

3. How do you evaluate the relevance of digitalization for organizations in general?
   Low - High
   1 / 2 / 3 / 4 / 5

4. Effects digitalization decision making in organizations in general?
   Yes / No

5. How do you evaluate the relevance of digitalization in your organization?
   Low - High
   1 / 2 / 3 / 4 / 5

6. How do you evaluate the relevance of digital decision making/support in your organization?
   a. Status Quo (today)
   Low - High
   1 / 2 / 3 / 4 / 5

   b. Future State (tomorrow)
   Low - High
   1 / 2 / 3 / 4 / 5

7. Which relevance have the following influencing factors for digital decisions?

		Low - High
a.	Emotional factors of decision making	1 / 2 / 3 / 4 / 5
b.	Increased complexitiy of decision making	1 / 2 / 3 / 4 / 5
c.	Increased reaction rate	1 / 2 / 3 / 4 / 5
d.	New technologies	1 / 2 / 3 / 4 / 5
e.	New organisational challengens	1 / 2 / 3 / 4 / 5
f.	Further influencing factors?	

8. Which areas of digitalization are important? (intensity of characteristics)

                                                  Low   -   High

    a.   Big Data   1 / 2 / 3 / 4 / 5

    b.   Automation   1 / 2 / 3 / 4 / 5

    c.   Integration   1 / 2 / 3 / 4 / 5

    d.   Customer Journey   1 / 2 / 3 / 4 / 5

    e.   New business models   1 / 2 / 3 / 4 / 5

    f.   Further areas of digitalization? _____

9. Which areas are already realized in your organization?

                            Low   -   High

    a.   Big Data   1 / 2 / 3 / 4 / 5 _____

    b.   Automation   1 / 2 / 3 / 4 / 5 _____

    c.   Integration   1 / 2 / 3 / 4 / 5 _____

    d.   Customer Journey   1 / 2 / 3 / 4 / 5 _____

    e.   New business models   1 / 2 / 3 / 4 / 5 _____

    f.   Further areas of realization?

        _____

Which areas of digitalization will be realized within the next 24 months in your organization?

                            Low   -   High

    g.   Big Data   1 / 2 / 3 / 4 / 5 _____

    h.   Automation   1 / 2 / 3 / 4 / 5 _____

    i.   Integration   1 / 2 / 3 / 4 / 5 _____

    j.   Customer Journey   1 / 2 / 3 / 4 / 5 _____

    k.   New business models   1 / 2 / 3 / 4 / 5 _____

    l.   Further areas of realization?

        _____

10. Do you think, that digital decision making will improve the result of this decision?

             Yes / No

11. Do you see further aspects of digitalization in your organization?

        _____

APPLIED SEMIOTIC ANALYSIS OF CREATIVE ADS

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Abstract. One of the applications of semiotic analysis in the field of advertising is the study of the ad text elements and their interconnections. However, much less attention is paid to the impact of individual ad text elements on target customers. Semiotic analysis, combined with the experimental toolkit as part of the marketing research, makes it possible to highlight the impact of individual elements of the advertising text on customers rather than the impact of the ad as a whole, which is the common practice in pre-tests.

The main purpose of this paper is to investigate the role of advertising storyline in its perception by consumers. The impact of different ads about two brand cars on an experimental group has been tested. Differences in the impact of a storyline built with and without the use of humour over the liking of advertising and the intention to buy have been studied.

Focus group discussions were used to identify the variables included in the quantitative research. The main part of the study uses a quasi-experiment and a questionnaire to obtain primary data of the experiment. Such data were processed by applying some statistical procedures like one-dimensional and two-dimensional distributions, variance analysis, chi-square test, correlation analysis. Semiotic analysis of the advertising text was applied.

The results of the research show a connection between the use of humour in plotting, the impact of advertising and the intention to buy. The scale used can be applied in subsequent advertising surveys.

The proposed combination of semiotic analysis and experimental methods used in this paper enables a deeper study of advertising content in terms of advertising impact efficiency. Results can expand also the understanding of the impact of ad text elements on users in both theoretical and practical future research.

Key words: *applied semiotics, advertising research, advertising efficiency, experiment*

JEL code: M 37

Introduction

The main problem associated with evaluating ad efficiency is related to the difficulty of determining whether and to what extent it can achieve the desired effect before it is broadcast over the communication channels. To overcome this difficulty, pre-tests have been used in practice since the middle of the last century. Their main task is to determine in advance how a particular ad can affect the target customers. Typically, a description of the future ad or an animatic is used in pre-tests, in order to avoid making any already produced ad unnecessary for the intended purpose.

These difficulties cannot be overcome completely, but copywriters and advertising agencies could use some techniques to reduce the risk of rejecting the creative proposal and losing a customer who was unhappy with the effect of an already produced ad. Since pretests require a low budget and serious competencies, their use in small markets such as the Bulgarian one, for example, is rather exotic than an established practice.

The main purpose of this study is to propose an easy-to-use procedure to help copywriters to reduce the risk of rejecting creative proposals and, on the other hand, to give them the way to find, more or less, confidence that the proposal would largely respond to the requirements of the client related to the desired effects of the ad on the target audience. For this

purpose, we used the approach of providing information necessary to make two key decisions - (1) what kind of storyline to choose, and (2) what elements to include in the future ad.

In this paper, it is assumed that each advertisement can be viewed in the context of semiotic science as a text composed of a limited number of verbal and non-verbal signs, the meanings of which construct a network of relations generating associations with the advertised brand or product and thus achieve or fail to achieve the desired impact on target customers. On the other hand, the plot of the advertising itself is seen as a major tool for achieving this impact.

Based on this, we identified the following main tasks of our study:

1. Literary review of the methods used in marketing theory and practice for analysis and preliminary evaluation of creative work.

2. Conduct a study of a focus group of targeted costumers to identify key variables for assessment of the impact of advertising works.

3. Conduct a first experiment to identify the differences in testing the advertising works through an animation (animatic) and completed ad.

4. Conduct a series of expert assessments to select ads to participate in an experiment.

5. Conduct a second experiment to identify the differences in the perception of ads with various plot types and used signs.

6. Analysis of the data gathered and discussion of the results obtained.

Qualification methods and experimental research were used to achieve these goals. Statistical procedures such as groupings, statistical tests and correlation analysis were used to process the information received.

Research results and discussion

When building the structure of this paper, we used the design logic of the research presented below. All stages of the survey are presented in their sequence. Following the presentation of the results of our study, we formulated recommendations for their use in further studies and for their practical application.

1.   Literature Review and Research Design

The use of semiotic analysis in the study of advertising content is part of the qualitative methods in marketing research (Belk 2017)(Oswald 2015). When examining the relationship between the content of the ad and the context of the program in which it is broadcast, experimental techniques are often used (Horn & McEwen 1977). Researchers point to the need to use a combined approach in analysing creative ad works that includes semiotic analysis, content analysis, and survey methods (Warlaumont 1998). The need to use postmodern literary method of textual analysis to detect the meanings of the ad text is indicated by some researchers (Stern 1996). When applying a semiotic approach to advertising analysis, the importance of the ad liking is highlighted as a key element of the analysis (Langrehr & Caywood 1995)(McQuarrie & Mick 1992).

Most researchers agree that the use of semiotic analysis of creative ads can become a friendly analytical tool if applied well (Harvey & Evans 2001), especially if it is combined with an experiment (Harvey & Evans 2001). On the other hand, it should be pointed out that the question of the role of the experiment in marketing research on the impact of advertising on consumers is determined to be extremely important (Gorn 1982) even though it is subject to a number of criticisms (Bierley et al. 1985).

The use of semiotic approach in analysing creative ads serves different tasks. Some researchers use it to identify signs that define the meaning of the brand (Luedicke & Giesler 2008) and others use it to reveal the cultural context of advertising (Oyedele & Minor 2012).

While using the applied semiotics analysis in this study, we accept the basic concepts of the science of sign introduced by Pierce (Peirce 1931) and developed by Eco (Eco 1984). In this regard, for the purposes of this study, we assume that the ad text consists of the signs included in the ad and the relations that its plot establishes between them (Langrehr & Caywood 1995). According to this concept, elements of advertising such as characters, music, colors, images, symbols, words, etc. can be defined as signs. The impact of these elements of advertising on the user responses has been explored with various combinations of methods, with the greatest attention being paid to music (Hoeberichts 2012) (Brooker & Wheatley 1994) (Douglas Olsen 1995) (Alpert & Alpert 1989).

In recent years, the use of semiotic analysis in advertising research has also been wildly present. The effect of the distinctive elements of a brand on the transformation of the product into a brand is analyzed, with the emphasis on their role as semiotic signs (Danesi 2013). Other authors consider advertising as a semiotic space (Agam Dali 2013) that allows to study the elements and connections between them in terms of their semiotic interpretation. Such studies cover different product groups, markets and segments - advertisements in magazines aimed at children audiences (Carvalho 2013), biotech industries (Yoka & Kourdis 2014), political marketing (Gifu & Cristea 2013), national myth creating (Hirschman 2014) or global brands (Perez & Bairon 2013).

In the literature, semiotic analysis of advertising often focuses mainly on brand research. Under exploration are the links between the elements of the brand as a semiotic network (Santos 2013) generating a field of interrelated meanings, in building the social image of the brand (Evans et al. 2014) or individual manifestations such as the role of womenas a sexual symbol in advertising (Gudekli & Celik 2014). Some studies also focus on the variety of advertisements - from print advertising (Al-Momani et al. 2016) to television (Martinez-Camino & Perez-Saiz 2012), internet (Cannizzaro 2016) and mobile advertising(Chen et al. 2017).

The role of pretesting in advertising research is also well analyzed (Green & Schaffer 1983)(Hu et al. 2009) although there is some criticisms thereof (Derek et al. 1977). The main disadvantage is the high cost of conduct, which justifies the proposals to use experimental methods in the advertising impact analysis (Wheatley 1971).

In recent years, many researchers have drawn attention to the benefits of exploring advertising through an experimental methods (Vargas et al. 2017) or by using eye-tracking (Wojdynski & Bang 2016). Special attention is paid to the role of narratives in advertising (Esposito & Freda 2016) as well as to the relationship between storytalling and semiothic meaning of elements in advertising as characters or objects (Soares De Lima et al. 2016).

From the literature review, it can be concluded that studies of the elements of the ad text and their impact on consumers use a combination of various methods of analysis and collection of information.

The design of the study follows the sequence of actions outlined in Figure 1. Combining qualitative and quantitative methods of gathering information allows the design of the research tool to be tailored to the specificity of the ads tested and their impact on the audience. Using statistical methods to analyze the information gathered, such as the chi-square test and the correlation coefficients, one can explore the link between the elements of the ad text and the degree of impact the advertisement has on the user. The design of the study is consistent with the defined goals and the tasks for achieving them, whereas the sequence of the involved methods is tied to the logic of the study. The main tasks of the literary review are (1) to study the application of semiotic analysis in advertising research, and (2) to select the main groups of methods used in the analysis of ads.

As part of the quality research, the focus group has three main objectives: (1) to determine what elements of consumer perception associated with the overall perception of advertising to be tested in the experimental part, (2) to generate ideas for creating scales about how to gather information from the surveyed respondents, and (3) to gather information to be used to define and understand the set of meanings of semiotic signs included in tested ads.

RESEARCH DESIGN

№		
1	Literature review	Selection of methods used to analyse advertising creativity
2	Focus group	Selection of ads performance metrics
3	Experiment one	Impact assessment of advertising
4	Expert assessment	Selection of ads to participate in experiment two
5	Applied semiotics analysis	Plot and signs analysis
6	Experiment two	Pretest of selected ads
7	Analysis of collected data	Results and discussion

Source: the author

Fig.1. **Research Design**

The first planned experiment in the study is to identify if there are any differences in consumer perceptions when testing the ad, depending on the advertising medium - storyboard, description, animatic or allready finished ad. The next stage - Expert Assessment – has to determine whether the ads selected for Experiment 2 testing are disparate enough to test the difference in how they are perceived caused by the characters they include and the various plotting methods.

By applying a semiotic analysis, the signs included in the tested advertisements and the semantic fields generated by the focus group were analyzed. This allows Experiment 2 to investigate whether there are actually any differences in consumer perceptions and assessments of the impact of the ads tested, which differences are preconditioned by the signs used in the ads and the different approaches to plotting the story.

2.   Focus group

The focus group conducted within the study has two main tasks. The first one is to determine the main elements on which consumers base their assessment of whether and how an advertisement influences them. The second task is to identify the associations that consumers make when reading a string of signs that are involved in the tested ads.

The focus group included ten participants – four men and six women, between 23 and 43 years old. The participants were shown a total of six advertisements for various products - beer, cars, banking services and food products. Some of

the selected advertisements were broadcast via media channels at the time of the survey, while others were not. All the six selected ads were intended for Bulgarian customers. The results of the focus group showed that participants rated the ads they watched by two main criteria - how much did they like them and to what extent they were influenced by the ads.

In the second part of the focus group the participants were shown still elements of the four ads used in the test, of the following two automobile brands:

First Mercedes ad (MA1) (https://www.youtube.com/watch?v=zSlhbBBBi3A)

Second Mercedes ad (MA2) (https://www.youtube.com/watch?v=bzxiM8oxI8I)

First Audi ad (AA1) (https://www.youtube.com/watch?v=G1fl-eddUEY), and

Second Audi ad (AA2) (https://www.youtube.com/watch?v=MSkfm4VoUAo)

During the discussion, the participants in the focus group described the associations that the images invoked in them. A later analysis of the focus group results identified the most common associations describing the significance of the characters used in the tested ads.

3. Experiment One and Expert Assessment

The task of the first experiment was to determine whether there were differences in ad ratings when viewing an animatic and when viewing an already completed ad. Two groups of students about to complete their bachelor degrees were included in the experiment. The first group watched an animatic (https://www.youtube.com/watch?v=dkfrCeRdXsM), and the second - an already completed ad, ready for broadcasting (https://www.youtube.com/watch?v=FCDKQaH2- s). To avoid distortions, the participants in both groups were told that the ad shown is part of the brand's position strategy analysis.

The first group (G1) included 14 participants and the second group (G2) included 15. The same scale with five variables was used in both groups, testing (1) the liking, (2) the impact of the advertisement, (3) how much fun did the participants have while watching the ad, (4) whether the brand was targeted at young people, and (5) to what extent the ad can make them choose a specific brand. Consumers' views were gathered by using the 5-point Likert scale.

The reliability of scale of both groups was tested with Cronbach's Alfa. For the first group the value of Cronbach's Alfa was .782 and for the second it was .837. In the first group, the correlation coefficients between variables are lower (from .357 to .650), while in the second they are higher (from .450 to .780). Since the plot and the elements included in the animatic and in the final advertisement are identical, based on the results of the experiment, it can be concluded that the relations between the tested elements and their impact on the consumers can be distinguished much clearly in the advertisement. This gave us the reason to use a real ad in the next experiment, and not another form of presentation of the ad content.

For the preliminary testing of the four ads selected for the second experiment, we used the opinions of 18 experts working in the field of advertising and marketing. The experts were sent the links to the ads and were asked to evaluate, on a scale of 1 to 10, how "touching" and how "fun" they were. Advertisements MA1, MA2 and AA1 received scores between 7.2 and 7.6 for "touching" and scores between 4.3. and 4.8 for "funny". The ratings for AA2 are 3.7 for "touching" and 6.7 for "funny". On the basis of these estimates, it can be argued that there are differences between the style of the advertising plots of the ads tested and it can be divided into two groups. Thus, the plot of ads MA1, MA2 and AA1 can be defined as "touching" and AA2 as "funny".

4. Analysis of the selected ads

The results of the focus group were used to analyze the signs contained in the four advertisements and their meanings. In conducting the applied semiotic analysis of the four ads, the following definitions have been adopted:

"Sign" - what is visible in the ad (character, subject, color, sound);

"Significance of the Sign" - what was derived as an association through the focus group;

"Semantic field" - a combination of the used signs in close-knit associations;

The main task of the applied semiotic analysis is to discover the signs used in each of the tested ads, to analyze the links by defining the semantic fields in which they are grouped. This will allow to identify the differences between the tested ads in terms of their content.

The analysis specified the presence or absence of a connection between the sign used and the advertised brand, and whether such connection is direct or indirect. In this case, a "direct connection" is the display in the ad of an element of the advertised brand - a product, logo, slogan, etc.

Table 1

Signs, meanings, and semantic fields in the First Mercedes ad

Time	Place	Sign	Meaning	Connections with product/brand
0-15	room	Toy cars	Safety driving	Yes/Indirect
		Toy bear	Power	Yes/Indirect
		Map	Good orientation	Yes/Indirect
		Car pillow	Security	Yes/Indirect
		Hat	Comfort	Yes/Indirect
16-24	house	Sleeping parents	Safety	Yes/Indirect
25-41	outside	Car	Freedom	Yes/Indirect
		Toy bear	Power	Yes/Indirect
		Parking	Safety	Yes/Indirect
		Bridge	Connection	Yes/Indirect
		Sandwich	Satisfaction	Yes/Indirect
		Train	Connection	Yes/Indirect
42-45	bus	Toy bear	Power	Yes/Indirect
		Map	Good orientation	Yes/Indirect
46-57	outside	Car	Freedom	Yes/Indirect
		Phone	Connection	Yes/Indirect
		Police station	Safety	Yes/Indirect
58-74	Police	Pen	Connection	Yes/Indirect
		Book	Information	Yes/Indirect
		Desk	Information	Yes/Indirect
75-87	car	Toy bear	Power	Yes/Indirect
		Car belt	Safety	Yes/Indirect
		Scarf	Care	Yes/Indirect
		Branded car key	Ownership	**Yes/Direct**
87-90	outside	Logo	Mercedes	**Yes/Direct**

Source: the author.

In the first Mercedes ad five main semantic fields can be discovered (Table 1) – "Security", "Comfort", "Freedom", "Power" and "Connection". It is clear that the meanings of other signs used are close to one or another of those five semantic fields. According to the participants in the focus group, the first four semantic fields can be defined as characteristics of the Mercedes brand.

It should be noted that the signs directly related to the advertised brand, appear only at the end of the advertisement. This can be interpreted as a search for indirect links between the signs used in the advertisement and the brand being advertised, and the approach chosen to build the plot is subordinate to the generation of brand associations.

Table 2

Signs, meanings, and semantic fields in the Second Mercedes ad

Time	Place	Sign	Meaning	Connections with product/brand
0-04	Street	Bicycle	Freedom of movement	Yes/Indirect
		Instruments	Precise action	Yes/Indirect
		Watch	Style	Yes/Indirect
		Watchmaker	Precise action	Yes/Indirect
04-17	Shop	Watchmaker	Precise action	Yes/Indirect
		Instruments	Precise action	Yes/Indirect
18-44	Atelier	Dress	Beauty	Yes/Indirect
		Girlfriend	Friendship	Yes/Indirect
		Face	Honesty	Yes/Indirect
45-63	Atelier	Jeweler	Luxury	Yes/Indirect
		Instruments	Precise action	Yes/Indirect
		Face	Honesty	Yes/Indirect
64-88	Atelier	Bell	Celebrity	Yes/Indirect
		Scissors	Precise action	Yes/Indirect
		Textile	Handmade	Yes/Indirect
		Face	Honesty	Yes/Indirect
89-98	Screen	Slogan	*"Close to the heart in good hands"*	**Yes/Direct**
99-114	Car Service	Car	Freedom	**Yes/Direct**
		Instruments	Precise action	**Yes/Direct**
		Logo	Mercedes	**Yes/Direct**
		Mechanics	Skill	**Yes/Direct**

Source: the author.

The number of semantic nests in the second ad (Table 2) is significantly smaller - "Precise action", "Honesty" and "Luxury". The direct links between the signs used and the advertised brand appear again at the end of the ad, indicating that a similar approach to storyline was chosen during the first ad. In contrast, however, the number of characters directly linked to the brand is twice as large, which means a higher concentration of direct suggestions seen at the end of the ad.

The third ad analyzed (Table 3) shows a different approach. By changing the rhythm and tonality of the background music, the ad spot is divided into two equal parts, corresponding to the two moods of the characters in the ad. Within the first part there are signs directly related to the advertised brand at the end of this part, while in the second there is alternation of the direct and indirect links between the used signs and the brand.

Table 3

Signs, meanings, and semantic fields in the **First Audi ad**

Time	Place	Sign	Meaning	Connections with product/brand
0-24	Room	Pictures	Memories	Yes/Indirect
		Old radio	Passing time	Yes/Indirect
		Rocket mock-up	Child dream	Yes/Indirect
		A fixed look	Sadness	Yes/Indirect
		Unheated breakfast	Missing	Yes/Indirect
		Silent wife	Fidelity	Yes/Indirect
24-36	Kitchen	Son	Love	Yes/Indirect
		Short conversation	Communication	Yes/Indirect
37-43	Yard	Branded car key	Ownership	**Yes/Direct**
		Car	Freedom	**Yes/Direct**
43	Changing of music mood			
43-51	In the car	Half smile	Joy	Yes/Indirect
		Rapid shuffle now & past	Memories	Yes/Indirect
52-61	In and out of the car	Start button (car & rocket)	Control	**Yes/Direct**
		Starting space ship	Adventure	Yes/Indirect
		Moving car	Joy of freedom	**Yes/Direct**
		Smile	Joy	Yes/Indirect
62-75	Mountain Road	Moving car	Joy of freedom	**Yes/Direct**
		Full moon	Sadness	Yes/Indirect
76-80	Screen	Slogan	*"Choosing the Moon brings out the best in us"*	**Yes/Direct**
		Logo	Audi	**Yes/Direct**

Source: the author.

There are four main semantic fields in this ad - "Love", "Past", "Joy", and "Sadnes". The alternation of the signs belonging to these fields corresponds to the display and the absence of direct links between the signs and the advertised brand. In this case, direct suggestions are used between the semantic fields "Love" and "Joy" (direct links to the brand) and "Past" and "Sadness" (absence of the brand).

There is a completely different approach in the fourth advertisement. Here the ad starts and ends with signs with a direct link to the advertised brand. The analysis of individual frames shows that, unlike previous ads, the appearance of signs within one scene and their number in the whole advertisement is considerably smaller. The signs in this ad can be grouped into two main semantic fields - "Violence" and "Stability". In the first group, indirect links to the advertised brand are observed, while in the second group the links are direct.

Table 4

Signs, meanings, and semantic fields in the **Second Audi ad**

Time	Place	Sign	Meaning	Connections with product/brand
0-02	Underground garage	Car	Freedom of movement	**Yes/Direct**
02-04	Corridor	Policeman with a gun	Violence	Yes/Indirect
05-06	Underground garage	Minivan driver	Vagabond	Yes/Indirect
05-19	Underground garage	Parking car	Stability	**Yes/Direct**
		Woman in suit	Business	Yes/Indirect
20-21	Corridor	Policeman with a gun	Violence	Yes/Indirect
22-23	Corridor	Gun in the hand	Danger	Yes/Indirect
		Robber		Yes/Indirect
23-47		Parking car	Stability	**Yes/Direct**
		Men with pointed guns	Negotiations	Yes/Indirect
		Woman in suit	Business	Yes/Indirect
		Speech	*„Put the gun down or I'll shoot the car"*	Yes/Indirect
48-52	Underground garage	Escape	Movement	Yes/Indirect
54-60	Screen	Slogan	*"Already a classic"*	**Yes/Direct**
		Logo	Audi	**Yes/Direct**

Source: the author.

It should also be noted that, unlike the ads analyzed so far, in the fourth one there is a different approach to plotting. While the first three ads can be clasified as "touching", the fourth can be classified as "funny" (it is unrealistic for a criminal to take a car hostage and thus to avoid persecution). Except in the storylines, differences can also be found in the number of signs used and the location of such signs with a direct link to the advertised brand within the ad. This shows that different approaches to build the advertising content have been used.

5.   Experiment Two and Analysis of Collected Data

In the second experiment a total of 129 students took part – 44 men and 88 women, of whom 58 holding a driving license and 71 not holding. The experiment was conducted during the classwork and the students took some credit points for their participation. To hide the purpose of the experiment, students were told that of all 4 ads being considered, only two – AM2 and AA1 – are of interest to the survey. It was explained that the other two ads were added in order to create the feeling that the ads were viewed by the audience within a TV ad block.

The four ads were displayed one after the other, separated by black screens with numbers from 1 to 4, so that their order could be remembered. Then the students were asked to assess the degree of impact of each ad on a five-point scale and the extent to which they liked each one of them. After completing the first part of the questionnaire, a brief discussion on the study material was conducted to divert the audience's attention briefly from the tested ads. As a final stage of the

experiment, the participants were asked to draw a logo for one of the two advertised cars and to indicate which one they would classifiy as more appealing.

The data analysis (Table 5) shows the existence of statistically significant links between the ads MA1, AA1 and AA2, classified as "liked" and "touching", and the attractiveness of the advertised brand. The links were tested with a chi-square test and their power was determined by the correlation coefficient Phi, since the data on one of the scales is nominal. For all three ads, the correlation coefficient varies between .440 and .510, so the correlation relationship can be defined as moderate to strong.

Table 5

Summarised Statistics from Experiment Two

Tested Ad	Liking (%)	Touching (%)	The Liking of the Ad			The Impact of the Ad		
			Chi-Square Tests		Correlations*	Chi-Square Tests		Correlations
			Value	Asymp. Sig.	Value	Value	Asymp. Sig.	Value
MA1	38	28.7	30.509	.000	**.486**	17.403	.066	.376
MA2	11.6	7.8	8.875	.353	.262	14.002	.082	.329
AA1	30.2	17.8	25.006	.002	**.440**	27.840	.001	**.465**
AA2	26.4	20.2	29.918	.000	**.482**	33.598	.000	**.510**

The significant correlations are in bold. Source: the author.

In one of the ads (MA2), defined as the least "liked" and "touching", the correlation between the tested variables is identified as statistically insignificant, which is also confirmed by the chi-square analysis.

As a result of the analysis, it can be stated that there is a positive link between whether an advertisement is determined by the participants in the experiment as "liked" and "touching" and their assessment of whether the advertised brand is attractive or not. This confirms the research thesis that product rating estimates have a direct impact on customer ratings of the brand.

When comparing the results of the semiotic analysis of the advertising content and the consumer responses during the perception of these ads, two main conclusions can be drawn: (1) the link between the use of signs directly related to the advertised brand and the impact of advertising on consumers is stronger than the link when the signs are indirectly related to the advertised brand, and (2) the type of signs used and the number of semantic fields in which they are grouped does not determine the degree of liking of such ads. Based on this, conclusions can be drawn to guide the authors of advertising content in finding an appropriate approach to advertising production, depending on the goals set.

Conclusions, proposals, recommendations

It should be noted that in recent years there has been a growing recognition of the notion people's behaviour is not always rational (Thaler 2008, 2017) and that their actions are not always motivated by rational motives. This alternative view extends the scope for examining the impact of ads on consumers by targeting those elements of advertising that directly affect emotions and the unconscious. Part of this impact is due to the nature of advertising, understood as a semiotic text – a message composed of intertwined signs and meanings which are generated by this interaction.

On the basis of our study, the following conclusions and recommendations can be formulated:

1) Considering the content of an ad as a semiotic text allows to discover links between the used sings, which links generate meanings. The understanding of these meanings helps to identify hidden advertising effects on customers, and this may be a prerequisite for a better understanding of its efficiency.

2) Using a different visualization of the same ad content may lead to a difference in customer ratings about the impact of the ad, which will affect adversely the predictions for its efficiency.

3) The procedure proposed in the study in order to identify the links between the signs used in the advertisement, the semantic fields in which they are grouped and their impact on the consumers can be used in practice and also in case of limited resources instead of professional pretest.

The results from our study can be used to examine the advertising impact on potential consumers both by scolars and by those working in the creative department of advertising agencies that do not have the resources to hold their own pretests. It is worth pointing out that in the framework of future research, when applying this procedure it would be better tested ad to be considered together with other ads (of different brands and product categories) in order to take into account the impact of the ads included in the TV or media channel ad block in which the specific ad being tested will be broadcast.

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EXPLORING THE ROLE OF CLUSTERS IN INCREASING THE COMPETITIVE ADVANTAGE OF AN ENTERPRISE IN THE GLOBAL ECONOMY

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Abstract. Due to the globalization of the economy, the enterprises are forced to exist in conditions of intense local and international competitiveness, which makes the companies look for partners by creating different cooperation networks. Clusters are one of the types of such cooperation. The aim of the article is to show the impact of functioning in clusters has on the associated enterprises and on their competitive level in the global economy, especially in the context of reduction of investment risk. There are the following research questions in the paper: (1) in what aspects of enterprise functioning the clusters can bring benefits? (2) can cluster reduce the investment cost and time (3) can function in a cluster contribute to an increase in the company's competitiveness? In order to verify the research questions, the following research methods were used: method of critical analysis of available literature (data from both primary and secondary sources), cause-and-effect analysis (used to examine the impact of enterprises' association in clusters on the increase of company's competitiveness) and own empirical research carried out among senior managers of companies located in the industrial cluster under study. The empirical research carried out in the paper is used to verify the state of knowledge about clusters and competitiveness. As the research result, it can be noted that clusters bring many economic effects for companies, taking advantage of economies of scale and synergy. Creation of an effective cluster contributes to the reduction of operating costs, and the cost of supply, logistics and production - these elements are consistent with the assumptions described in the literature. However, based on the research from the paper, it can be stated, contrary to theoretical assumptions, that the cluster's activity does not contribute to the easier access to educated workforce and does not shorten the time to enter the market.

Key words: *clusters, competitive advantage, global economy*.

JEL code: F23, L14, O32

Introduction

Due to the globalization of the contemporary international relations, both countries and enterprises take a number of actions aimed at increasing the broadly understood competitiveness. Enterprises are forced to exist in conditions of intense local and international competitiveness, which makes the companies look for partners by creating different cooperation networks. Clusters are one of the types of such cooperation. Clusters, i.e. related companies, universities and national institutions, contribute to increasing competitiveness, innovation, to creating new products, new companies and new jobs.

According to Porter, clusters are "geographic concentrations of interconnected companies and institutions in a particular field, linked by commonalities and complementarities". Clusters include: linked industries and other entities (suppliers), distribution channels and customers (demand), related institutions (research organization, universities, training entities, etc.) (Porter, 2001). According to Rosenfeld clusters "are simply geographic concentrations of interrelated companies and institutions of sufficient scale to generate externalities"; on the other hand, Cortright says that an industry cluster is a group of firms and related economic actors and institutions, that are located near one another and that draw productive advantage from their mutual proximity and connections (Wolman, Hincapie, 2010). Still, a cluster is not just a simple sum of entities acting together, above all, these are the relationships between the entities inside the

production system. A key aspect of the definition by Porter and similar ones is the geographical proximity of the cluster actors and the simultaneous cooperation and competition of the associated entities. Please note, however, that a growing number of businesses is not dependent on the geographical location of their seat and operates independently from the proximity of their business partners. By applying modern technologies, companies operate on the Web or become global, which can result in a new understanding of cooperation within the clusters.

Many authors emphasize the importance of knowledge transfer between the cluster actors. According to Pohl "a cluster is characterized on the one hand by the value of spatially concentrated knowledge sharing, on the other hand by a spatially specialized division of labour" (Pohl, 2015). According to Bergman and Feser cluster is "a group of business enterprises and non-business organizations for whom membership within the group is an important element of each member firm's individual competitiveness. Binding the cluster together are buyer-supplier relationships, or common technologies, common buyers or distribution channels, or common labour pools" (Moosavi, Noorizadegan, 2009). Martin and Sunley argue that "the study of clusters allow a better knowledge of the economic dynamics of regions and their strengths and weaknesses regarding the complex process of the location of production activities in the globalisation era of our times" (Branco, Lopes, 2018).

Various aspects of the cluster definition presented above lead to a conclusion that clusters affect many aspects of operations of the associated companies and regions, in which they are located. Therefore, examining the clusters' impact on the internal and external environment seems to be essential to extend the knowledge about clusters and the benefits they offer. The results of the empirical studies conducted by the author, as presented in this article, can bring a greater understanding of the relation cluster – the competitiveness of enterprises. By assuming that each cluster is a different case (it is not possible to create two, identical clusters in different locations, which is mainly due to the diversified environment of the cluster), the empirical study of the selected clusters can bring value to the subject of the clusters.

The aim of the article is to show the impact of functioning in clusters has on the associated enterprises and on their competitive level in the global economy, especially in the context of reduction of investment risk. There are the following research questions in the paper: (1) in what aspects of enterprise functioning the clusters can bring benefits? (2) can cluster reduce the investment cost and time (3) can function in a cluster contribute to an increase in the company's competitiveness? In order to verify the research questions raised in the article, the following research methods were used: method of critical analysis of available literature (data from both primary and secondary sources were used), cause-and-effect analysis (it was used to examine the impact of association of enterprises in clusters on the increase of competitiveness of this enterprise) and own empirical research carried out among senior managers of transnational corporations located in the industrial cluster under study. The article adopts a deductive-analytical approach.

The modern cluster theories rest on the foundations created by Marshall, who described the phenomenon of production concentration in the industrial districts. According to his understanding, the industrial districts are agglomerations of many companies from the same industry located in a close geographical proximity. Marshall was able to notice the so-called external benefits of cooperation between the specialized companies, which mainly included the exchange of information and staff. These effects were unintentional and resulted from the existence of the agglomeration of companies. He also drew attention to the possibility of an effective distribution of work between the various companies involved in the successive stages of the production process and achieving the economies of scale by all participants of the district (Gorynia, Jankowska, 2007). The elements essential from the perspective of the theoretical recognition of clusters can be found in many classical theories. Smith emphasized the importance of the regional specialization of labour leading to the increase in productivity and development of cooperation in the region; while, Weber described the agglomeration as the main factor of location and pointed out the benefits offered by the specialization and spatial location of production (Olejniczak, 2003). Becattini presented the concept of Italian industrial districts, the characteristic feature of which for

the regions is the existence of the specific growth areas. These enclaves are specialized in a specific field of production and usually comprise many small and medium-sized family enterprises, which are mutually complementary and flexibly adapt to international competition (Pietrzyk, 2000). According to Markusen, if an entity of a transnational corporation or effective government actions exist in a district, it is a kind of "glue" for small companies, which cannot easily withdraw from the region, and on the contrary, these factors encourage them to stay in the cluster, stimulate development of companies, and attract new entities to the district (Markusen, 1996).

The cluster concept proposed by Porter is a new plane of thinking about the national and local economy. It demonstrates the role of companies, authorities and other institutions acting for the strengthening of competitiveness. He notes that the existence of clusters indicates that the competitive advantage is affected by factors from outside of the company and often outside the sector. Porter emphasizes the role of the location of the company's managing units, which can significantly affect the competitiveness of the cluster and region (Porter, 2001).[1]

Efficiently-functioning and successful clusters can have the following characteristics (*Cluster,* 2003):

- a recognition that clusters should be led by business and civic leaders

- an understanding of the importance of cooperation and competition

- strong linkages between firms and between firms and institutions

- a recognition that the cluster approach is a systemic one in which all stakeholders play a vital role

- good communication and dialogue among all stakeholders in helping businesses solve common problems, improve competitiveness and become more innovative.

According to Porter „Clusters effect competition in three broad ways: first, by increasing the productivity of companies based in the area, second, by driving the directions and pace of innovation, which underpins future productivity growth; and third, by stimulating the formation of new businesses, which expands and straightens the cluster itself." (Porter, 1998).

Competitiveness of enterprises is an extremely broad notion and includes many different aspects. For the purposes of this article, competitiveness will be understood as "efficiency (reaching goals at the lowest possible cost) and effectiveness (having the right goals). It is this choice of industrial goals which is crucial. Competitiveness includes both the ends and the means toward those ends" (Buckley et al., 1988). Competitiveness of an enterprise (Fig. 1) manifests in its innovation and ability to win new markets, customers and fighting off competition through its products that provide value added. These companies demonstrate a pro-export attitude and pursue business strategies in their activity to ensure achievement of development goals. Competitive companies adapt to the changing conditions in the global economy to a greater extent, use the production factors more efficiently and effectively manage the costs in order to maximize the profit.

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[1] See more in: Jankowiak Anna H., 2013, *Klastry jako nośnik innowacyjności przedsiębiorstw i regionów – ujęcie teoretyczne*, in: Schroeder J., Śliwiński R. (eds.), Przedsiębiorstwo na rynku globalnym, Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, p. 155-164 and Jankowiak, A.H., 2014, *Klastry jako nośnik innowacyjności – ujęcie teoretyczne,* in: Drelich-Skulska, B., Jankowiak, A.H., Mazurek, S.(eds.), Klastry jako nośnik innowacyjności przedsiębiorstw i regionów. Czy doświadczenia azjatyckie można wykorzystać w warunkach gospodarki polskiej?, Publishing House of Wroclaw University of Economics, Wroclaw.
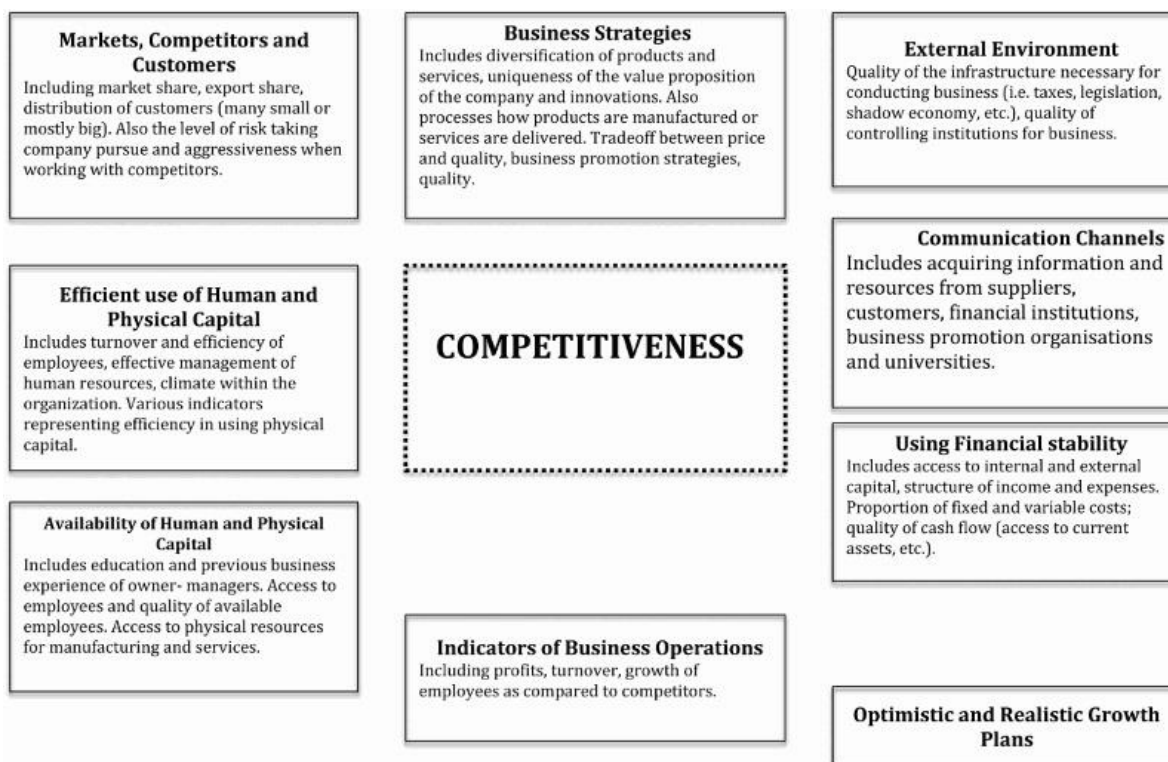
Source: Sauka A., 2014. Measuring the competitiveness of Latvian companies, Baltic Journal of Economics, 14:1-2, p.141

Fig. 1. **Dimensions of company's competitiveness**

Research results and discussion

Qualitative research, in the form of In-Depth Interviews (IDI), has been selected as a method to find out the opinion of investors associated in a cluster. IDIs have been conducted with the senior managers of individual companies associated in the studied cluster. Research conducted using the qualitative method brings answers to questions how? and why? IDI, as a form of research, imposes a predetermined scenario but provides a lot of freedom in carrying out the interview with the respondent and allows to find out the real opinion on the subject. This method is used in the case of a relatively small group of respondents. In-Depth Interviews enabled to reach the issues considered the most important from the perspective of the subject of the research, and the method has allowed identifying the dependencies in the cluster from the point of view of the senior managers. The method selected allowed to learn comprehensive opinions about the studied cluster, and the benefits offered by operating in a cluster of associated companies, and how such benefits affect the competitiveness of the cluster actors.

The tool used in the study was a questionnaire. It comprised 10 questions, including 7 open questions and 3 multiple-choice closed questions. The questions were arranged in thematic groups. The first section concerned the general opinion about the functioning of the clusters. These queries provided an opportunity to examine subjective opinions of respondents as to the validity of creating clusters and further, their purpose was an introduction to the subject of the clusters and finding out the knowledge level of the subjects. The second section of the form focused on the costs of entering and operating in the cluster, which need to be incurred in this form of cooperation between the companies. This part contained questions aimed to identify the benefits arising from cluster participation for individual companies.

Sampling for the qualitative research was purposive and non-random, which allowed reaching a group of people with full knowledge about the dependencies and processes taking place in the studied cluster. The research sample comprised all business companies in the cluster, and the study was participated by 12 out of 16 enterprises.

Companies participating in the cluster are – according to the definition – transnational corporations, as they have their parent entities in home states and subsidiaries in host states. Five of the studied companies employ up to 1 thousand employees, four of them employ up to 2 thousand workers, and three more than 2 thousand employees. Therefore, the studied companies belong to the group of large, international companies from the production industry. The cluster under the study can be described using the following principal characteristics:

1. the cluster is relatively small, with a low critical mass;

2. it is a typical manufacturing cluster, in which the vast majority of production is exported (approximately 98%)

3. the cluster lacks R&D unit or other entity that ensures knowledge creation (e.g. universities), which is a weakness of the whole structure - the cluster is strongly dependent on the technologies created outside.

4. the cluster has no formalised structure, it only has entities whose responsibility is to search for new solutions and cost savings on the entire length of the production chain;

5. the cluster companies mainly co-operate with actors inside the cluster, although they also establish business relationships outside;

6. the cluster clearly needs inclusion of new companies producing final products, as currently, it is highly dependent on only one customer and is a closed production chain;

7. local and national authorities do not play a significant role in the cluster (their involvement was significant at the stage of attracting the investor to the region and creating the infrastructure necessary for investor's activity, then the role of the authorities has diminished naturally).

1. Usefulness of clusters for associated enterprises

The first group of questions in the questionnaire concerned the subjects' general opinions on clusters' functioning in the global economy. The opinions on clusters were collected using both open and closed questions. The open part of the interview addressed the issues of cluster usefulness for associated companies, the legitimacy of cooperation between the units, and further, it asked about the sources of cluster initiatives that are the entities, which should initiate the creation of clusters. All subjects responded that a cluster is a good form of cooperation between the companies. The managers have emphasized the benefits of joint actions on many levels, in contrast to acting alone. As has been noted by one of the interviewees "*Combining companies, their potentials give an opportunity to create a strong economic entity and to make full use of the advantages of the location*." In the opinion of the respondents, the cluster initiatives should be initiated by the companies, but also local authorities, able to recognize the potential of the region best.

In the closed question, the subjects were asked to evaluate the statements presented during the study. A five-point response scale was provided, stating lack of consent on the one hand and total approval, on the other. According to the data collected in Fig. 2, the respondents were most consistent responding to the thesis that cluster attracts new investors to the region and raises its attractiveness (6 responses definitely approving). Further, they confirmed the statement that information flows freely between the entities in the cluster (10 people rather agreed with this point, 1 person definitely agreed). Majority of the representatives of the companies considered it justified that there is confidence in business relationships within the cluster, and that the cluster allows reducing the cost of company's operations and that both cooperation and competition is clearly visible between the entities within the cluster. A substantial part of subjects also approved the statement that the clusters stimulate the spirit of entrepreneurship. Most of the respondents agreed that cluster reduces the risk of investments and raises the competitiveness of the enterprise (9 approving responses respectively). According to the respondents' answers, the cluster's activity contributes to the elimination of investment risk, as the new company joins already existing infrastructure and cooperators, as it was in the case of the studied cluster.

The respondents also agreed to the statement that participation in the cluster serves the interests of a single company, brings more benefits for companies and offers easier access to modern technologies (8 responses with approval).

Respondents presented different opinions as to cluster's facilitation of access to skilled labour, which may result from the situation in the region, in which the workforce, especially the production workforce, decreases year by year. The opinions of the subjects were diversified as to the reduction of the time needed to enter the market related to the activity of the cluster and cluster usefulness only in the initial stage of company's existence.
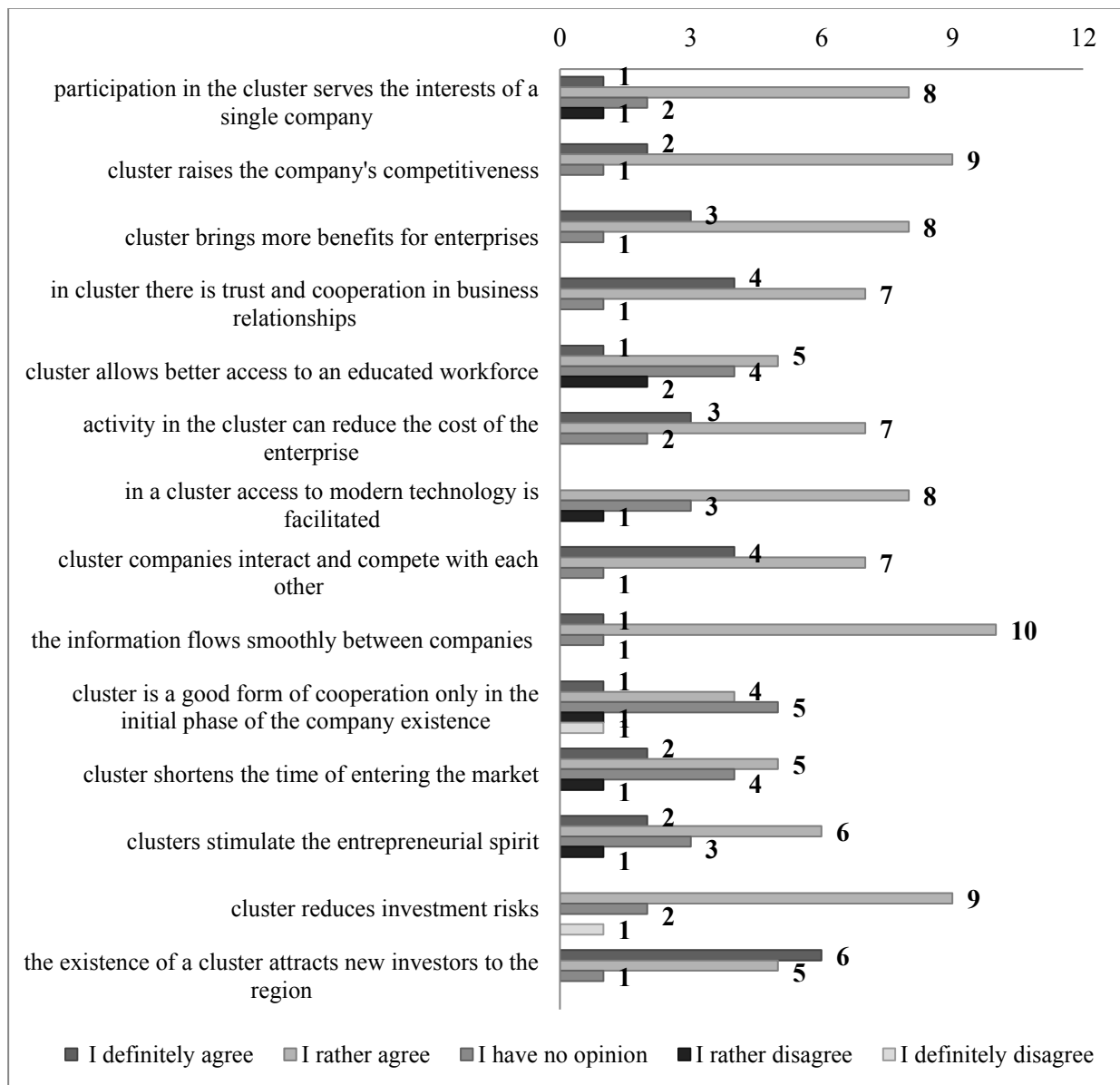
Source: author's compilation based on empirical studies

Fig. 2. **Basic theses about the clusters' operation**

2. Effects of operating in a cluster

Afterwards, the respondents were asked to answer the question about the cost of entering the cluster and the costs incurred on its current activity. None of the subjects provided any costs of entry. The responses mainly concerned the investment costs incurred at the time of entering the host country, however, these were not the costs of starting activity related with the functioning in this form of cooperation. Further, the respondents did not mention any costs incurred on

the daily activity of the cluster and on joint projects. Among responses concerning the additional, joint projects carried out by the cluster actors, the prevailing opinion was that it is a relatively young cluster, not deeply rooted in the region, and above all, that it is a typical production unit. These opinions confirm the nature of the cluster, which is focused on production, and is not active in areas other than the primary production, which unfortunately is the weakness of the cluster. The cluster studied was characterized by a low level of attachment to the location.

In the in-depth interview, the respondents were asked to provide their opinion on the benefits of cluster operation for the associated companies. The responses were collected using a closed question and open questions. In the first question of this part of the study, the subjects were asked to indicate, in which departments the impact of the cluster is noticeable (Fig. 3). All respondents indicated production as the department benefiting most from the existence of the cluster (12 answers). This understanding of benefits can stem from typical manufacturing character of the cluster, hence the first association of the subjects was production. The second place was taken by logistics (10 responses), which chiefly results from the geographic proximity between the cluster actors and affiliation in one production chain, which improves the coordination of logistics in the cluster. The representatives of the companies that are suppliers of the parent companies, first of all, pointed out to the benefits in the sales area (10 answers), which is a natural consequence of placing production in a close proximity to the main customer and producing mainly for its needs. The respondents also pointed out to the benefits for the purchasing department (9 indications), explaining that the greater the number of units the greater the bargaining power of sub-suppliers, and for the HR department (8 answers), which results from building the cluster brand among the employees. Among other departments, the respondents mentioned customer service, marketing, public relations, finance and hiring new employees. Departments, in which no impact of cluster operation was noticed were Research and Development (R&D), foreign trade, accounting and service repairs. The absence of benefits may be due to lack of these departments in the studied cluster and due to keeping own accounting, because, as has been assumed, these are companies independent of each other.
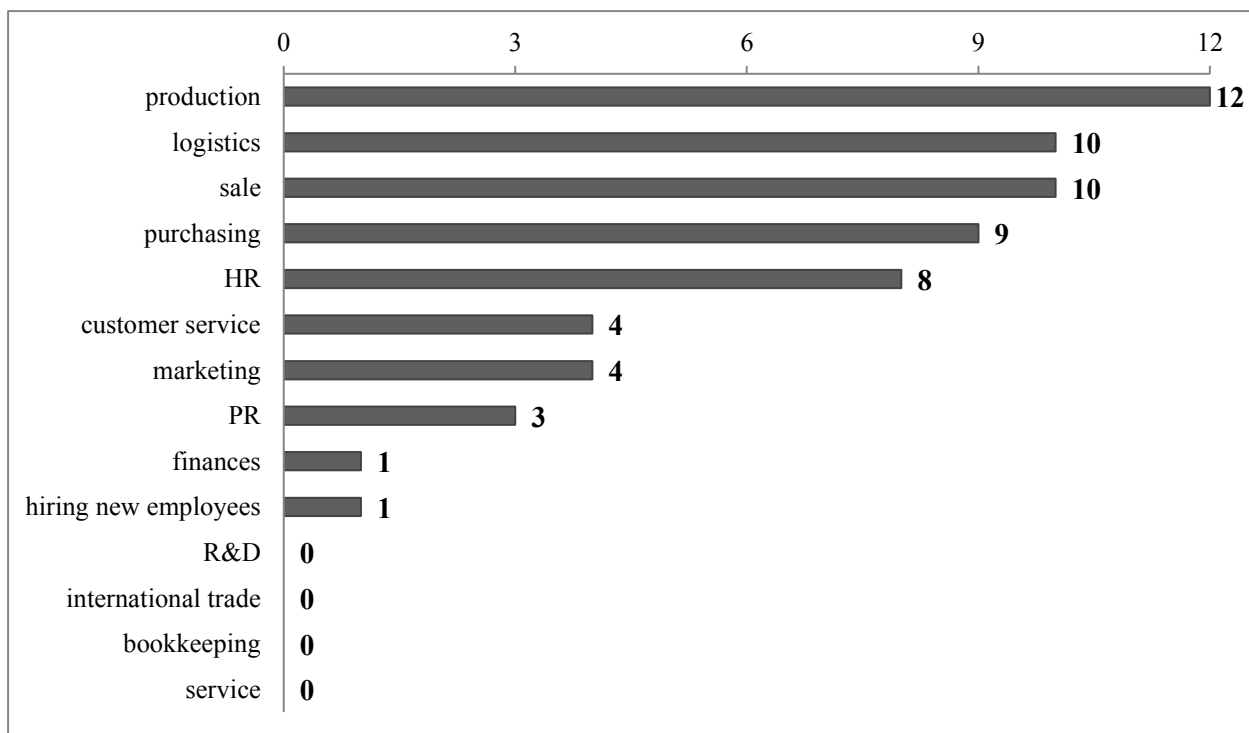
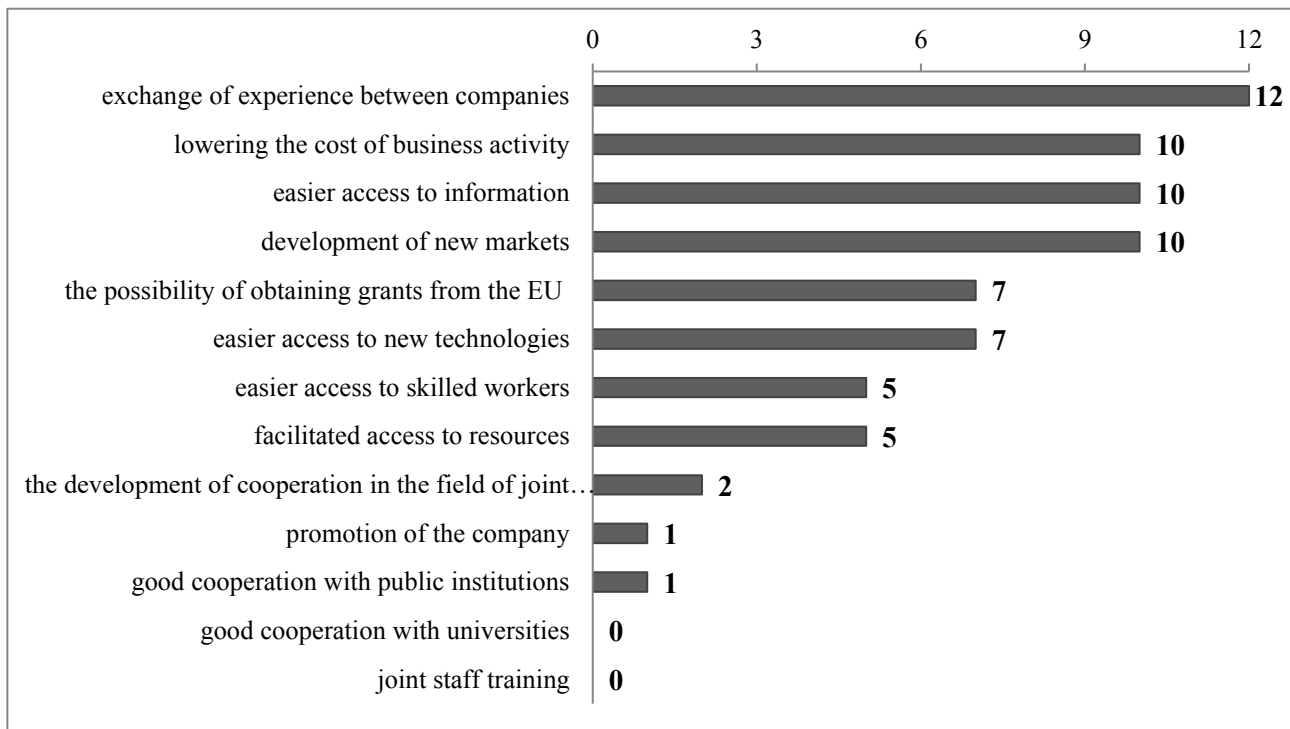*Source: author's compilation based on empirical studies*

Fig. 3. **Departments of transnational corporations, in which the effects of cluster's operations are noticeable**

Thereafter, the respondents were asked to provide their opinion on whether the cluster affects the development of their company. All subjects unanimously responded that participation in the cluster contributes to the development of the associated companies. It has been primarily emphasized that creation of a cluster resulted in extending the scale of operations on the European markets, on which, in most cases, the companies have not operated before. Along with the creation of the cluster, the scale of production of the companies increased. The companies operating as suppliers highlighted the increase in the number of manufactured parts while keeping the number of customers. However, the increase in the scale of operations and production should not be attributed to the existence of the cluster as such, but it has been rather caused by making foreign direct investments and indirectly by cooperation in the form of an industrial cluster.

3. Direct benefits from participation in the studied cluster and impact on competitiveness

Among the benefits arising from the form of cooperation, which is a cluster, the respondents mainly indicated the exchange of experiences between the companies (Fig. 4). This response was given by 12 managers of the cluster companies, and in addition, 10 of them strengthened their response by selecting even easier access to information. The structure of the response confirms the earlier assumption that the entities cooperate very intensively in the area of information exchange and mutual learning. As the second benefit, the respondents highlighted the reduction in costs of business operation and acquisition of new markets (10 responses respectively). Joining forces within the cluster offers an opportunity to obtain external funding, and provides an easier way to acquire modern technologies. The respondents emphasized the benefits that arise from the acquisition of resources and facilitated access to qualified employees, who come to the region deliberately and get tied to it in the long-run. Fewer responses indicated benefits obtained from conducting joint activities in the region, promotion of enterprises and cooperation with the governmental authorities. None of the subjects indicated cooperation with higher education as one of the benefits, the result of which is lack of collaboration in creating new technologies and products.

The interviewees also listed the negative aspects of cluster's operation, although, it is not possible to directly link these answers with the cluster studied. Two of the respondents pointed to the rising labour costs in the region, which is due to a large number of jobs created by the foreign investors. The first subject was of the following opinion: "*With the increase in the number of foreign investors, including Asian ones, we had to raise the salaries of our employees, which increased our costs*." According to the second one: "*We are experiencing an issue with the labour force. It is difficult to hire new employees because too many companies operate in the region. We are forced to compete for people, who migrate from company to company*." Most of the interviewees indicated no negative factors of cluster operation, definitely seeing more benefits it offers. Further, none of the respondents noticed any restrictions on their companies due to cooperation in the cluster. However, it should be pointed out that during the interviews the respondents were reluctant to criticize their own units and the cluster as a whole. The managers participating in the study answered questions about positive phenomena definitely more willingly than about the negative factors.

Source: author's compilation based on empirical studies

Fig. 4. **Benefits of industrial cluster operation**

Conclusions

As a conclusion, the research presented in the paper is mostly consistent with the assumptions described in the literature. However, based on the research from the paper, it can be stated, contrary to theoretical assumptions, that the cluster's activity does not contribute to the easier access to educated workforce and does not shorten the time to enter the market.

While answering the research questions posed in the introduction to the article, and basing on the results of the research conducted, one should indicate:

1. The results of the paper confirm the assumptions presented in the available literature with the two exceptions. The first, contrary to theoretical assumptions, is that the activity in the cluster does not contribute to the easier access to the educated workforce. According to theoretical assumptions, in the region where there is a strong cluster, the market of specialists to work in cluster companies is expanding. Based on the research, the respondents pointed out the problems with finding the valuable workers due to the fact of the location of many companies from the same industry. In the case of the surveyed cluster, specialized staff was quickly depleted and this resulted in the need to raise salaries.

2. The second result of the research contrary to theoretical assumptions was that the cluster doesn't short the time of entering the new market – only the cost of this business activities.

3. Functioning in a cluster may contribute to the reduction of investment risk, as indicated by the respondents of the study. First, joining an already existing cluster, new companies can use the existing infrastructure, a built-up network of suppliers and recipients and can have access to a specialized workforce. Secondly, choosing a location with an already existing cluster reduces the cost of investments, eg, costs of searching for a location, market research, etc.

4. In the cluster studied, a high degree of confidence in conducting business is noted between the transnational corporations located in the cluster, which results in the communication between the companies. On the one hand, the flow of information is necessary from the perspective of creating the production chain, so as to ensure the best possible production matching of companies that are suppliers and manufacturers of the final product. On the other hand, the exchange of information and continuous emphasis on quality noticeable in the cluster facilitates cooperation and contributes to the growth of innovation in the cluster products. Special units have been set up in the cluster to improve processes across the enterprise, their scope of responsibility includes the search for more effective solutions for the entire cluster.

5. Being a cluster company result in the efficiency of operations, which is clearly visible in the cluster studied. The cluster has reached a high level of competitiveness in relation to other units, mainly competing by means of the cluster product.

6. To sum up, clusters, through the specificity of their character, combine the activities of entrepreneurs, local government institutions, and scientific units, thus contribute to the dynamic growth of their business. Existing, strong and specialized clusters are an opportunity for many small and medium-sized companies operating locally, which do not have a chance to independently go beyond the borders of their region. Clusters bring many tangible economic effects for affiliated companies, and enterprises combined into clusters, to take advantage of the economies of scale and synergy. As was evidenced in the article, the creation of an effective cluster contributes to the reduction of operating costs, and the cost of supply, logistics and production.

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ASSESSMENT OF COMPETITION IN THE BANKING SECTOR OF THE BALTIC STATES

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Abstract. Looking at the composition of the financial sector across the Baltic countries, banks represent the largest share of the total assets. The current external macro-financial environment is complicated by the slowdown in the growth of the global economy. Also, this period of uncertainty is further shortened by the global geopolitical situation. That is why the financial sector should be able to adapt to these changes and maintain effective competitiveness.

The relevance of the chosen topic can be explained by the fact that the main goal of any business is winning the competition. Triumph over an opponent is the result of continuous and competent work of the banks. The external policy of the bank and the services offered directly affect the competitiveness.

This paper examines several competitiveness indicators. The first is the profit margin. The purpose of any business is to maximize the profit. With their profits banks develop and improve the quality of banking services, by increasing the level of competitiveness. The second indicator is the growth of own capital, which ensures the stability of the bank's financial position and the liquidity of the balance sheet. The own capital amount determines the bank's ability to remain stable during a crisis. The third indicator is the bank's assets, which show the use of bank resources. The bank's assets consist of their own and attracted resources, which are used to make a profit, to maintain liquidity and ensure the bank's efficiency. The bank's prosperity depends on reliable investors and borrowers. Banks are struggling for such clients to maintain a level of competitiveness. That is why the amount of deposits and credits is examined in this paper.

Several methods are used to conduct the competitiveness analysis in the Baltic States' banking sector. The publicly available sources used to analyse Lerner, Boone and H-statistic indexes in the period 2005-2015.

In general, the analysis of competitiveness indexes shows that banks in the Baltic States have a lowlevel of competitiveness and the banking markets in the Baltic State are characterized by monopolistic competition. This paper gives valuable political consequences for the banks of the Baltic States and the stakeholders in general.

Key words: *competition, Lerner index, Boone indicator*

JEL code: G21, O16

Introduction

The country's economy is impossible to present without the banking system. Commercial banks play an important role in the financial system of each country. Banks provide specialized financial services and produce banking products to their customers. Banks accept deposits and make loans to get a profit from the difference between deposit and credit rate. Nowadays, banks actively attract new clients and conduct uninterrupted competition among themselves. The main goal of any business is winning the competition. Triumph over an opponent is the result of continuous and competent work. The external policy of the bank and the services offered directly affect the competitiveness.

The aim of this study is to analyse the value of competitiveness indexes and to find out the level of competetitiveness in the Baltic State.

Research starts with literature review. The main theoretical methods describe the concept of competition.

The next step is to analyze several competitiveness indicators such as: the profit margin, the growth of own capital, the bank's assets, the amount of deposits and credits in the banking sector in the Baltic State.

Further the financial indexes would be compared. The Lerner, H-Statistic indexes and Boone indicator estimates point out the level of competitiveness in the Baltic State.

Finally, the degree of competition in the banking sector will be find.

Research results and discussion

Data and methods used

To find out the level of competition in the financial sector is complicated. The scientific economic literature differs many models that can be used to define the level of competition. In this article, the competition assessment is made by Lerner and H-statistic index and Boone indicator.

The Lerner index. The Lerner Index identified the "degree of monopoly" with the difference between the firm's price and its marginal cost at the profit-maximizing rate of output. For Lerner, a bigger wedge between price and marginal costs meant greater monopoly power. A profit-maximizing firm's monopoly power varied directly, and only with the firm's own-price elasticity of demand. Lerner's benchmark for measuring monopoly power and discussing the welfare economics of monopoly is the social optimum that is reached in perfect competition (ElzingaandMills, 2011).
Lerner index is calculated by the following formula (1):

$$1. \quad L = \frac{P-MC}{P}, \text{ where}$$

P- price,

MC- marginal cost.

Under perfect competition price will be equal to marginal cost. If these is a difference between the two, such as price > marginal cost; this is because of market imperfection or what we call as the monopoly power of the firm. Greater the deviation between price and marginal cost, higher the monopoly power of a firm (Bartwal, 2004).

H-statistic index. Rosse and Panzar (1977) and Panzar and Rosse (1987) use Equation (2) to construct the H-statistic, which allows for a quantitative assessment of the competitive nature 3 of banking markets and the market power of banks. H is calculated as the sum of the elasticises of a bank's total revenue with respect to the bank's input prices. Hence, based on Equation (2):

$$2. \quad H = \beta + \gamma + \delta.$$

The banking industry is characterized by monopoly or perfect cartel for $H \leq 0$, monopolistic competition or oligopoly for $0 < H < 1$, and perfect competition for $H = 1$. Furthermore, under certain conditions, H increases with the competitiveness of the banking industry (Bikker, Spierdijk, Finnie, 2007).

The Rosse-Panzar test, by contrast, is robust to the extent of the market. Indeed, because the core model involves only firm-level data, no specific market definition appears in the revenue equation. This is a huge advantage in a sample that contains countries spanning less than a single market (as one suspects of Luxembourg) up to thousands of local markets (as in the U.S.). Similarly, some countries have quasi-banking institutions (such as thrift institutions in the U.S.), which provide a debatable but probably nonzero degree of competition against commercial banks, and it is therefore valuable that the Rosse-Panzar test is robust to the inclusion or exclusion of such sectors (Shaffer, 2003).

However, this benefit comes at the cost of other shortcomings. The Rosse-Panzar H-statistic (the sum of elasticises of gross revenue with respect to input prices) sometimes gives only a one-tail test of competition, in which the rejection of monopoly power is reliable, but a rejection of competitive conduct is not. This occurs because a competitive outcome yields H=1 only in long-run equilibrium not in short-run equilibrium nor in disequilibrium, whereas H<0 arises under

many alternative scenarios including not only joint monopoly but also conjectural variation oligopoly, short-run competition, and certain other patterns of conduct. Fortunately, an empirical test for long-run equilibrium exists and has been applied by Claessens and Laeven. Interestingly, their finding that H>0 for many specifications and subsamples indicates that the test for long-run equilibrium is not strictly necessary to ascertain the validity of applying the usual interpretation of H in this sample (Shaffer, 2003).

Boone indicator. Boone (2008) describes an industry where firms compete but differ in efficiency. Initially the firms decide whether to enter the market and then, knowing which firms entered in the first stage, all firms choose strategically to maximise their after-entry profits. A sub-game perfect equilibrium is identified where profits are related to the firm's efficiency and are conditional on the aggressiveness of the firms' conduct. Let π (E) denote the profit level of a firm with efficiency level E. Consider three firms with different efficiency levels: max $E \geq E' \geq$ min E. The inverse relative profit difference (RPD), ρ, represents the ratio of the difference between the profit of the typical firm and the profit of the least efficient firm relative to the difference between the profit of the most efficient and the profit of the least efficient firm (3):

$$3. \quad \rho = [\pi(E') - \pi(minE)] / [\pi(maxE) - \pi(minE)].\text{(Duygun, Shaban, 2014)}$$

Analysis of banking sector in the Baltic State

The banking sector of the Baltic States has undergone considerable transformation over the last decades, including rapid development of the banking sector, privatisation of banks, responses to the domestic banking crises, the 1998 financial crisis in Russia and the last global crisis. Development of the supervisory system, consolidation of the banking sector, and the inflow of foreign capital have all contributed to facilitate stability and strengthening of the banking sector (Rupeika-Apoga&Solovjova, 2011).

The number of banks in the Latvian banking sector from 2005 till 2016 rapidly decreased from 22 to 16. Some of them had problems with liquidity and were closed, some of them decided to make business in other countries, but some of them merged to decrease marginal costs and to increase the competitiveness. The Latvian banking sector has big differences between bigger and smaller banks. Later one can hardly compete with the former. In turn, the big banks offer all possible products and services to their customers. The prevalence of Scandinavian capital in the Latvian banking sector is the main financial resource to the big banks.

According to the Financial and Capital Market Commission data Latvian banks own 78 percent of the whole financial system assets in 2015. Currently, it is possible to divide the Latvian banking sector into two groups: banks and foreign bank branches, as shown in Table 1.

Table 1

The number of banks and foreign bank branches in Latvia from 2005 till 2016 (LCA data, 2018)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total	**23**	**24**	**25**	**27**	**29**	**31**	**31**	**29**	**28**	**27**	**27**	**23**
Banks amount	22	21	21	21	21	21	22	20	19	17	17	16
Foreign bank branches amount	1	3	4	6	8	10	9	9	9	10	10	7

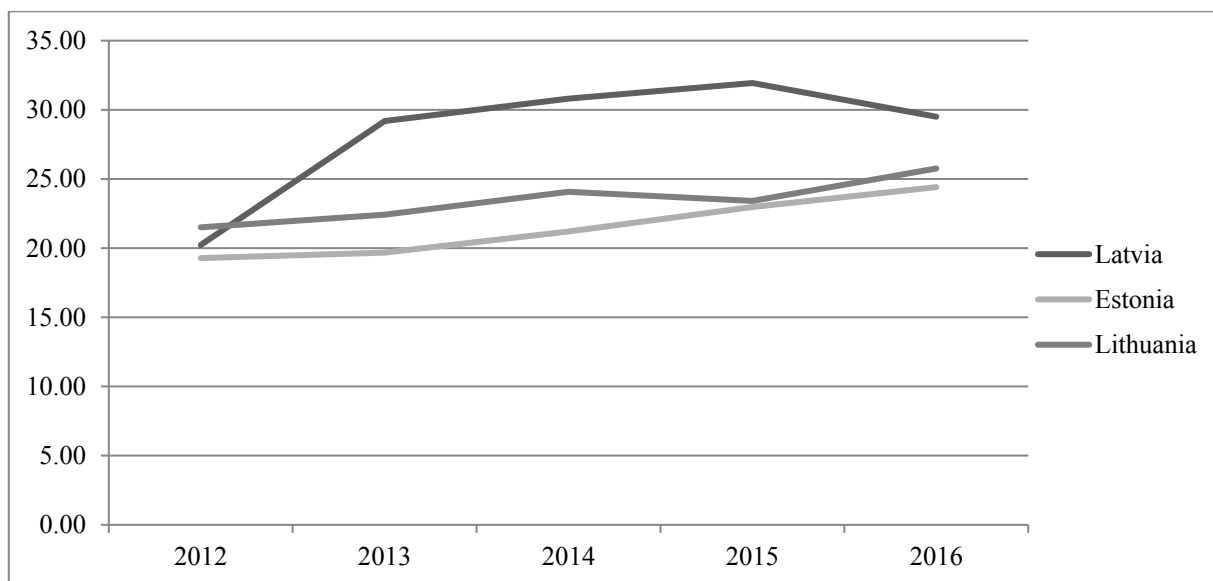*Source: authors' calculations based on the LCA data*

The number of foreign bank branches in the Latvian banking sector from 2005 to 2010 rapidly increased from 1 to 10. The foreign bank branches main business in Latvia is to offer financial services and banking products to non -resident

clients. This kind of business steadily existed for six years from 2010 till 2015. Since 2016, the number of foreign bank branches in Latvia decreased. Considering the implementation of the Basel III criteria by ECB, there is a tendency to reduce the number of market participants in the Latvian banking sector. Some of foreign bank branches tried to change business strategy and actively attract the local clients.

In 1993, Lithuania had twenty-eight commercial banks. This is the maximum number of banks in the Lithuanian banking history. By1996 the number of banks had decreased by almost three times. Banks faced serious problems because of lack of experience, competence, as well as the lack of supervision in banking sector. Banks have started to disappear one after the another. Decreased number of commercial banks no longer reaches similar volumes (Rimaviciute, Vilys, 2014). In 2017 Lithuania had 6commercial banks and 8 foreign bank branches.

In 1992 there were 42 banks in Estonia. During the following years the number of banks was declining mainly due to mergers and acquisitions. In 2016 there were 15 banks operating in Estonia, including 7 domestic banks and 8 foreign-controlled banks (branches and subsidiaries). The majority of foreign-controlled banks are owned by Nordic banking groups, which makes the Estonian banking sector dependent on the economies and banking sectors of the Nordic Countries (Denmark, Finland, Norway and to a greater extent Sweden). The ratio of consolidated banking assets to gross domestic product for Estonia shows that its banking sector is roughly the same size as its national economy (114.66 %)(The Banks.eu, 2017).

Bank assets are the physical and financial property of a bank, what a bank owns. Banking assets typically consist of own and raised fund to generate income, maintain liquidity and ensure the bank's operations. The Bank has borrowed and own funds, conducts investment operations and lending transactions, and, as a result, the bank's assets grow. The Estonian and Lithuanian banks' assets value increased from 2012 till 2016, as shown in Fig.1.

Source: authors' calculations based on the LCA, Eesti Pank and Bank of Lithuania data

Figure 1. **The value of banks' assets in the Baltic State from 2012 till 2016, bn euro**

The total assets of the banking sector in Latvia increased by 11.71 billion euro from 2012 till 2015. In 2016 the total assets decreased by 7.6%, and the total assets of the Latvian banking sector was 29.50 billion euro. In 2016, the Financial and Capital Market Commission strengthened the requirements for the prevention of money laundering, thus reducing the business volume of foreign customer service banks.

The next important bank indicator is **equity and reserves**. It shows the stability of the financial position and balance sheet liquidity. The size of the equity in absolute terms determines the bank's ability to maintain stability during crisis and characterizes the ability of the credit institution to incur losses without seriously compromising its solvency.

The Baltic State banks are required to reserve enough capital to cover unplanned losses and maintain their solvency in crises. The basic principle of this requirement is that the amount of capital required depends on the risk associated with the assets of the particular bank.

The Estonian banks' equity and reserves value increased from 2012 till 2016, as shown in Fig.2.

Source: authors' calculations based on the LCA, Eesti Pank and Bank of Lithuania data

Figure 2. **The value of banks' equity and reserves in the Baltic State from 2012 till 2016, bn euro**

The equity and reserves value of Latvian and Lithuanian banks decreased from 2015, but in general, capital ratios remain in the high level, substantially exceeding both: the minimum and total capital requirements.

The main objective and the most important performance indicator for each bank is to generate profits. Profit earned serves as a basis for developing and improving the quality of banking services, thereby increasing the level of competitiveness.

The Latvian banks profit value rapidly increased from 2012 till 2016, as shown in Fig.3.

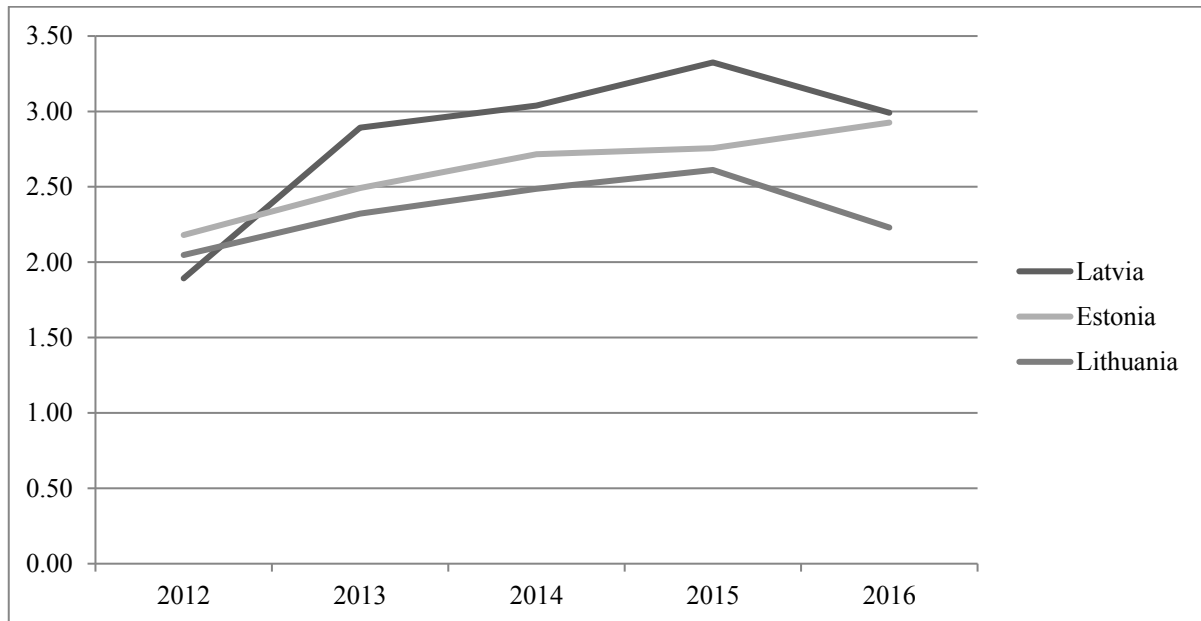*Source: authors' calculations based on the LCA, Eesti Pank and Bank of Lithuania data*

Figure 3. **The value of banks' profit in the Baltic State from 2012 till 2016, bn euro**

The growth of bank profitability in Latvia in 2016 was mainly driven by the revenue from the sale of Visa Europe companies' payment card. Visa Europe changed its strategy and redeemed the company's shares from banks that issue Visa plastic cards to customers. Excluding this effect, the profit of Latvian banks in 2016 was 335 billion euro, which is 19.5% less than in 2015 (LETA portal, 2017).

The Lithuanian banks profit as average was 236 billion euro from 2012 till 2016, which is the lowest value among the Baltic State countries.

The Estonian banks had the highest profit value from 2012 till 2015 among the Baltic State countries. In 2016 the Latvian banks made a bigger profit because of Visa Europe companies' strategy changes.

The well-being of banks depends to a large extent on the availability of reliable investors and borrowers, and in order to remain competitive, the banking struggle for such customers is quite aggressive and difficult. Consequently, the next important indicator is the amount of **deposits.**

The amount of issued deposits increased in Estonian and Lithuanian banking sectors, as shown in Fig.4.
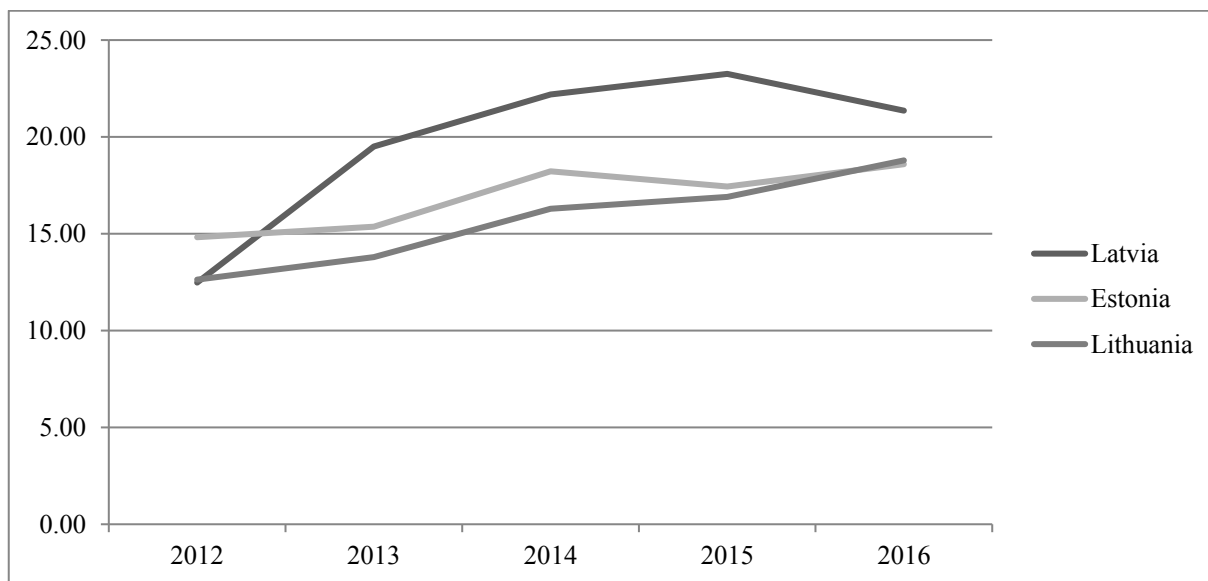
Source: authors' calculations based on the LCA, Eesti Pank and Bank of Lithuania data

Figure 4. **The value of banks' deposits in the Baltic State from 2012 till 2016, bn euro**

In 2016 the amount of issued deposits decreased in Latvian banking sectors. The value of the foreign currency deposits decreased by 26.3% in Latvian banking sector, dropping to EUR 9.2 billion at the end of 2016. The value of foreign customer deposits declined due to the higher requirements in the Latvian banking sector for prevention of money laundering and terrorist financing, and banks were cleaning up their customer base. In turn, domestic deposits in the Latvian banking sector grew by 12.6% in 2016, reaching the historically highest level of 12.2 billion euro. As a result, the share of domestic deposits in total deposits grew from 46.6% to 57.2% at the end of 2016.

The last indicator, which is analysed, is the amount of issued **credits** in the Baltic State banking sector. The amount of issued credits increased from 2012 till 2016 in the Baltic State, as shown in Fig.5.

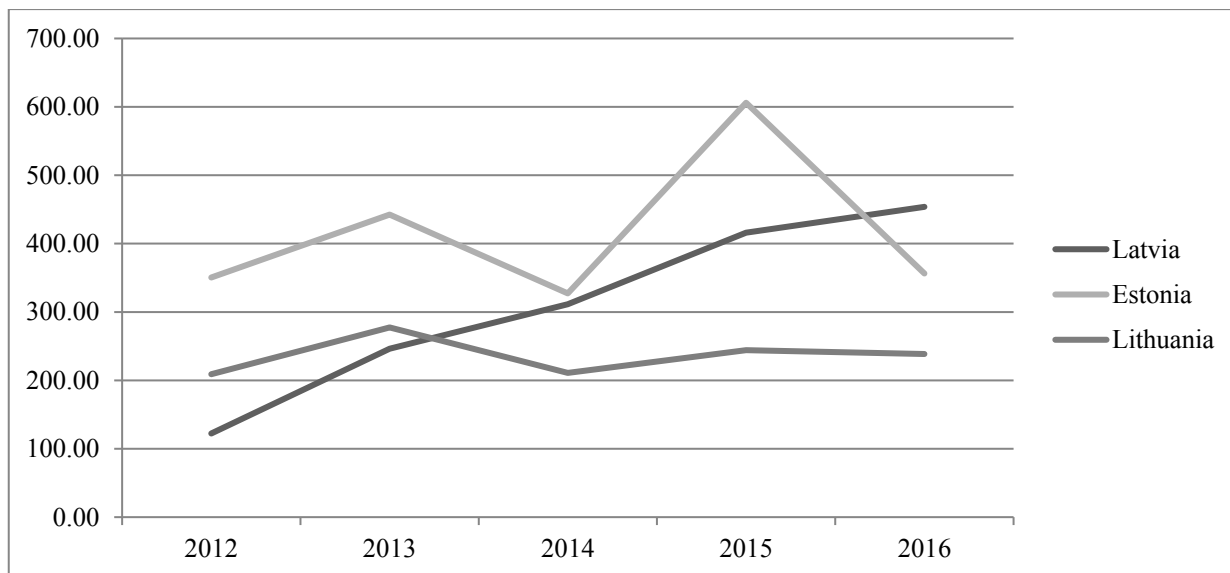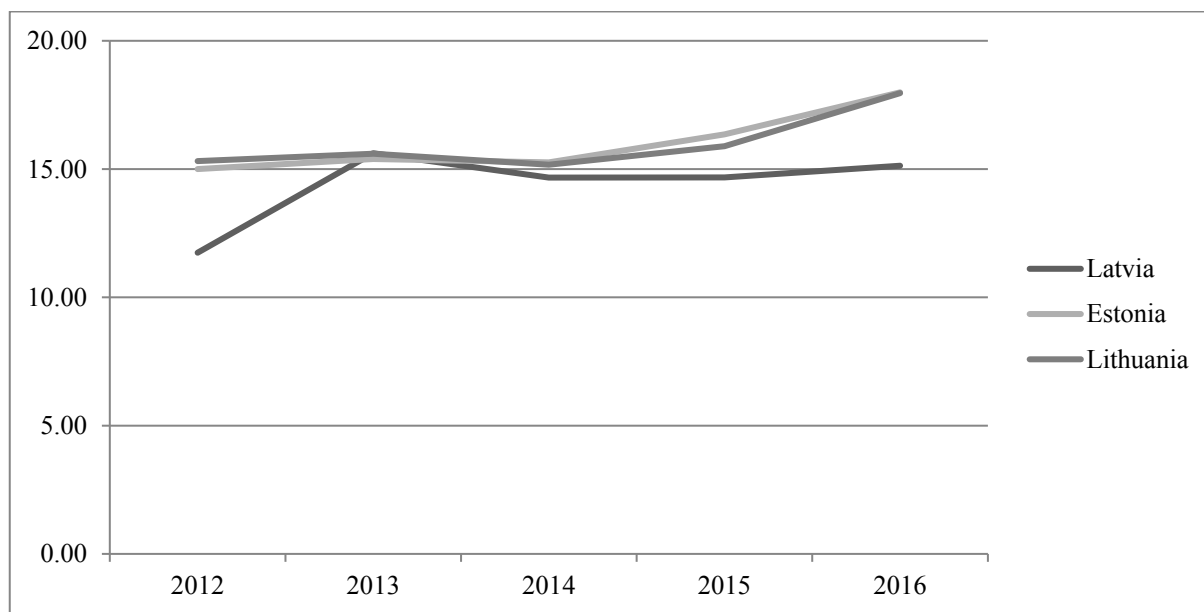

Source: authors' calculations based on the LCA, Eesti Pank and Bank of Lithuania data

Figure 5. **The value of banks' credits in the Baltic State from 2012 till 2016, bn euro**

Competition in the Baltic banking sector

One of the broadly used indicators for the rating of competition is **the Lerner index**. The Lerner index of the banking sector, banking services, compares prices that are subjected to margin (Weill, 2011). The index value increase shows a declining competition in the market and the index value decrease shows an extending competition in the market.
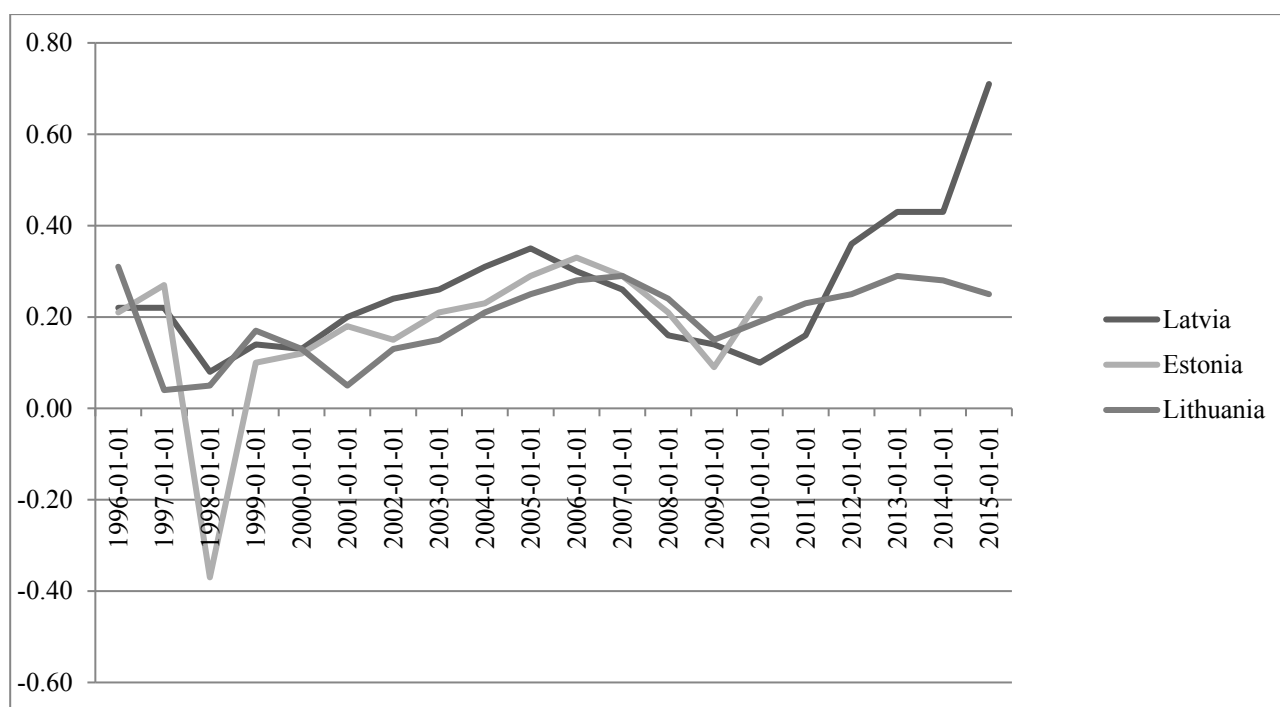
Source: authors' calculations based on the World Bank data

Figure 6. **The Lerner index in the Baltic State from 1996 till 2014 (World Bank data)**

When looking at the Latvian banking sector, based on the Lerner index, competition in the banking sector from 1998 till 2004 decreased, competitive market situation was weak, but from 2005 till 2009the competitive situation in the market improved. Ranging from 2010 till 2014 the competitive market situation impaired once again (Fig.6.).

From 2005 till 2009 the average Lerner index value in the Latvian banking sector was 24 percent, from 1998 till 2004- 19 percent and from 2010 till 2014- 37 percent. This means that the average price in the first period exceeded the marginal costs for 24 percent of the amount, in the second- 19 percent, but in the third- 37 percent. Latvia's biggest Lerner index value is calculated in 2014. At that time, the average price surpassed the marginal costs by 71 percent, which is nearly to complete monopoly in banking sector in Latvia. From 2010 till 2014 the banks amount in Latvia decreased by 13%.

The other two Baltic States represent lesser market power situation in the banking sector. Lithuania's biggest Lerner index value is calculated in 2007 and 2013. At that time, the average price exceeded the marginal costs by almost 29 percent. In 1997 the competitive conditions of the Lithuanian banking sector were best, and the index value was 4 percent, which is nearly to complete competition between the players in the banking sector.

The highest Lerner index value calculated in the Estonian banking sector was in 2006 and amounted to 33 percent. The lowest market power, based on the assessment of the Lerner index, in Estonia was in 1997 and amounted to -37 percent. If the Lerner index value is negative, it is difficult to draw conclusions about the degree of market power since this can occur under both competitive and uncompetitive conditions. Additional information would be required in this case. Through an increase in competition, foreign ownership can also serve to mitigate the negative effects of high market concentrations in banking sectors in CEE countries, where the top five banks hold an average of 72% of total banking assets (Rupeika-Apoga&Danovi, 2015). In 1997, there begun an active influx of foreign capital into Estonian banking - Swedish SEB and Swedbank acquired a stake in Ühispank and Hansapank. The following year, the last important changes took place in banking: the merger of Ühispank with Tallinna Pank and Hansapank with Hoiupank. In addition, there was the last major bankruptcy, as a result of which Maapank was closed. This was followed by the appearance of Finnish

capital in the Estonian market - Sampo Bank acquired Optiva Bank. In 2005, Sweedbank finally absorbed Hansapank and currently Estonian capital is available only in some small banks. That is why in 2006 the Lerner index value was so high.

The Lerner index value in the Lithuanian banking sector since 2007 was in a decline. However, if looking in the long term, the index value from 2009 till 2013 period was higher. The main reason for that was the liquidation of Snoras bank and Ūkiobankas and increased bank services fees.

The next extensively used indicator for the rating of competition is **Boone indicator**. Boone's model is based on the notion, first, that more efficient firms (that is, firms with lower marginal costs) gain higher market shares or profits and, second, that this effect is stronger the heavier the competition in that market is (Leuvensteijn, Bikker, Rixtel, Kok Sorensen, 2007). The more negative the Boone indicator, the higher the degree of competition.
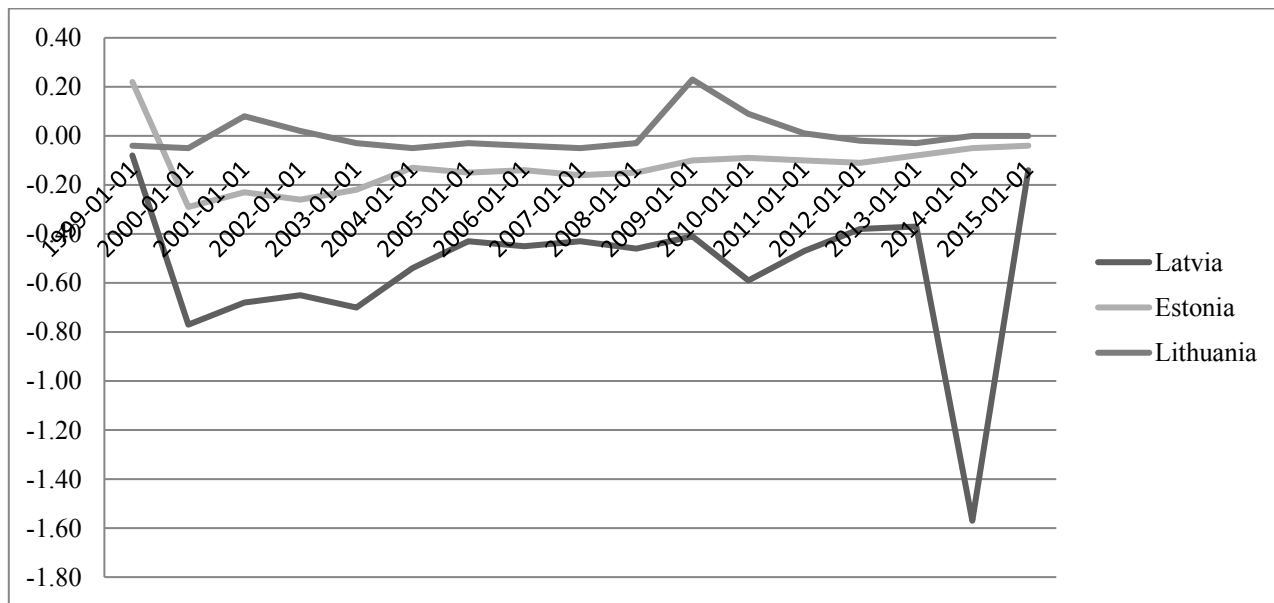
Source: *authors' calculations based on the World Bank data*

Figure 7. **Boone indicator in the Baltic State from 1999 till 2014 (World Bank data)**

According to the full sample period estimates, the banking sector in Estonia and Lithuania is less competitive than in Latvia, but difference between Boone indicator value is not significant. From 1999 till 2014 the average Boone indicator value in the Lithuanian banking sector was 0, in the Estonian banking sector was -0,12 and in the Latvian banking sector was -0,54 (Fig.7.). According to the World Bank data, from 1999 till 2014 the average Boone indicator value in Euro Area was -0,03. This means that in the Baltic State banking sector has the same competitiveness degree as in EU. ECB control affects the competitiveness level in the Baltic State banking sector and the degree of competition is low.

The last extensively used indicator for the rating of competition is **the H-Statistic index**. A measure of the degree of competition in the banking market. It measures the elasticity of banks revenues relative to input prices. Under perfect competition, an increase in input prices raises both marginal costs and total revenues by the same amount, and hence the H-statistic equals 1. Under a monopoly, an increase in input prices results in a rise in marginal costs, a fall in output, and a decline in revenues, leading to an H-statistic less than or equal to 0. When H-Statistic index is between 0 and 1, the system operates under monopolistic competition (Economic Research, 2018).
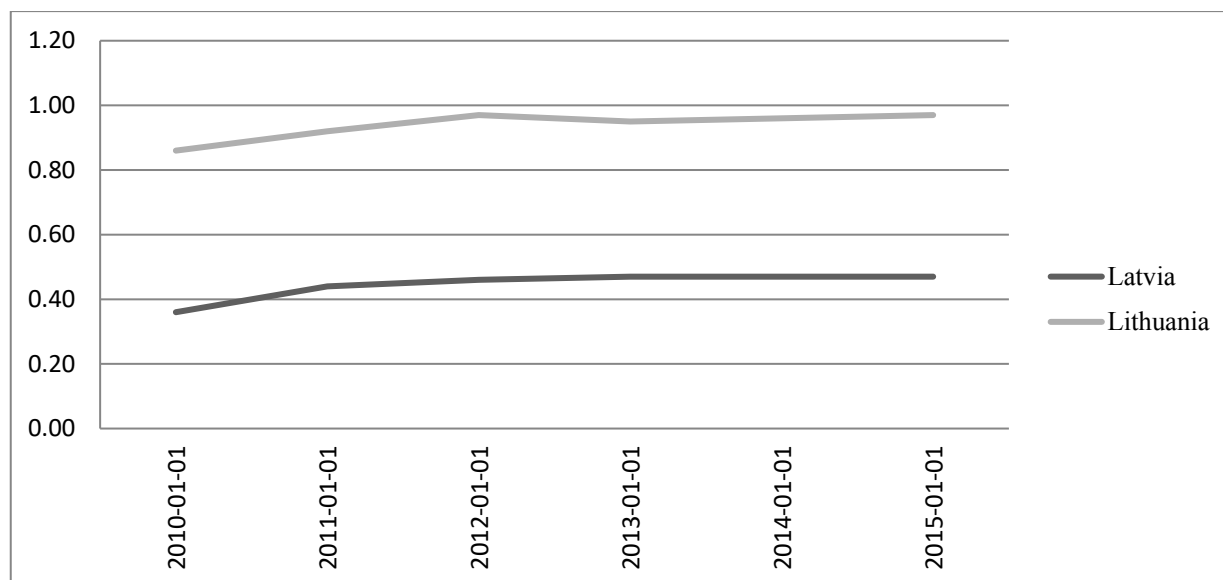
Figure 8. **The H-Statistic index in Latvia and Lithuania from 2010 till 2014 (World Bank data)**

From 2010 till 2014 the H-Statistic index value in the Latvian banking sector increased from 0,36 till 0,47 (Fig.8.). At the same period the H-Statistic index value in the Lithuanian banking sector increased from 0,86 till 0,97. In both countries H-Statistic index is between 0 and 1, it means that the Latvian and Lithuanian banking systems operate under monopolistic competition.

The estimated Lerner, H-statistics indexes and Boone indicator provide strong evidence that the banking markets in the Baltic State are characterized by monopolistic competition.

Conclusions, Proposals, Recommendations

The banking sector of the Baltic States has had changes during the last five to ten years. The number of foreign bank branches in the Latvian banking sector from 2005 to 2010 rapidly increased from 1 to 10. The foreign bank branches main business in Latvia is to offer financial services and banking products to non -resident clients. This kind of business was steady for six years from 2010 to 2015. Since 2016, the number of foreign bank branches in Latvia decreased. Considering the implementation of the Basel III criteria by ECB, there is a tendency to reduce the number of market participants in the Latvian banking sector. The number of banks in Estonia and Lithuania also decreased. In 2017 there were six commercial banks and eight foreign bank branches in Estonia and seven commercial banks and eight foreign bank branches in Estonia.

The Estonian and Lithuanian banks' assets value increased from 2012 to 2016, but the total assets of the Latvian banking sector decreased by 7.6% and were 29.50 billion euro in 2016. The Financial and Capital Market Commission strengthened the requirements for the prevention of money laundering, thus reducing the business volume of foreign customer service banks.

Profit earned serves as a basis for developing and improving the quality of banking services, thereby increasing the level of competitiveness. In 2016 the value of the profit decreased in the Baltic State. Visa Europe changed its strategy and redeemed the company's shares from banks that issue Visa plastic cards to customers. Including this effect, the profit increased by 19,5 % in 2016 in the Latvian banking sector.

The Baltic State banks are required to reserve enough capital to cover unplanned losses and maintain their solvency in crisis. Despite the fact that the equity and reserves value of Latvian and Lithuanian banks decreased from 2015,in general, capital ratios remain in the high level, substantially exceeding both: the minimum and total capital requirements.

The value of the foreign currency deposits decreased by 26.3% in Latvian banking sector, dropping to EUR 9.2 billion at the end of 2016. The value of foreign customer deposits declined due to the higher requirements in the Latvian banking sector for prevention of money laundering and terrorist financing, and banks were cleaning up their customer base.

The estimated Lerner, H-statistics indexes and Boone indicator provide strong evidence that the banking markets in the Baltic State are characterized by monopolistic competition.

The monopolistic competition is always the risk for the financial safety and the Baltic State banks can exert the negative impact on the market. That is why Latvian, Estonian and Lithuanian governments should control the operations of the banks in the Baltic State.

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CULTURAL ENTERPRISE MANAGEMENT EVALUATION

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Abstract. The notion of cultural entrepreneurship is the 21st century necessity to define new trends that develop due to changes in economic and social space of life. The researchers see culture as a link between economics, society and technology development that could foster research in the field of creative economy. The evaluation of cultural entrepreneurship is very topical in small and micro-enterprises in Latvia, as the small and medium enterprises form the greatest part of economy playing important role in creating the GDP, employment and business environment.

The research problem – the skills and knowledge of the owners and employees of cultural enterprises on economic use of financial resources do not guarantee valuable artistic results. Therefore, a substantiated question has arisen: how to evaluate management in enterprises with bad financial ratios and outstanding artistic indicators. The research question is: How to evaluate management in cultural enterprises by determining the most important indicators for a cultural enterprises's performance improvement?

General and scientific literature on qualitative research methods, mixed type research, validity of qualitative research data, methods of data analysis and processing have been used in the article as well. Managers with expierence of five years were invited for the focus-group discussion. Evaluation of cultural entrepreneurship – all art galleries, non-governmental theatres and concert organizations in Latvia.

The analysis of the research results, related to particular stakeholders of cultural enterprises reveal the role of the their engagement in evaluation of management. The analysis characterize the importance of the research goal, analysis of each stakeholder's engagement, and indicate the criteria for evaluating activities in cultural entrepreneurship. The evaluation of cultural entrepreneurship can be done by analysing the stakeholders' engagement in assessing the viability, growth and influence of the enterprise.

The author has evaluated the management of cultural enterprises and accomplished their performance analysis by applying the evaluation method in order to determine the practical applicability of the method for evaluation of cultural enterprise management.

The author concludes that the method of cultural enterprise management evaluation provides information for managers about cultural enterprises necessary in evaluation of stakeholders' importance in ensuring the development of enterprise.

The results of this article are applicable in the cultural policy of Latvia for developing the criteria and evaluation indicators for the cultural sector.

Key words: *cultural enterprise, stakeholders, management.*

JEL code: Z1

Introduction

The notion of cultural entrepreneurship is the 21st century necessity to define new trends that develop due to changes in economic and social space of life. The change in economic paradigm is acknowledged by British professor Tim Jackson and the Nobel Prize Winner American economist Paul Krugman who argue that economic development concerns only a small part of society and it is necessary to revise the economic objectives of society (Jackson,2009; Krugman, 2007). The researchers see culture as a link between economics, society and tehnology development that could foster research in the

field of creative economy. For cultural enterprises to be able to develop and provide cultural products also for exports, there is a need for professionally competent managers who would understand the most important operational indicators.

As the scientific discourse develops, the dialogue on contents and attracting the audience in real life became more important, since the the cultural enterprises need to take more risks and find resources for reaching the article's objectives (Walmsley,2013; Conway, Leighton 2012;Colbert,2001;Kolbērs,2007; Kerrigan, Fraser, Ozbilgin, 2004; Hill,O'Sullivan, 2003). Cultural organizations that have received subsidies from the state budget up to now find it necessary to operate according to business principles; therefore, new notions have to be defined and specifics of activity analysed, thus determining the main concerning their performed activities. The Cultural exception principle provides that institutions and organizations of cultural sector are exempt from the free market rules and their contents are protected. At the same time a system has been created where the managers, relying on their special status, demand both financial and material aids to ensure operations of cultural organizations and institutions, while not ensuring management oriented towards development. The classification: pure arts, cultural industry, creative industry and related industries is the most important division in the branch, also marking the differences in financing. However, also within the context of „pure art", entrepreneurship is a process of creating new values, taking risks and attracting resources necessary for reaching the goal. Therefore, fostering of entrepreneurship should not be considered as a method of forcing to make money by any means, but as the most desirable way of using the business management advantages: being able to convince society, financial institutions and state about the value, competitiveness and neccessity of the cultural product.

The ordered study by the European Commission on "The Economics of Culture in Europe" (The Economy of Culture in Europe 2006: 30), defines development from one prototype product to mass production:

-   "Pure art" - performing arts, visual arts, cultural heritage - non-industrial activities, prototypes and potentially copyright objects are created;
-   Cultural industries - films, TV, radio, music, video games, books, press - industrial activities, oriented towards mass reproduction, the outcome is based on copyright;
-   Creative industries - architecture, advertising, design, fashion - activities can be both industrial and prototypes; creativity is a prerequisite;
-   Related industries - computer technology, mobile phone manufacturers, and more - an indefinite category, not a single criterion, includes many sectors of the economy. (fig.1.)

Limitations of the Research. Within the context of cultural entrepreneurship and according to the definition of cultural entrepreneurship and cultural enterprise, this article will analyse only legal entities of performing and visual arts that undertake commercial activities , the basic activities of which are related to creating and promotion of professional art (theatre, dance, symphonic music and classical music) products, and that are not state or municipal limited liability companies. The research does not analyse the personality traits of a cultural entrepreneur. The research does not cover all factors of organization's internal environment.
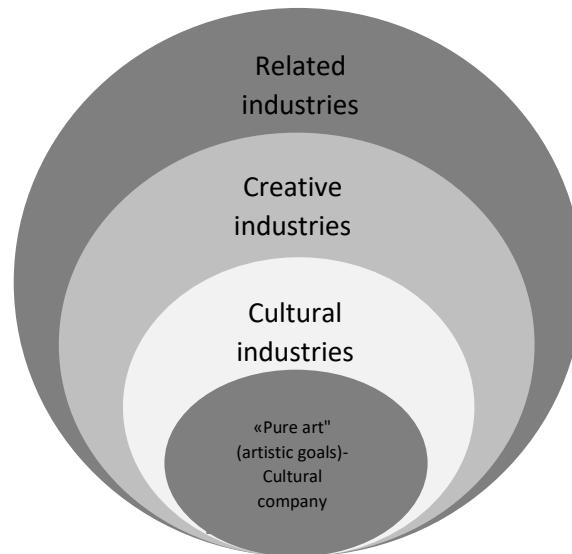
Fig.1 **Cultural companies – theoretical grounds** (source: Throsby, 2008 supplemented by the author's opinion)

The problems in management are determined also by challenges of cultural entrepreneuship, for example, the difference between the capacity of entrepreneurship, for example, the difference between the capacity of entrepreneurship and artistic capacity (Report „Funding Culture, Managing the Risk", 2010:27). However, these theories cannot be applied in micro-enterprises which statistically have less than 5 employees and where the manager's personality plays a greater role then the process management system. Besides, there are other challenges for cultural entrepreneurship, like the risks of entrepreneurship impossibility, because, to reach the objectives of the organization, cultural enterprises basically attract the 3rd party funding. There is a lack of research in management science that could provide a solution for evaluating management in enterprises with bad financial ratios, low profitability but outstanding artistic performance. There is also a problem of how to directly correlate the artistic value creation and ability to find and manage talent. Sustainable management is closely linked to the risky and not easily forecastable, sometimes even ambiguous financial expertize related to understanding of the future value of creative ideas.

According to the research done by UNESCO (2010), there is no direct correlation between strong financial and artistic indicators since also in longer period of time the cash flow can be minimal, while the artistic results – outstanding. According to the legal status a cultural enterprise can also be a non-governmental organization that performs economic activities, therefore it is important to analyse those management evaluation methods which are not linked to the profits as the main assessment indicator.
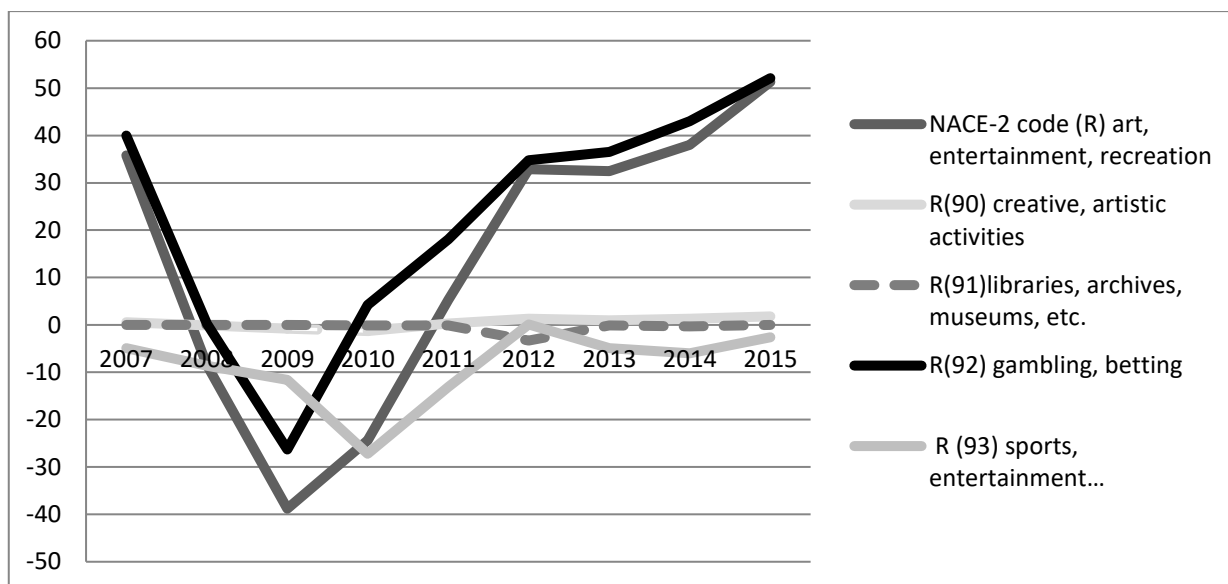
Fig.2 **Profits and losses of enterprises (milj., EUR)** (source: created by the authors using the data of LR CSB)

Figure 2 shows that the Net Profit of the "pure art" R (90; 91) is close to zero both during the crisis as well as after it.

The research problem: The skills and knowledge of the owners and employees of cultural enterprises on economic use of financial resources do not guarantee valuable artistic results. Therefore, a substantiated question has arisen: how to evaluate management in enterprises with bad financial ratios and outstanding artistic indicators.

The topic of the research. The research question are: How to evaluate management in cultural enterprises by determining the most important indicators for a cultural enterprises's performance improvement? What ensures the development of cultural enterprises?

General and scientific literature on qualitative research methods, mixed type research, validity of qualitative research data, methods of data analysis and processing have been used in the article as well. Managers with expierence of five years were invited for the focus-group discussion. Evaluation of cultural entrepreneurship – all art galleries, non-governmental theatres and concert organizations in Latvia.

Research results and discussion

The study "Performing Arts-The Economic Dilemma" (London, 1966) by William Baumol and William Bowen is considered to be the beginning of the cultural economic. They concluded that it is impossible to increase productivity in performing arts by following the market rules, as in this case, to cover the additional expenses related to the price of services due to enlarging remuneration which is not based on increase in productivity, the price of the service should be raised; however, this would diminish the demand. Consequently, a question arises on how to compensate these expenses: should it be done by state or by creating conditions that stimulate businesses and whole society to provide their support. Namely the 3rd funding that ensures the existence of a cultural organization is the main difference between it and other type of business.

The author's focuses on the three most important attributes of cultural entrepreneurship which are essential for assessing the possibilities of applying the enterprise management evaluation methods in cultural entrepreneurship area:

Identification of stakeholders – a classical business organization analyses external environment to find out the necessary activities and solutions demanded or permitted by the external environment factors and to analyse their impact; a cultural enterprise analyses the external environment to discover the resources for ensuring its activities.

Development of audience – the meaning of a cultural enterprise's existence is the product created by it, therefore the cultural enterprise has to educate the prospective consumer to create the demand. Market research, segmentation and finding out the needs of consumer will not ensure demand for the product created by the cultural enterprise. To create the demand, the consumer has to be "educated", his understanding has to be enhanced and desire to appreciate art products have to be created.

Financial support – the sales of enterprise's product or service may not be able to cover the enterprise's expenses, therefore, for the enterprise to exist, the 3rd party funding is necessary.

Management		
Stakeholders	Strategy = reaction	Employees
	⬇	
Process		
	⬇	
Results		
Creation of artistic value	Promotion of artistic value	Society development (understanding arts)
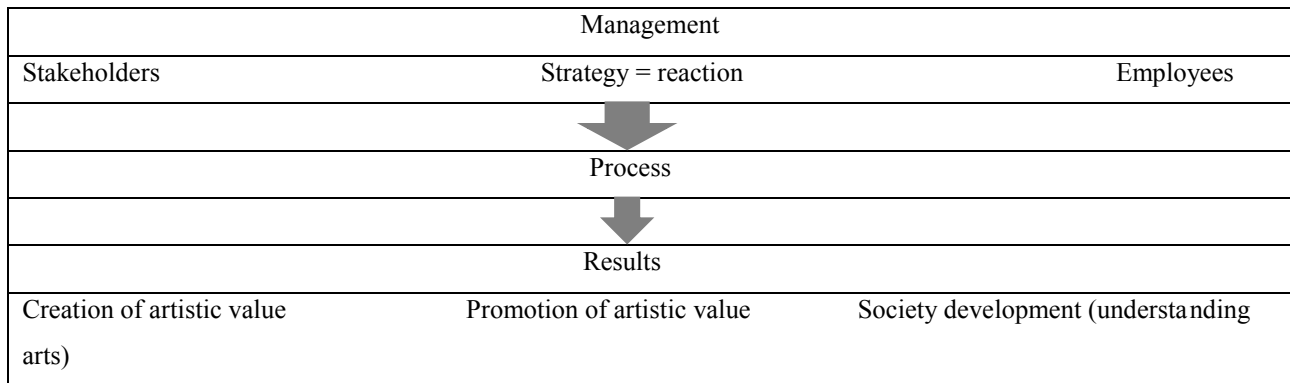
Fig.3 **Adjusted European Business Excellence Model to the evaluation of the cultural enterprise** (source: created by the authors)

An adjusted model according to the assessment of cultural enterprise's performance evaluation (see figure 3) showing that the main results of activities are linked to the cultural enterprise's stakeholders, the managers are also employees and the strategy is not a long-term plan. Therefore, self-management plays an important role, including management of personal resources (time and other resource management), self-motivation and stress management. The authors concludes that in cultural entrepreneurship the roles of a manager and employee overlap, and self-management is the most appropriate form of the management. Cultural enterprises are too dependent on creation of resources, attraction of talents, availability of artistic resources and stakeholders to clearly define a long-term plan of activities, methods and products. In the classical entrepreneurship strategy is a long-term plan with a defined aim, stages in achieving the aim and type of activities; however, a cultural enterprise's strategy is to react to the possibilities immediately, even in cases if it is not linked directly with the aim of the enterprise.

To analyse the role of artistically valuable results within the context of managing cultural enterprises, it is necessary to evaluate the management of sustainable stakeholders (Jagersma, 2009). The stakeholders (Freman,2010;Carroll,1996; Harrison, Freeman,1000; Waddock, Bodwell,2002; Philips, 2003) show that sustainable development of organization can be fostered by purposefully managing important relationship between the enterprise and its strategic partners. The author's assumes that stakeholders are those identified external and internal forces that can impact the process of creation and promotion in a cultural enterprise.

It is possible to determine enterprise's stakeholders by analysing its objectives and consequently defining those groups without support of which the enterprise would cease to exist. To substantiate the stakeholders' engagement necessity and increase credibility, the authors proposes to use AA1000 Stakeholder Engagement Standard that has been designed to underpin formal legal engagements between organizations and stakeholders.To identify the stakeholders according to AA1000 Stakeholder Engagement Standard, the engagement objectives and scope have to be defined and analysis of the engagement process performed. When setting the engagement objective, also economic, ecologic and social indicators have to be identified together with the stakeholders, indicating to what extent the real enterprise's activities meet its

objectives and values, as well as the objectives and values of the stakeholders and the social norms and expectations in their broadest sense.

The author's started the research by creating a focus-group in order to find out the stakeholders in cultural entrepreneurship and to identify the most important aspects for management evaluation for defining the further course of the research more precisely. The methodological substantiation for the focus-group method is the group role in generating a variety of opinions that does not take place during individual discussions (Morgan,Krueger,1997). A focus-group interview provides additional interaction (Lindlof,Taylor,2002) , as the qualitative research has to go further than the understanding reached by offering new solutions and development structure for the issues to be researched (Renģe, Austers, 2004). The managers/owners with experience of minimum five years were invited for the focus-group discussion. Evaluation of cultural entrepreneurship performed by 42 culture enterprises – art galleries, non-governmental theatres and concert organizations was done by the owners or managers of cultural enterprises. The 42 companies are a quite small number, but unfortunately they are all the private companies operating in Latvia in these directions.

Table 1

Framework for evaluation of cultural enterprise

Who provides the development of a cultural enterprise?	Analysis the situation of the sector Focus group discussion	Important stakeholders: artists, clients,art scientists, media, third party funders, cooperation partners
How to evaluate management in cultural business by identifying important stakeholders and performance indicators?	42 cultural enterprise managers and owners interviews. Media Monitoring/Assessment 6 stakeholders in 3 directions- the purpose of the engagement; ensuring involvement; engagement evaluation	Viability (8 evaluation criteria) Growth (8 evaluation criteria) Influence (8 evaluation criteria)
Method for evaluation of cultural enterprise		

(source: created by the authors)

In order for the respondent's to express their point of view clearly and understandably, the authors included numerical evaluation of the stakeholders' impact according to the Likert scale from 1 to 5 points (5 – very important, 4 – important, 3 – somewhat important, 2 – not very important, 1 – not important at all). The quantitative data added to the qualitative investigation supplement the research (Cropley,2002).

Table 2

Importance of the stakeholders

	Art scientists	Clients	Artists	Cooperation partners	Media	Third party funders
Medium	3,66	4,79	4,70	3,60	4,35	3,83
Medium in fine arts	3,70	4,68	4,81	3,27	4,29	3,77
Medium in performing arts	3,60	4,91	4,53	4,10	4,43	3,93

(source: author's calculations)

The average ratio of stakeholders indicates that all the above-mentioned stakeholders are important for ensuring the activities of cultural enterprises, as the medium ratio exceeds 3 points and remains between 3.60 to 4.79 points (see Table No.2). Although creation of artistic value, self-expression and personality development has been perceived as the basic

meaning of cultural enterprises`s existence, the research results indicate that managers of cultural enterprises perceive their clients as the main stakeholders. Orientation towards the client and understanding of the importance of artistic value dissemination indicate the necessity of the notion of cultural entrepreneurship, as the basic concept of entrepreneurship is implemented in reality.

To assess in what way, the stakeholder's evaluation is linked to the longevity of enterprise's operation, Spearman's rank correlation coefficient was calculated (since all data are in metric scale, while the empirical division does not correspond the normal ratio) (see Table No 3).

Table 3

Spearman's rank correlation coefficient of stakeholder's engagement

Stakeholders	Art scientists	Clients	Artists	Cooperation partners	Media	Third party funders
Art scientists	1,000	-,074	,096	,235	,252	,161
Clients	-,074	1,000	,004	,108	,188	,043
Artists	,096	,004	1000	-,015	-,404*	-,140
Cooperation partners	,235	,108	-,015	1000	,374*	,056
Media	,252	,188	-,404*	,374*	1000	,254
Third party founders	,161	,043	-,140	,056	,254	1000
Length of operation	,134	,146	-,209	,071	,607**	-,204

Notes *$p = 0.05$; **$p = 0.01$

The results prove medium positive correlation between:

- Media and cooperation partners;
- Media and length of operation.

The results prove medium negative correlation between:

- Media and artists ($r = -0,404$, $p = 0,013$)

The most important task for the manager of cultural enterprise is to establish involvement with the stakeholders of cultural enterprise. Involvement of stakeholders ensure the viability and growth opportunity of the company as well as efficiency of activities of the company. To ensure evaluation of cultural enterprises by applying the performance evaluation criteria and development perspectives that are oriented towards observation of the stakeholders' interests and coordination of issues with them, the author has created a method for evaluation of cultural enterprise management (see figure 4)
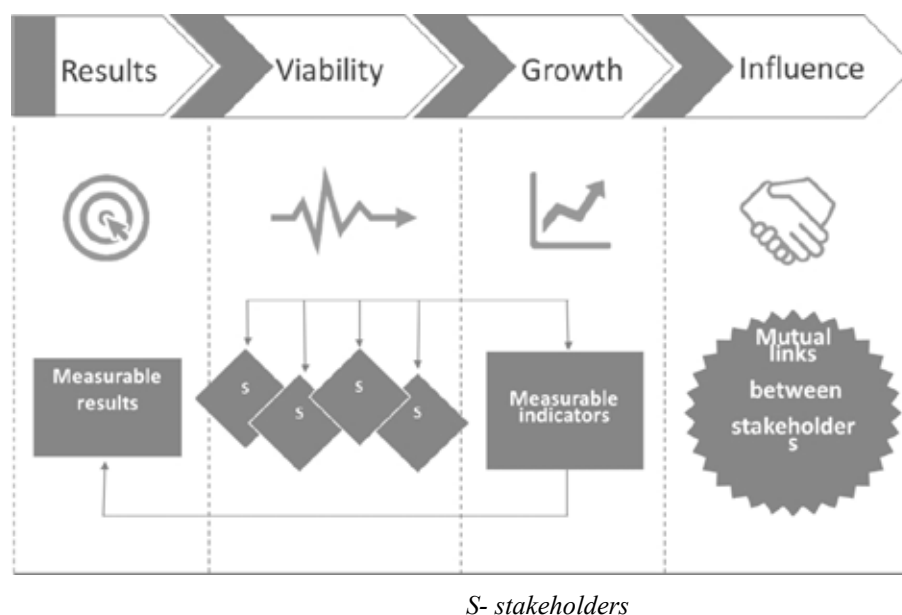
S- stakeholders

Fig.4. **Method for evaluation of cultural enterprise management** (source: created by the authors)

The authors concludes that the engagement has to be evaluated by taking into account the type of results based on the ratio of the stakefolders' importance within the branch, although not providing information about particular activities to be carried out. The aim, process and criteria of engagement for each of the six stakeholders' types precisely determine which of them can foster enterprise's development as a result of mutual engagement. For example, in case the 3rd party financing provider is the state or municipality, it is essential to correspond to the evaluation criteria mentioned in the legislation. For art scholars and critics presentability is important, for media – ensuring broad audience coverage, for cooperation partners – attraction of the audience. Cultural enterprise manager has to assess evaluation criteria most important for each stakeholder and plan the enterprise's activity according to the directions important for the stakeholders. The method can be applied for evaluation of management in any cultural enterprise, by performing analysis systematically, starting from setting the enterprise's aim until the analysis of efficiency.

The authors has evaluated the management of cultural enterprises and accomplished its performance analysis by applying the method for evaluation of cultural enterprise management in order to determine the practical applicability of this method.

The authors concludes that the method for evaluation of cultural enterprise management provides information for managers of cultural enterprises about necessary in evaluation of stakeholders' importance in ensuring the development of enterprise.

Conclusions

The results of research are applicable in the cultural policy of Latvia for developing the criteria and evaluation indicators for the cultural sector.

1. The enterprise's management evaluation in cultural sector is determined by cultural enterprises' orientation towards survival, since the cultural sector can be characterized by a small number of employees, low turnover, and consequently, the maintenance of the existing market positions, not development;

2. The most important evaluation criteria for the management of cultural enterprises operating in Latvia is the result of the cultural enterprises's stakeholder's engagement and the artistic performance result that has to be viewed within the context of the quality values in the branch. The most important results can be classified in three types:

results related to creation of artistic values, results related to promotion of the artistic activities and results related to educating the society;

3. Managers of cultural enterprises can evaluate the impact of Latvian cultural enterprises' stakeholders on the management of the enterprise by analysing enterprise's viability, growth and influence. It can be done by defining enterprise's most important stakeholders, detemining measurable criteria of growth and by monitoring whether the chosen activities are attractive for more than one stakeholder;

4. When compared the research results to those detemined by The AA1000 Stakeholder Engagement Standard, the main reasons for engaging the artists are as follows: the artistic value, ensuring the activities, personal reasons, possibilities for development and growth and sustainable cooperation;

5. Criteria for assessing cultural enterprise's activities can be defined in three directions, by taking as a basis viability, growth and influence;

6. The average ratio of stakeholders indicates that all the above-mentioned stakeholders are important for ensuring the activities of cultural enterprises, as the medium ratio exceeds 3 points and remains between 3.60 to 4.79 points. Although creation of artistic value, self-expression and personality development has been perceived as the basic meaning of cultural enterprise's existence, the research results indicate that managers of cultural enterprises perceive their clients as the main stakeholders.

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TRANSITION TO THE SUSTAINABLE DEVELOPMENT MODEL: THE PRACTICE OF RUSSIAN COMPANIES

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Abstract. The number of Russian companies declaring their commitment to the principles of sustainable development (SD) is increasing every year. In this regard, particular interest is the study of approaches to SD, implemented by companies in practice, characteristic of their features and emerging trends in this field, assessment of the degree of companies' involvement in the transition to SD. Therefore this research aims is to identify the approaches to the interpretation of the company's SD principles and objectives, typical spheres and areas of activities in the field of SD for Russian companies. As a basis of theoretical framework we used concepts associated with the issues of corporate social responsibility (CSR) and SD, as well as research approaches applied within this field. The object of the study is Russian companies, declaring their adherence to the ideas and principles of SD. The sample (focus group) included 12 companies of various industry affiliations, publishing corporate reports on SD on regular basis. Their activities in the field of SD, the results of which are reflected in corporate reports, strategies and policies in the SD field, materials posted on the company's websites became the subject of our analysis. We used methods of qualitative analysis of companies' activity applying a set of parameters reflecting the economic, environmental, social and management aspects of SD activities. The results of the study make it possible to conclude that, in general, the transition to a SD in Russia is unreasonably slow. At the same time, major Russian companies are trying to follow the global trend and to integrate SD principles into activities, corporate strategies, corporate governance, which allows us to observe gradual transition to SD model.

Keywords: *corporate sustainability, corporate sustainable development, model of sustainable development, non-financial reporting*

JEL code: Q01, Q56, M14

Introduction

Topicality. The number of companies, demonstrating their engagement with ideas and principles of SD, is constantly growing. The confirmation of this point lays: in dynamics of corporate reports; in appearance of respective pages on corporate web-sites; in acceptance of standards in the field of SD of organizations and non-financial reports (British Standards Institution, 2006, 2009, 2013a, 2013b; National standard of Russian Federation, 2015; Global Reporting Initiative, 2016); in discussing corporate sustainable development (CSD) questions in international and national business conferences (United Nations Global Compact, 2012). Integration of SD principles into basic activities of companies, key business processes and corporate strategies is worldwide trend and Russia is not an exception.

At the same time, our knowledge about publications in this area and the practice of companies, allows us to conclude that there is no generally accepted approach to understanding SD, its principles and mechanisms, about different degree of involvement of Russian companies in the transition to SD. Usage of a wide range of concepts and their ambiguous interpretation reflects this tendency. For example, researchers widely apply the following concepts: "corporate sustainability", "sustainable corporate", "corporate sustainable development", "corporate sustainable activity", "sustainable development at corporate level". Often we observe a confusion of concepts of "corporate social

responsibility" (CSR) and "sustainable development of companies"; the lack of systematic ("three dimensions") approach to SD; attempts of automatic and formal transfer of SD principles into micro-level – the level of the business organization.

All this indicates the incompleteness of theoretical foundations of CSD formation process and raises a number of *questions* among researchers: is there a relationship between concept of "company sustainable development" and basic concept of SD? are there relationships between concepts associated with CSR issues? how can relevant concepts correlate? It also makes necessary to develop generally accepted approach to the interpretation of CSD and its business model. In general the formation of coherent, consistent *system of views* on the content and goals of CSD, mechanisms for their implementation and corresponding system of concepts will help in many ways. There will be a possibility to eliminate the conceptual problems and contradictions; to increase efficiency of company activities in the field of SD; to make the results of this activity comparable. Furthermore, due to the growing number of Russian companies that declare their adherence to the principles of SD, it is particularly interesting to identify approaches to SD implemented by Russian companies in practice, typical features and emerging trends of their activities. After carrying this analysis, we can evaluate the level of Russian companies' compliance with international and national Sustainable Development Standards, with the United Nations Sustainable Development Goals (United Nations, 2015, p. 44) and the degree of their involvement in the process of transition to SD. Also it is possible to elaborate the *system of activities* focused on increase of business interest in realization of SD model.

Interest in corporate SD issues in Russia, both from the academic and business communities, began to manifest itself only in the second half of the 2000s. At the present time Russian companies have accumulated some experience in the field of SD, the results of first studies are publishing. Among them, one should note materials that are set out in: the Analytical Review of Corporate Non-Financial Reporting for 2015 – 2016 "Responsible business practices in the mirror of reporting system: the present and the future" (RSPP, 2017); the reviews of corporate reporting on the SD by consulting company EmCo (Em|Co, 2015; 2016); the reports of the Skolkovo research group "Sustainable development in Russia: a guide for transnational corporations" (Skolkovo…, 2017); the Collection of essays on corporate practices "Russian Business and Sustainable Development Goals" (RSPP, 2018).

The Russian Union of Industrialists and Entrepreneurs (RSPP), the Association of Participants of the Russian National Network of the United Nations Global Compact, the Association of Managers of Russia (AMR) are working in order to promote SD ideas and principles into Russian companies' practices. Their activities are reflected in a number of initiatives: 1) formation of the Library of Corporate Practices in the field of sustainable development (RSPP); publication of the first Collection of Corporate Practices in the field of SD "Russian Business and the Goals of Sustainable Development" (RSPP, 2018); 2) installation of the National Register of Corporate Non-Financial Reports (RSPP); preparation of Analytical Reviews on Corporate Non-Financial Reports (RSPP); 3) development of a set of indices in the field of SD, corporate responsibility and accountability (RSPP); 4) adoption of National Standard of the Russian Federation GOST R 54598.1-2015 "Management of sustainable development. Part 1. Management" (National standard of Russian Federation, 2015). It should be noted that subjects of these reviews were non-financial reports in the field of CSR and SD of Russian and international companies operating in Russia. Their aims laid in reports' quality evaluation and in disclosure of relevant information, while theoretical aspects of companies' SD and approaches implemented by companies in practice remained poorly understood.

This article shows the results of the research of Russian companies' SD practices. The *aim* of this study is to identify their specific features and emerging trends, spheres and key areas of companies' activities in the field of SD. The study presents a meaningful analysis of these practices and does not contain an assessment of the quality of non-financial reporting on SD and ranking of companies' degree of SD maturity. In accordance with stated aim, we set the following *tasks*: to show the dynamics of Russian companies' reporting on SD; to assess the level of formalization of their activities

in the field of SD; to identify approaches to the interpretation of SD content and goals; to reveal key trends of Russian companies' activity in the field of SD; to assess the compliance of corporate practices in the field of SD with the core principles of sustainable development. As an ***object*** of our study we choose Russian companies, declaring their adherence to ideas and principles of SD. The sample (focus group) includes 12 companies of various industry affiliations, publishing corporate reports on SD on a regular basis. These are two companies in each industry: oil, gas energy, metallurgical, mining and chemical industry; finance and insurance; telecommunications. For the period 2006–2018 these companies published 63 SD reports (9.6% of total number of SD reports published by Russian companies). It should be emphasized that only those companies that position their reports as reports on SD were included in this sample. This, in our opinion, allows us to explore processes of reorientation of companies' activities on the implementation of SD principles and the formation of its business model. The ***subject*** of the analysis is the activities of these companies in the field of SD, the results of which are reflected in 12 corporate reports on SD for 2015-2018, which have undergone external verification procedures (non-financial audit or public confirmation procedures of RSPP) and published their reports in databases of RSPP (National Register, 2018). The choice of corporate reports on SD as a source of information is determined by the fact that at present they are the only reliable sources of data on the companies' activities in the field of SD and the main information tool for their stakeholders. As for other information sources we used materials posted on the companies' web-sites, corporate strategies and/or policies in the field of SD.

Theoretical framework. The theoretical basis of the study is formed by conceptions, associated with problems of CSR and SD[1] and specific research approaches in these fields. *Firstly*, these works disclose the interpretation of SD as a new paradigm of socio-economic development. *Secondly*, they justify the expansion of the problematic research field by incorporating microeconomic aspects and problems of companies' SD (microeconomic interpretation of SD) and, as a result, the formation of a multilevel approach to SD (global, macro (national), regional and micro- (corporate) levels) (Steurer et al., 2005, p. 264). *Thirdly*, they associate with the formation of so-called three dimensions approach to the interpretation of SD[2], which is based on the idea of its three pillars (components) – economic, environmental and social. The latter we consider as the most important methodological basis for the study of SD problems.[3] One of the aspects of the theoretical basis of SD formation is the definition of its *key principles*. These are, in our opinion, principles of *reproducibility, balance* and *inclusivity*. The first principle presupposes the reproducibility of the resources, benefits, living conditions, meeting the needs of present and future generations, preservation and accumulation of the society capital (natural, economic, human, social ones). The balance principle implies a balance of economic, environmental and social aspects of development, interests of present and future generations, interests of society and corporations. The principle of inclusivity is usually interpreted as an orientation on meeting the needs, demands and expectations of society represented by a wide range of stakeholders.

Corporate sustainable development became a subject of research relatively recently, only in the 1990s. (International Institute..., 1992, p. 1). The formation of theoretical foundations of company CSD took place, on the one hand, in the evolution of concepts associated with the problem of CSR, and on the other hand, in result of the SD concept. J. Elkington (Elkington, 1994), T. Dyllick and K. Hockerts (Dyllick & Hockerts, 2002), M. van Marrewijk (van Marrewijk, 2003) and

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[1] By this we mean basic conception of sustainable development and following conceptions: sustainable development of the organization (company), corporate sustainability, green economy, circular economy, inclusive economic growth; conceptions of corporate social responsibility: corporate social responsibility, corporate social performance, creating shared values and corporate citizenship.

[2] Conception of three dimensions of sustainable development was formulated at Worldwide forum in 2002 (Johannesburg Declaration on Sustainable Development) and later became the basis of documents of United Nations, World Bank, OECD, European Union, as well as many countries.

[3] A number of researchers suggest including forth component – managerial or institutional sustainability (conception of Quadruple Bottom Line) (Skolkovo…, 2017, p. 15).

R. Steurer (Steurer et al., 2005) were the first who introduced notions of "sustainable corporation", "corporate sustainability", "sustainability of business" and "sustainable development of business" in their works. Among authors, who attempted to disclose these concepts, to show the connection with notions of SD and CSR, to reveal the foundations of corporate sustainability (three foundations of sustainability) and who made a significant contribution to the development of the concepts of corporate sustainable development and corporate sustainability, we can mention W. Visser, T. Gladwin, E. Krom, A. Lovins, J. Moon, M. Epstein, I. Montiel, J. Delgado-Ceballos, M. Valente.

Many researchers note the ambiguity in the interpretation of the concepts of "corporate sustainability" and "corporate sustainable development" (Montiel & Delgado-Ceballos, 2014; Reinecke J. et al., 2012; Valente, 2012). At the same time, the analysis of publications allows to draw a conclusion that these concepts, as a rule, represents a micro-economic interpretation (at the company level) of the "sustainable development" notion. However, in some works there are attempts to transfer mechanically the basic term "sustainable development" (Our Common Future, 1987, p. 41) from a macro-level to a corporate one (Dyllick & Hockerts, 2002, p. 131). A number of authors emphasize the management aspects of sustainability and define "corporate sustainability" as "a corporate guiding model, addressing the short- and long-term economic, social and environmental performance of corporations" (Steurer et al., 2005, p. 274). In later work, J. Elkington states that "corporate sustainability" can be interpreted not only as a business approach to its long-term survival, but also "as the field of thinking and practice by means of which companies and other business organisations work to extend the life expectancy of: ecosystems (and the natural resources they provide); societies (and the cultures and communities that underpin commercial activity); and economies (that provide the governance, financial and other market context for corporate competition and survival)" (Elkington, 2010, p. 115). M. Epstein proposed a model of business sustainable development in which corporate sustainability is seen as a result of company's activities, including the field of corporate sustainability performance, and implies achievement of economic sustainability (sustainable financial results) (Epstein & Roy, 2001, 2003).

In our opinion, this approach is absolutely legitimate and allows us to consider notions "corporate sustainability" and "corporate sustainable development" as interrelated, but not identical. In the framework of this approach, CSD may be treated as a development that has a certain orientation, implies adherence to ideas and principles of SD. Corporate sustainability can be defined as a result of company's activities, as well as in the area of SD, as a company's ability to adapt to the dynamically changing business environment, to achieve sustainable financial results and to create sustainable competitive advantages. This point of view is increasingly supported in business and scientific community. This is confirmed by the use of the notion "sustainable development of organization" in international documents, international and national standards for SD (BSI, 2006; BSI, 2013a, b; National standard of Russian Federation, 2015). Companies that demonstrate their commitment to the principles of SD are also increasingly using notions "sustainable development of the company", "corporate strategies for sustainable development". However, the content of these notions is treated differently.

In Russia the theoretical and applied issues of CSD became a subject of active study and discussion only in the 2000s, although some aspects of this field were reviewed before (for example, sustainability of organizations, environmental aspects of SD). Among works that deal with certain issues associated with SD of business organizations, we should mention publications of K. Belousov (Belousov, 2012, 2017), A. Kanaev (Kanaev, 2015, 2016), O. Kanaeva (Kanaeva, 2013, 2015, 2016), E. Korchagina (Korchagina, 2008), A. Kostin (Kostin, 2013), E. Kucherova (Kucherova, 2007), Yu. Myachin (Myachin, 2012), N. Pakhomova (Pakhomova, Richter, 2013). Observation of these studies lets us to indicate the lack of generally accepted approach to the interpretation of the content of SD, its goals and mechanisms, as applied to the corporate level. There is an obvious terminological uncertainty – authors operate with notions of "sustainable development of the enterprise (organization, company, entrepreneurial structure)", "stability of the enterprise

(organization, company, entrepreneurial structure)", often identifying them. The view that the CSD is interpreted as a "microeconomic interpretation" of the basic concept of SD dominates in reviewed studies.

Being guided by formulated propositions, the CSD can be defined as a development with a certain orientation and direction that meets principles of reproducibility, balance and inclusivity and assumes three dimensions and measures: economic, ecological and social ones. The multifaceted nature of SD allows us to consider this process: as a *response* to emerging challenges, risks and public's demand for SD; as a new *managerial philosophy* that assumes rethinking of business role in social and economic development, a high level of CSR and the transformation of "dominant worldviews" (United Nations, 2015); as a *strategy* aimed at building long-term competitive advantages of the company, enhancing corporate sustainability and promoting SD of the society; as an *activity* of business organization focused on the reproduction of economic, intellectual, human, social capital of the company and carried out on the basis of principles of SD; as a *form of social responsibility* of business and *contribution* to global SD.

In fact, this is about a new business model – a model of SD, which involves: a) transformation of the corporate values and business objectives, aiming at achieving long-term goals and realizing long-term interest of society (improving quality of life while maintaining the viability of the environment and achieving greater social justice); b) implementation of the principles of reproducibility, balance and inclusivity; c) ensuring the appropriate size of profit, taking into account so-called full, or true, costs[4]; d) high efficiency of resource use, implementation of the principles of a circular economy, reduction of ecological footprints, responsible (sustainable) consumption; e) minimization and elimination of negative intertemporal effects (consequences) of currently made decisions, which can have a negative impact on future generations; f) achievement of economic, ecological and social effects; g) introduction of appropriate corporate management systems.

The above propositions should be considered as the *theoretical and methodological basis* for the study of CSD. **The research methodology** is based on the three dimension approach to SD usage allowing to consider three blocks of information: economic, ecological and social ones, reflecting the results of the company's activities in relevant areas. Recently researchers payed more attention to another block – management, reflecting managerial aspects of the company's activities in the field of SD. In accordance with this complex approach, four groups of parameters, reflecting economic, environmental, social and managerial aspects of company's activities in CSD field were selected. The analysis of them makes it possible to evaluate the compliance of company's activities with the three dimension approach and SD core principles, to identify sphere and key areas of activity (substantive issues).

Research results and discussion

1. *Dynamics and structure of non-financial reporting of Russian companies*. The number of Russian companies engaged in non-financial reporting is increasing every year. At the same time, one should note that the character of this dynamics is unstable. During the crisis, the companies' activity in the sphere of non-financial reporting decreased.

In the National Register and Library of Corporate Non-Financial Reports of the RSPP (the Register hereafter), as of January 1, 2018, there are 167 companies that during 2000–2018 published 826 non-financial reports. These include both Russian and international companies operating in the Russian Federation. The number of Russian companies that published more than one non-financial report in the Register during the reviewed period is 112 (67% of the total number of companies that published the reports). They prepared 726 reports (87.9% of the total number of non-financial reports). Dynamics of non-financial reporting of Russian companies is shown in Figure 1. The decrease in the number of non-

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[4] Total (true) costs are production costs calculated with taking into account costs of reimbursement that environmental production may cause (Chouinard et al., 2011).

financial reports registered in the Register in 2017 is explained by different reporting periods of companies (annually or every two years) and by the fact that the period for publishing and registering 2017 reports continues.
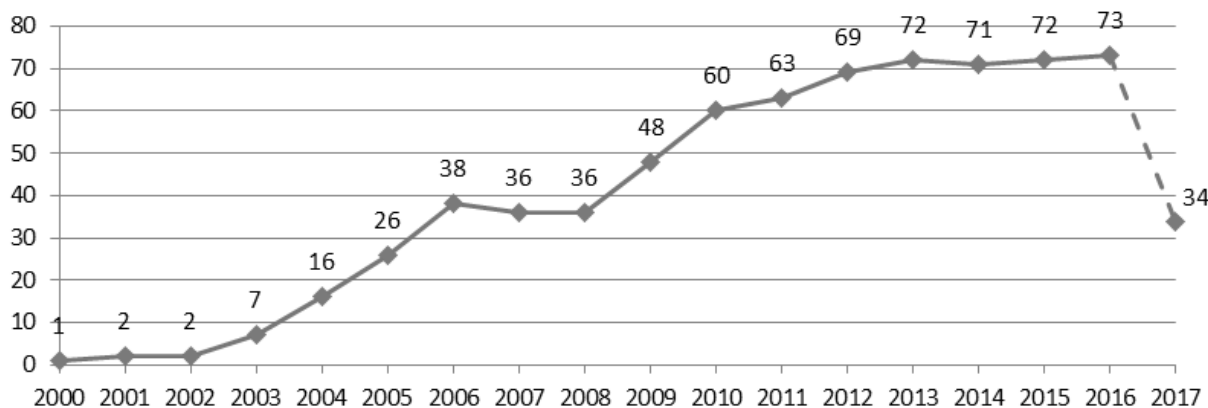
Source: *authors' construction based on National Register and the Library of Corporate Non-Financial Reports* (RSPP, 2018).

Fig. 1. **Dynamics of non-financial reporting of Russian companies**

An analysis of the *industry* affiliation of Russian companies performing non-financial reporting shows that the largest number of reports belongs to energy (174 reports, 24%), oil and gas (142 reports, 19.6%), metallurgy (93 reports, 12.8%) companies. The sectoral structure of non-financial reporting of Russian companies is presented in Figure 2.
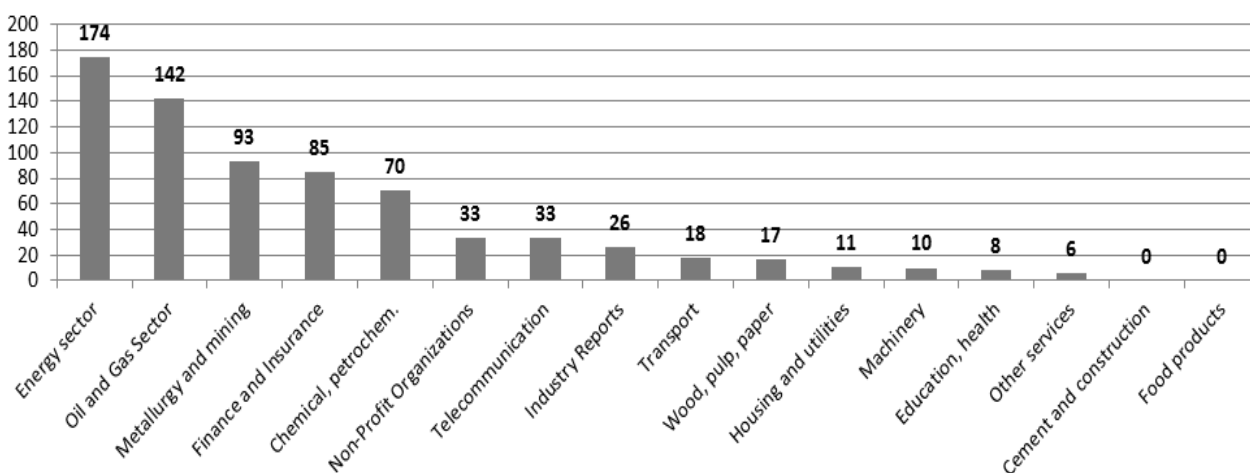
Source: *authors' construction based on National Register and the Library of Corporate Non-Financial Reports* (RSPP, 2018).

Fig. 2. **Sectoral structure of non-financial reporting of Russian companies**

An analysis of the structure and dynamics of non-financial reporting *by reporting type* allows us to conclude that the structure of non-financial reporting has changed significantly over the past period. Despite the fact that social (social responsibility, corporate social responsibility) reports of companies continue to be the main type of report (335 reports, 40.5% of the total number), the number of SD reports (277 reports, 33.5%) is growing, the number of integrated reports is rapidly growing (141 reports, 17%) also, while the share of environmental reports is declining (73 reports, 8.8%).

The structure and dynamics of non-financial reporting of Russian companies (by type of reporting) is shown in Figure 3. Analysis of the data suggests that until 2013, the main type of non-financial report was the one on CSR. Since 2013, CSR reports is beginning to be replaced by SD reports. Since 2009 there has been a trend towards the transition of Russian companies to integrated reporting. The number of environmental reports remains steadily small, which indicates the dominance of three dimensions approach to interpretation of CSR and SD both. Thus, corporate reports, which are

positioned by companies as SD reports, are currently the main type of non-financial reporting of Russian companies. There is a clear trend in the replacement of CSR reporting by SD reporting (Figure 4).
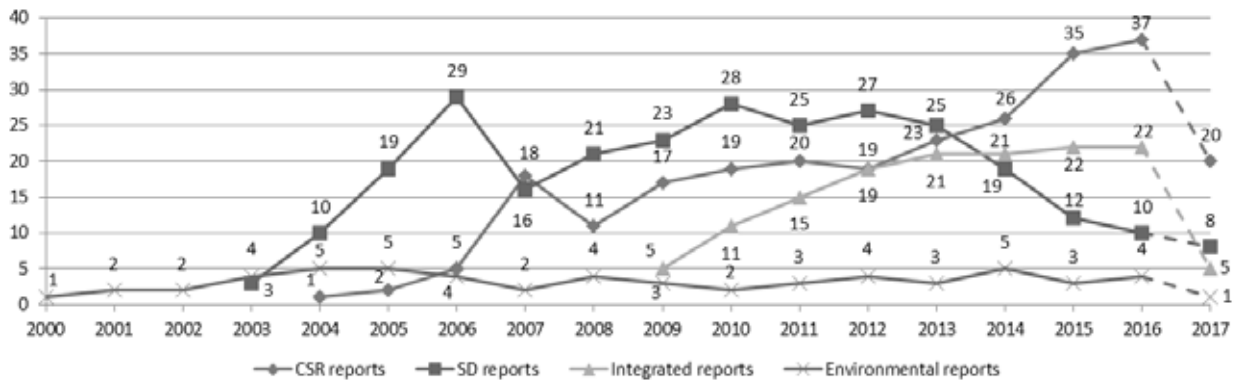
Source: authors' construction based on National Register and the Library of Corporate Non-Financial Reports (RSPP, 2018).

Fig. 3. **Structure and dynamics of non-financial reporting of Russian companies**
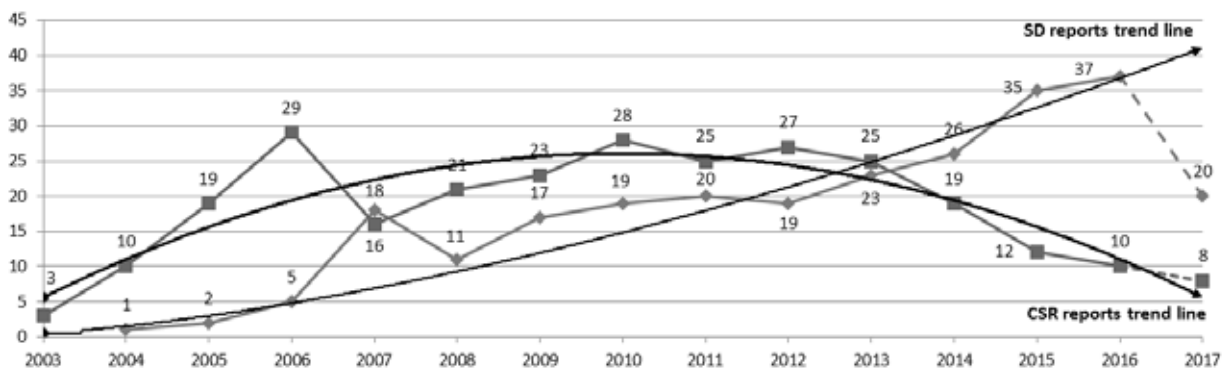
Source: authors' construction based on National Register and the Library of Corporate Non-Financial Reports (RSPP, 2018).

Fig. 4. **Lines of Russian companies trends in reporting on sustainable development and corporate social responsibility**

2. Dynamics in quantity and affiliation of Russian companies, which are demonstrating their commitment to the principles of sustainable development and publishing corporate reports on sustainable development. The number of companies, which registered more than one SD report in the period from 2004 to 2018, reached 40 (35.7% of the total number of Russian companies of the Register). In 2015, the share of SD reports reached 49%. As of January 1, 2018 220 SD reports of large and the largest national companies (79% of the total number of SD reports) were published and registered. It should also be noted that most of them fairly consistently implement the CSR principles, an integrated or strategic approach to CSR. The analysis of the industry affiliation of Russian companies performing non-financial reporting shows that the companies of the energy, oil and gas, metallurgical and mining industries demonstrate the greatest interest in the transition to SD. It should be noted that in such sectors as food industry, machinery and equipment production, timber and woodworking industry, construction and cement production, no Russian company has registered SD reports. In 2017 a trade company, "Detsky Mir" Group of Companies (goods for children) has published a SD report for the first time.

3. Formalization of the companies' activities in the field of sustainable development. By formalization we mean a clear statement of a company's position regarding principles, objectives, directions of company's activities in the SD field, an interpretation of the relevant concept, which is reflected in a corporate strategy and/or company policy in SD,

corporate reports and other documents. We consider formalization as an important tool for managing the company's activities in the SD field, evaluating its effectiveness and informing stakeholders. To assess the level of formalization of activities in the SD field reports, strategic/policy and other documents reflecting their position in the considering area of companies included in the sample.

We carried evaluation according to the following scale: 1 (low level of formalization) – availability of SD report in which the topic of SD is mentioned in the most general, declarative form and a company's position regarding to content, purposes and principles of SD is not disclosed; 2 (medium level) – along with SD report a company develops corporate strategies and/or policies in the SD field, but a company's position is disclosed only in certain aspects; 3 (high level) – these documents clearly state a company's position in the SD field, disclose content of concept, principles, objectives and activities.

Despite the fact that all analyzed reports were positioned by companies as reports on SD (4 companies), on CSR and SD (7 companies), and on corporate sustainability (1 company), the disclose levels of company's position in this area are different. In general, the formalization of companies' activity in the SD field can be estimated as average (1.5) level. The highest indicator on proposed scale (3) can be exposed only by two companies – PJSC "NK Rosneft" and PJSC "FSK UES" (Federal Grid Company of Unified Energy System). Another two companies, in addition to the reports, have separate documents describing the company's position in the SD field ("Rosneft" – "Company Policy in the field of sustainable development" (2009) and "Mobile TeleSystems" (MTS) – "MTS Strategy in the field of corporate social responsibility and sustainable development for 2017–2020 years"). In some cases, the SD and CSR reports more reveals the company's activities in the field of social responsibility ("Mobile TeleSystems", state corporation "Vnesheconombank"). Other companies from the sample disclose their position in the SD field only in a general way or fragmentarily.

4. *Interpretation of goals and content of CSD*. In general, the analysis showed that approaches to understanding of a content of CSD are very diverse. 11 companies out of 12 use the concept of "sustainable development", one company (PJSC "FGC UES") – the concept of "corporate sustainability". However, in both cases there is an attempt to interpret the basic concept of SD at a corporate level. A certain problems for companies are the delineation of their activities in the field of CSR and SD and clear understanding relationship between them. Thus, in CSR and SD report of PJSC "RusHydro" CSR concept is defined as "management practices that implement principles and guidelines for achieving sustainable development" (RusHydro, 2016, p. 36). At the same time, CSD is interpreted as an instrument of CSD.

The key concept "company sustainable development" is disclosed only in 2 cases out of 12 (PJSC NK "Rosneft" and PJSC "FGC UES"). For example, "Rosneft" defines it as a "development aimed at increasing company's shareholder value through improving economic efficiency, developing personnel, maintaining environmental safety, and supporting social environment and economic growth in regions of operation" (Rosneft, 2009).

Determination of company key SD areas requires a clear statement of SD goals. But the formulation of them took place only in 4 companies' reports. Setting goals, in turn, involves assessing economic, environmental and social risks and problems, identifying long-term socio-economic and environmental trends, key stakeholder groups, their interests and requests. In this regard, an important aspect of the analysis of Russian companies SD practice was the study of risk assessment and relations with stakeholder groups, identification of key stakeholder groups and their requests. Reports' analysis shows that companies are increasingly considering an assessment of risks, both financial and non-financial, as a prerequisite for determining the objectives and priorities of companies in the field of CSR and SD. The relevant sections are contained in 7 reports out of 12. There is a tendency to formulate the SD goals with focus on the United Nations Sustainable Development Goals (PJSC "RusHydro", PJSC "SIBUR-Holding", United Company "Russian Aluminum", PJSC "Mobile TeleSystems", PJSC "Rostelecom").

All reports reflect the company's position regarding the stakeholder groups. It is emphasized that building relationships with stakeholders, respecting their needs in the company's activities and corporate strategies area important aspect of CSD. All companies view personnel as a key stakeholder and the important asset. At the same time, it should be noted that a number of companies define stakeholder groups in general terms. The minimum list these groups includes: consumers, employees, suppliers and the local community. In general, we can talk about the introduction of isolate elements of stakeholder management into the CSD practice.

5. *Spheres and key directions of sustainable development of Russian companies*. One of the key requirements of GRI Standard (Global Reporting Initiative, 2016) is the requirement to follow the principle of materiality, which involves identification of the most significant and key issues of SD, relevant areas and priorities for a company. The most companies from the sample declare their adherence to the principle of materiality, but not all companies clearly define areas of activity in the field of SD. It should be noted that companies, using a certain freedom of choice, have formed their own systems of economic, environmental and social indicators and the order of their disclosure, which makes comparative analysis more difficult and requires more detailed research. The results of the analysis of 12 Russian companies' activities, included in the sample, showed that, in general, companies follow the three dimensions approach to SD, in accordance with which they carry out their activities and disclose its results in economic, environmental and social spheres. At the same time, it should be noted that the most companies focus on social issues and aspects of activities, affecting, first and foremost, the company's personnel. This indicates that companies identify social aspects of activities and social component as an important issue of SD. Furthermore it is necessary to note the growing attention of companies to environmental problems and company's footprints, the environmental component of SD.

Conclusions, proposals, recommendations

In general, the results of the study make it possible to draw the following conclusions:

1. Despite the positive dynamics of a number of Russian companies declaring their adherence to SD principles, the transition of Russian companies to SD is unreasonably slow;

2. At present, a group of leading companies in the field of CSR and SD has been formed. It integrates principles of CSR and SD into core activities and corporate strategies. Their strategies in turn are built with a focus on United Nations Sustainable Development Goals (2030 Agenda), introducing corporate systems for managing relevant processes (product quality, risks, development personnel, energy and environmental management systems, stakeholder management, etc.). These facts allow us to conclude that they make a gradual transition to the SD model;

3. Attempts to integrate SD principles into the company's core business and strategy are primarily undertaken by the major public companies operating in a highly competitive environment and with high non-financial risks, whose activities go beyond national boundaries. This indicates that the key driver of the transition to SD is external pressure of a non-administrative nature that reflects companies' desire to follow the global trend of transition to SD. Internal drivers of transition to SD in Russia are currently in the process of formation;

4. Approaches to the interpretation of SD goals and content which Russian companies adhere to in practice are very diverse. This indicates the incompleteness of the process of forming a generally accepted system of views on the CSD. In a number of cases there is a hasty transition to SD, not always justified substitution of rhetoric and CSR reporting with rhetoric and reporting on SD, but there are no fundamental changes in the companies' activities; in general, the level of formalization of companies' activities in the field of SD can be estimated as average;

5. Companies demonstrating their commitment to the SD ideas and principles generally adhere to the three dimensions approach to the interpretation of SD, carrying out activities and evaluating its effectiveness in three spheres (economic, environmental and social ones). More and more attention is paid to the management aspects of SD. At the same time, the

study shows that many companies traditionally focus on social sphere, treating staff, the local community as key stakeholders, and resolving social problems as an important issue (direction) of activities;

6. In general the companies' activities in the field of SD corresponds to the reproducibility, balance and inclusivity principles but, at the same time, the completeness and degree of their implementation can vary significantly; there also are notable industry differences.

Our study allows us to propose a number of suggestions and recommendations, both in the field of academic research and in the development of corporate practices of SD:

1. It is necessary to continue the work on generalization and systematization of approaches to the interpretation of CSD with a view to developing a generally accepted position;

2. Development of a system of parameters which makes it possible to evaluate and compare the performance of companies in the field of SD is an important research task;

3. The question of barriers (constraints) impeding the transition of companies to the SD model should be investigated as fully as possible;

4. In order to increase the interest of companies in the transition to SD model, it is necessary: to develop a system of incentive measures, including those by the Government; to search business arguments (effects) in favor of responsible sustainable development.

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JOB SATISFACTION OF PUBLIC ADMINISTRATIVE PERSONNEL IN GREECE: AN EMPIRICAL ANALYSIS

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Abstract. The aim of this paper is to study the satisfaction of employees from their working environment in Greek public sector. As a case study the Region of Western Greece who will be analyzed, who, on a daily basis, serve the needs of a large geographical region and come into contact with the public as well as with other services at local, regional and national level. In order to achieve this, in 2017 we conducted an empirical research using the structured questionnaire method in accordance with the Minnesota Satisfaction Questionnaire (MSQ) model. Data from 100 district employees were collected and processed descriptively through SPSS. From the findings of this research and in accordance with those of other international surveys, we find that workers are generally satisfied, in a level that can be classified as medium to high. In addition, we note that satisfaction from endogenous factors is higher than exogenous. The Greek public sector needs to become more operational, efficient, decentralized and able to work in a flexible and efficient way, responding to internal and external changes. Ensuring the benefits of public administration will make it more effective and more efficient for citizens, contributing decisively to ending the economic and social crisis that has been rampaging Greece for about 8 years now.

Key words: *Job satisfaction, Public sector, Greece, Minnesota Satisfaction Questionnaire*
JEL code: J45, J81, J88

Introduction

Job satisfaction has been gaining attention from both researchers and managers, especially due to the contemporary proliferation of the idea recognizing the significance of people in terms of achieving competitive advantage and sustainability in organizations. This present study will focus on the satisfaction of workers from their working environment even during difficult economic periods, such as the financial crisis of today. More specifically, work satisfaction is examined between the employees of the Region of Western Greece who, on a daily basis, serve the needs of a large geographical region and come into contact with the public as well as with other services at local, regional and national level.

There have been many researches that attempt to analyze the determinants that affect the job satisfaction of employees in the private and public sector. These researches also look for ways and solutions for high performance, better work quality, sense of stability and at the same time, satisfaction at work. Below we list some of the most important in the public sector, both internationally and nationally. More specifically:

The international experience

Mihailov (2016) published a research regarding job satisfaction and the desire to change work among employees in Serbian public and private sector. It has been noticed that civil servants have higher external job satisfaction and lower

desire to change jobs than their colleagues in the private sector, while at the same time they have lower endogenous satisfaction. Their satisfaction comes mainly from interpersonal relationships, work structure and information within the organization.

Kaiser (2014) studied the job satisfaction and motivation of civil servants in Germany. The sample consisted of 417 employees or 47.7% of civil servants of an average city in the North Rhine-Westphalia region. Satisfaction was moderate to high (M = 6.7 / 10). The findings showed that endogenous factors such as work content and public contact positively affect satisfaction, while external factors such as lack of autonomy at work, difficulty in transferability of qualifications, and lack of an interview in evaluation have a negative impact.

In 2010 the study by Adroviceanu, et.al. using a large sample of 1114 Romanian civil servant, they studied their job satisfaction in such factors as satisfaction with top management, job satisfaction, career management policies, relationships with direct superiors, and the general work impression. They found out that the overwhelming majority of respondents (90%) are happy with their work. In a very large percentage (> 69%), the respondents replied that they have a clear view of the strategic goals of the organization, their efforts contribute to achieving these goals, they are satisfied with the tasks they are undertaking, they feel like team members and appreciate the cooperative spirit between the departments. A significant number of responses (> 40%) considered negative, the impact of remuneration, the lack of transparency in foreign transfers, the response of top leadership to their opinion and the lack of a link between pay and performance.

Jung, et.al. (2007) analyzed six categories of job satisfaction among civil servants in South Korea, such as salary, job security, work content, work environment, personal development, communication and human relations. They concluded that South Korean civil servants are less satisfied with salary and personal development and moderately satisfied with their work content, the environment and communication. On the other hand, they are pleased with the level of job security provided.

Rhodes et.al (2004) studied work satisfaction in 368 Primary and Secondary Education teachers in England. They found work satisfaction to be positively linked to factors such as relationships with colleagues, work towards common goals achievements, the possibility of exchanging experiences with colleagues and the climate of success at school. On the other hand, factors that cause dissatisfaction at work, are the workload, the great burden of dealing with administrative issues, the difficulty of balancing personal and professional life and the society's view of the teachers.

In 2004, Steijn conducted a survey of 12,606 Dutch civil servants, studying the personal and occupational characteristics of employees, the organizational environment, staff management practices and overall satisfaction. The main conclusion was that the satisfaction of Dutch civil servants was not particularly high (M = 3.56). In particular, he found that the influence of personal characteristics was practically low, while labor and organizational characteristics, found to be much more important. It has been observed that staff management practices can affect job satisfaction positively, although, the researcher believes that influence is indirect through the positive influence of certain work and organizational characteristics.

Zembylas and Papanastasiou (2004) investigated the job satisfaction of 461 teachers in the schools of Cyprus. They found out that external factors such as salary, working conditions, labor relations, etc. significantly affect job satisfaction. Conversely, intrinsic factors in work have little effect on satisfaction.

Wright and Davis (2003) looked into the influence of the work environment on the job satisfaction of New York state employees using a sample of 267 workers. Research has shown that routine is a feature that negatively affects job satisfaction while task specificity and staff growth increase it. When looking at the personal characteristics, only the level

of education seems to have some influence which is actually negative. That means that as the level improves the satisfaction decreases. However, this influence is small compared to the previous three.

Riggs and Beus (1993) studied the work satisfaction of teachers in eight US states. The findings were that work satisfaction was moving at moderate to high levels in indicators such as work incentives and hygiene conditions. The same conclusions came from Lacy and Sheehan (1997) in eight countries, including Australia, Germany, Hong Kong, Israel, Mexico, Sweden, the United Kingdom and the United States.

The Greek experience

Chatzopoulou et.al. (2015), investigated the satisfaction of workers in the Regional Unity of Grevena through a sample of 85 employees. The survey showed that both men and women considered the nature of work and working conditions as the satisfactory factors, while salaries seemed to be a less satisfactory factor irrespective of age, gender, education and hierarchy. Regarding the level of education, the employees of compulsory and secondary education pay more attention to working conditions, while technological and university education, appreciate the nature of the work more.

Batiou and Valkanos (2013) investigated the job satisfaction of civil servants in Greece using a sample of 67 employees of the public services sector in Thessaloniki. The average level of work satisfaction was low (M = 3.39). When looking at the exogenous factors, colleagues (M = 4.22) and supervision (M = 4.81) accounted for the highest score. On the other hand, the operational processes seemed to have the lowest rating (M = 2.56) of the exogenous factor, which is attributable to the great bureaucracy and the number of laws and regulations governing the operation of the public sector. It has also been found that the only demographic factor with a significant impact on job satisfaction is age, in contrast to the level of education, that does not seem to affect it.

Platsidou and Agaliotis (2009) looked into the job satisfaction of 127 special education teachers and found their satisfaction to be considered relatively high in aspects of their work, such as satisfaction with the job itself, school management and the organization as a whole. The satisfaction regarding working conditions was moderate, while the one concerning the prospects for promotion and remuneration was low.

Markovits et.al (2007) studied the relationship between the organizational commitment profile and the work satisfaction among workers in the Greek private and public sector. The sample consisted of 1,119 private and 476 civil servants and came from businesses, services and organizations in Northern Greece. Their research has focused on two aspects of satisfaction: exogenous satisfaction (such as salary, job security, staff policies, interpersonal relationships, etc.) and endogenous satisfaction (such as creativity, opportunities for personal development, sense of personal achievement etc). They found that employees in the public sector had significantly more endogenous satisfaction than those in the private sector, with no significant difference in external satisfaction.

Demoussis, M. and Giannakopoulos (2007) found that Greek workers in the private sector were less satisfied than those in the public sector. Indeed, they found that the difference is significantly in favor of the public in all its aspects. Their analysis has shown that this can be explained by the different features of the workers and the internal characteristics of each sector. Although, they consider it worthwhile to investigate the possible connection of the greater public service satisfaction with the corruption phenomenon of the public sector.

Saiti (2007) explored the factors that affect job satisfaction in 1200 elementary school teachers in Greece. He/ She found out that the most important of them are grouped by category as follows: the role of the manager and the school environment, the probability of promotion and the work benefits, the educational administration and job rewards, remuneration, the overall organization of the school (such as clear educational goals and emotional support of teachers by the manager), the general satisfaction that teachers have from their work (eg factors such as feeling that their work is

not important, etc.) and finally the cooperation between teachers (eg factors such as conflicts between teachers at school, etc.).

Koustelios (2001) explored the level of job satisfaction of 354 teachers in 40 Greek schools. The results showed that teachers were satisfied with their relationship with their superiors and working conditions. On the contrary, they were dissatisfied with the salary and promotion opportunities. In the same direction, Koustelios (2005), studying 437 physical education teachers in Greece, found that they were pleased with their own work and supervision, but were dissatisfied with their salary, promotion opportunities and working conditions.

Research Methodology

Research Objective

The purpose of this research is to investigate the job satisfaction among the employees of the Region of Western Greece. Employees serve the needs of a large geographic region and have daily contact with the public and with other services at local, regional and national level. Everyday life and work difficulties create the need for a balance between work and personal life. In particular, the purpose of the survey is:

- Exploring the degree of work satisfaction
- Identifying factors that affect job satisfaction

The survey was conducted using the structured questionnaire method, which in the non-demographic part follows exactly the MSQ model (see Appendix). The data were collected by officials from the Region of Western Greece working in all three regional units. It is recognized that this may prevent the generalization of findings, although the sample size is considered to mitigate this disadvantage. The sample includes officials from all administrative levels.

With 20 questions in the questionnaire, the size of the sample should be around 100. With a modest degree of responsiveness to the questionnaires, the target number of respondents was 150. This figure corresponds to about 25% of the employees in the Region of Western Greece, where almost 600 people are working.

Collection and processing of data

The collection of data took place between November and December 2017. The sample was about administrative officers in the Region of Western Greece working in all three regional units. An anonymous questionnaire was distributed to them. Employees were informed of the purpose of the questionnaire and participated voluntarily. Responses remain confidential and are used for research purposes only.

The questionnaires were collected about 10 days after their distribution. Their completion time was estimated at about 10 minutes. In total, 150 questionnaires were distributed, and 100 responses were collected. Out of the 100 questionnaires returned, the 15 were not fully completed. The answer to questions rate is 1:5 and is considered satisfactory. According to the study by Hinkin (1995), who studied sample sizes in organizational surveys, noticed that the ratio of questions to answers ranged from 1: 4 to 1:10. The responses were 40% from Aitoloakarnania and 30% respectively from Achaia and Ileia with the following general characteristics (Table 1).

Table 1. General characteristics of the sample

Men		Women		No response	
50		37		13	
Age					
25-35	**36-45**	**46-55**	**56-65**	**66+**	**No response**
5	41	36	14	2	2
Marital Status					
Single	**Married**		**Divorced**	**Widowed**	**No response**
24	61		4	2	9

Education Level						
Compulsory Education	**Secondary education**	**Technological education**	**University education**	**Postgraduate**	**Doctorate**	**No response**
4	20	17	50	3	3	3

Service Time						
0-5	**5-10**	**10-15**	**15-25**	**25-30**	**30+**	**No response**
66	23	12	0	0	0	2

Position			
Employee	Manager	Senior Manager	No response
61	23	8	7

Monthly Income						
Until 500€	**501€-700€**	**701€-1000€**	**1001€-1200€**	**1201€-1500€**	**1501€-2000€**	**No response**
1	4	42	26	15	9	3

Source: Data research

The analysis of the collected data was made descriptively by means of the statistical SPSS package.

Statistical accuracy of indicators

In order to check the consistency of satisfaction questions, Reliability Analysis was used to calculate the Cronbach Alpha coefficient. Due to the small number of tiered questions, the reliability analysis is performed in total for all categories and not for each one (Table 2).

Table 2. Cronbach's Alpha coefficient

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,908	,909	20

Source: Data research

The data processing and results show that the Cronbach Alpha coefficient = 0.908 confirms the reliability of the queries used. Consequently, the results of the statistical analysis below are considered safe.

Results and Discussion

For the satisfaction assessment the MSQ questionnaire was used in its short format containing 20 questions (see Appendix). This includes two categories:

- •Endogenous satisfaction (questions: 1, 2, 3, 4, 7, 8, 9, 10, 11, 15, 16, 20)
  •Exogenous satisfaction (questions: 5, 6, 12, 13, 14, 17, 18, 19)

The answers to the questionnaire are weighted on a five-level scale as follows: 1 = minimal, 2 = little, 3 = satisfied, 4 = enough, 5 = very much. Respondents are asked to assess the extent to which one of the proposed factors is applicable. The results of the analysis are plotted by each category of satisfaction, both with respect to the averages of the answers and the number of respondents who rated each factor low (1 or 2 in the scale) or high (i.e. 4 or 5 in the scale).

Endogenous Satisfaction

Endogenous satisfaction showed the following descriptive measures, as detailed in Table 3 below.

Table 3. Descriptive measures of endogenous satisfaction

	N	1ή 2	4 ή 5	Mean	Std. Deviation
Activity: the possibility of being busy at all times	100	14	51	3,60	1,025
Independence: the opportunity to work alone	98	39	20	2,84	1,249
Variety: the opportunity to do different things from time to time	99	35	38	3,15	1,358
Social status: the opportunity to be a valuable member of the society	98	34	20	2,85	1,230
Ethical values: the ability to do things that are not against my conscience	97	22	40	3,36	1,268
Security: the stability at the workplace	100	14	68	3,75	1,114
Social Responsibility: the opportunity to do things for other people	97	17	60	3,65	1,242
Power: the opportunity to tell people what to do	99	23	30	3,20	1,125
Ability exploitation: the ability to do something that takes advantage of my abilities	99	30	38	3,27	1,316
Responsibility: the freedom to use my judgment	97	31	24	2,96	1,233
Creativity: the opportunity to test my own methods while working	96	33	20	2,93	1,172
Achievement: the sense of accomplishment I get from my job	100	32	32	2,98	1,247
Valid N (listwise)	89				

Source: Data research

As we can see from the results of our research and in accordance with the findings of Jung, et.al. (2007) the most endogenous work satisfaction that workers receive, is from security at work (M = 3,75), which is guaranteed by the law of permanence in the Greek public administration. Negative responses are likely to refer to specific responsibilities held by the respondent and not related to the job itself. Also important for respondents is the feeling of social responsibility (M = 3,65) by doing things for other people and being constantly active (M = 3,60), as Kaiser concludes (2010). Ethical values (M = 3,36) lie high in the answers, as the overwhelming majority think that it is important not to work against our consciousness. However, it is important to find that 1 in 4 is forced to do things that are incompatible with their ethical principles. Positive work satisfaction is affected when the employee performs work using his or her skills (M = 3,27). However, a significant percentage (around 30%) considers that skills are lost and not exploited. Likewise, most

respondents find satisfaction through the variety of their work (M = 3.15). However, there is also a 35% of the respondents who are unhappy because of the monotony of their work, as shown by the Wright and Davis (2003) study.

In contrast, the majority of workers show dissatisfaction with their autonomy at their work (M = 2.84), as shown by the Kaiser study (2010). Similarly, most respondents expressed dissatisfaction with the fact that they have limited creativity (M = 2.93) at their work in the public sector and cannot use their judgment (M = 2.96). Also, 1 in 3 respondents and in agreement with the study of Rhodes et.al (2004) are not satisfied through their work (M = 2.98) and about 40% consider that the social position resulting from their work falls below of expectations (M = 2.85).

Exogenous satisfaction

Exogenous satisfaction gave the following descriptive measures, as detailed in Table 4 below.

Table 4. Descriptive measures of exogenous satisfaction

	N	1ή 2	4 ή 5	Mean	Std. Deviation
Supervision-Human Relations: the way supervisors handle the employees	97	29	30	3,14	1,258
Supervision-Technique: the ability of the supervisor / manager to take decisions	98	25	24	3,22	1,145
Policies and Practices: The way in which the policies of the service are implemented	100	53	12	2,46	1,184
Remuneration: The pay and amount of work	99	68	2	2,04	,968
Growth: the possibilities for promotion in this job	99	55	6	2,38	1,095
Recognition: the way of praising when a job is done well	100	41	10	2,65	1,192
Colleagues: the way of co-existence between colleagues	100	24	34	3,22	1,125
Working conditions: the conditions of the workplace	100	38	16	2,79	1,224
Valid N (listwise)	94				

Source: Data research

From the analysis about exogenous job satisfaction, we found that the majority of respondents are pleased with the cooperation with their colleagues (M = 3,22), as in the studies of Batiou and Valkanos, 2013; Adroviceanu, et.al. In regard to the supervisory factor, as expressed both by the way in which the employees are handled (M = 3,14), as well as the superior's ability to make decisions (M = 3.22), the views of the respondents are shared.

On the contrary, as expected, and according to the research by Chatzopoulou et al., 2015, Adroviceanu et al., 2010, Platsidou and Agaliotis, 2009, Jung, et al., 2007, Koustelios, 2005; Koustelios, 2001; employees' dissatisfaction with their remuneration is strong (M = 2.04), as well as their potential for growth (M = 2.38), which is probably attributed to the obsolete promotional system prevailing in the Greek government. Similarly, respondents appear dissatisfied with the recognition of their work (M = 2,65) and the policies and practices of their service (M = 2,46), contrary to the findings of Adroviceanu et al. (2010). Finally, 4 out of 10 workers consider their working conditions to be unsatisfactory, as concluded by Koustelios (2005).

Overall, the individual responses to endogenous and exogenous satisfaction reveal that the endogenous satisfaction of creativity, skill development, personal achievement, security, etc., is higher than the external one, ie the factors such as the remuneration, development, working conditions, supervision, etc., which in a large part is probably due to the deep economic and social crisis Greece has experienced over the past 8 years (Table 5).

Table 5. Average and variation of satisfaction by category

Satisfaction	Average	SD
Endogenous	3,208	0,747
Exogenous	2,648	0,883

Source: Data research

Conclusions

In this article we have investigated the satisfaction of employees from their work environment in the Greek public sector during difficult economic times. More specifically, work satisfaction is examined between the employees of the Region of Western Greece who, on a daily basis, serve the needs of a large geographical region and come into contact with the public as well as with other services at local, regional and national level. In order to achieve this, in 2017 we conducted an empirical research using the structured questionnaire method in accordance with the MSQ model. Finally, data from 100 district employees were collected and processed descriptively through SPSS.

From the findings of this research and in accordance with those of other international surveys (Batiou and Valkanos, 2013; Kaiser, 2014; Steijn, 2004; Lacy and Sheehan, 1997; Riggs and Beus, 1993) we find that workers are generally satisfied, in a level that can be classified as medium to high. In addition, we note that satisfaction from endogenous factors is higher than exogenous. More specifically, with regard to the factors of endogenous satisfaction, the highest work satisfaction the workers receive is from safety at work and sense of social responsibility. In contrast, the majority of workers show dissatisfaction with their autonomy at work and the limited scope for exploiting their creativity and crisis. Also, the most important exogenous satisfaction comes from working with colleagues. Finally, as expected the workers' dissatisfaction is strong in regard to the level of their salaries, with the opportunities for their development and the recognition of their work.

The Greek public sector needs to become more operational, efficient, decentralized and able to work in a flexible and efficient way, responding to internal and external changes. Ensuring the benefits of public administration will make it more effective and more efficient for citizens, contributing decisively to ending the economic and social crisis that has been rampaging Greece for about 8 years now.

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Appendix: Research Questionnaire

A. General characteristics

Gender:

Age:

Marital Status:

Education Level:

Service Time:

Position:

Monthly Income:

B. Endogenous and exogenous job's satisfaction questions

	none	scarcely	fairly	much	very much
1.the possibility of being busy at all times					
2. the opportunity to work alone					
3. the opportunity to do different things from time to time					
4. the opportunity to be a valuable member of the society					
5. the ability to do things that are not against my conscience					
6. the stability at the workplace					
7. the opportunity to do things for other people					
8. the opportunity to tell people what to do					
9. the ability to do something that takes advantage of my abilities					
10. the freedom to use my judgment					
11. the opportunity to test my own methods while working					
12. the sense of accomplishment I get from my job					
13. the way supervisors handle the employees					
14. the ability of the supervisor / manager to take decisions					
15. the way in which the policies of the service are implemented					
16. the pay and amount of work					
17. the possibilities for promotion in this job					
18. the way of praising when a job is done well					
19. the way of co-existence between colleagues					
20. the conditions of the workplace					

CHEAP DEBT OR DELAYED EQUITY? THE MOTIVES FOR THE USE OF CONVERTIBLE BONDS BY COMPANIES IN POLAND

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Abstract. This article is likely the first to provide a comprehensive analysis on the use of convertible debt in the Polish capital market considered to be the biggest corporate bonds market in Central and Eastern Europe. The purpose herein is to identify motives behind the issuance of convertible bonds carried out by public companies listed on the Warsaw Stock Exchange. Empirical examination on 58 convertible sales conducted from 2009–2017 and financial characteristics of their 33 issuers leads to a number conclusions. First, it seems that less indebted and more profitable companies using convertibles for investment purposes may perceive them as delayed equity in order to avoid the issuance of undervalued common stock. Second, firms in financial distress issuing convertible bonds to restructure their liabilities may treat them as backdoor equity financing to reduce time and costs of selling common stock through public or private offerings. Third, several firms are likely to issue convertible debt for tax benefits available under Polish law. This paper's findings relate to research in international finance on determinants for hybrid debt issuances and extends knowledge of the reasoning behind the issuances of convertibles by companies from Central and Eastern Europe economies.

Key words: *corporate finance, convertible debt financing, the Polish capital market*

Introduction

Convertible bonds are the most well-known hybrid securities used by firms searching for instruments that can solve both equity- and debt-related problems linked with external financing. The convertible debt market started to grow rapidly in the 1950s in the United States where convertibles were issued by growth companies seeking for fixed-income instruments with lower yields. In the 1960s, these were commonly used in merger-and-acquisition transactions. In the 1980s, they gained interest amidst investment-grade companies for which hybrid debt was the most suitable source of capital under high interest rates and cheap stock markets. It was not until the 1990s when convertibles became popular in Asia (mainly in Japan and South Korea) and Western Europe (mostly in Great Britain, Germany, France, Netherlands, and Switzerland) (Calamos, 2017).

There are a number of theoretical explanations as to why companies issue convertible debt. First, it can be used to reduce adverse selection costs due to information asymmetry about firm value and hence is considered as backdoor equity financing (Stein, 1992). Similarly, convertibles are deemed to mitigate adverse selection problems resulting from a disagreement between managers and outside investors on the risk of the issuing company. The hybrid nature of convertible bonds makes their value rather insensitive to the risk of the issuer and thus, they tend to be fairly priced by the market compared to straight debt (Brenan and Schwartz, 1988). Second, convertible bonds can be utilized as a tool eliminating underinvestment caused by risk-shifting problems. Theses constraints arise from agency conflicts between bondholders and stockholders and the incentives of the latter to engage in high-risk, negative net present value investment projects at the expense of creditors (Green, 1984). Third, convertibles can be used to avoid agency managers-shareholders conflicts and resolve an overinvestment problem, when companies have a sequence of investment opportunities (Mayers, 1998).

All rationales mentioned above were then confirmed in numerous quantitative, large sample studies (see, for example, Lewis et al., 2001, 2003; Dutordoir and Van de Gucht, 2009). There are also few papers using a survey and interview approach giving an insight into the issuer motivations behind convertible offerings and confront academic findings with practitioners' views (see Graham and Harvey, 2001; Bancel and Mittoo, 2004; Brounen et al., 2006; Bancel et al., 2009). Most survey evidence suggests that convertible bonds are considered by firms as a delayed equity or a cheap debt. In the first case, hybrid debt enables the issuing companies to raise equity capital at a higher price at some point after convertibles issuance in comparison to common stock offerings. In the latter, a conversion option embedded in convertible bonds simplifies issuers to reduce borrowing costs by selling fixed-income securities with a lower coupon compared with straight debt.

Despite a large body of empirical literature on the motives driving convertible debt issuances among companies from developed financial markets, such as the American or the Western European markets, very little is known about the use of convertibles by firms from emerging economies, i.e. Central and Eastern Europe (CEE). Due to young and less-developed capital markets and a limited knowledge of local companies about the possibilities to raise funds outside the banking sector, the issues of convertible bonds in the CEE region are not very common. This translates into a small interest of researchers to explore the subject of convertible debt financing in this part of Europe. The question of the use of convertibles by companies from CEE countries seems to also be marginalized on the global research level (see, for example, Bancel and Mittoo, 2004). Thus, it is still unclear what exactly motivates firms from transitional economies to issue convertible bonds and what makes the hybrid debt market attractive for them. We also do not know the answers to other basic questions, such as: What are the financial characteristic of convertible issuers from the CEE region and in which economic sectors do they operate? Is it their financial performance that inclines them to issue convertibles or is it the market situation (e.g., high stock volatility or stock market recovery) that force them to use hybrid debt? What are the main non-price features of convertible issues (e.g., coupon, size of issue and maturity)?

This article intends to fill the gap in the existing literature by providing useful insights into the determinants for convertible bonds issues conducted by firms from CEE. To be more specific, it concentrates on the biggest and most developed capital market among all CEE countries, namely on the Polish capital market. It undoubtedly dominates the rest of the CEE markets in terms of infrastructure quality, institutional environment, capitalization, annual trading turnover, number of listed companies and traded instruments. It is also deemed as the biggest convertible debt market in the entire CEE region. Since the 1990s. (the first convertible issue took place in June 1996) about 70 public companies have issued 100 convertible bonds worth around 1 billion U.S. dollars (approx. 4 billion Polish zlotys). For comparison, as recently as 2015, convertibles worth nearly 81 billion U.S. dollars were issued worldwide (48% in the US, 32% in Europe, 20% in Asia) (Calamos, 2017).

The goal of this paper is to identify factors driving issuance of convertible bonds in the Polish capital market. It examines the issues conducted by public companies listed on the Warsaw Stock Exchange over the period of 2009 to 2017. It focuses on two important rationales for the use of convertible debt identified over the past forty years, namely the use of convertibles for investment and restructuring purposes. The article finds the answers to the following questions. Do Polish companies perceive convertibles as an alternative of straight debt or a substitute for common equity? What motivates firms in Poland to use convertible bonds: to reduce borrowing costs of fixed-income securities or to increase equity capital through the backdoor? Are the motives for the issuance of convertible debt among Polish companies similar to those that drive issues of hybrid debt in more developed capital markets? This paper makes two main contributions to the literature on convertible bonds financing. First, by providing information about the functioning of convertible bonds market in Poland, it complements the studies on motives for convertible issuances and extends the knowledge about

reasons driving convertible issues by companies from CEE and transitional economies. Second, it is likely to be the first article that provides a comprehensive analysis on the use of convertible debt in Poland.

In line with the sequential financing hypothesis of Mayers (1998) and the concept of backdoor equity financing of Stein (1992), one can hypothesize that companies using hybrid debt for investment purposes may perceive convertibles as delayed equity. The idea behind this is that for various reasons, firms may be willing to avoid the issuance of common stock and prefer to raise equity through the backdoor via debt conversion soon after the convertible issue. Stein (1992) links this need with the issuers' undervaluation: the issuance of convertible bonds helps them to increase equity capital at a later timer and at more favorable conditions in comparison to the issuance of common stock. Close to Huang and Ramirez (2010), and Gomez and Philips (2012), this strategy may also arise from the issuers' intention to bypass the public offering of common stock due to high costs and the length of the entire process, especially since the majority of convertibles are usually sold in the private market. According to Mayers (1998), convertibles are also a perfect tool to finance multi-staged investment projects. He suggests that if the future investment option of the issuer turns out to be in-the-money, bondholders convert convertibles into common equity, which enables firm to raise additional debt at a lower cost due to positive changes in its capital structure.

As for the use of convertibles for restructuring purposes, it can be presumed that companies may consider such bonds as a sort of cheap debt. In order to rebuild debt structure and to reduce the borrowing costs, firms sometimes try to redeem high-interest corporate bonds and bank loans before maturity, and replace them with low interest-bearing convertible debt, which is usually cheaper due to embedded conversion option (see, for example, Bancel and Mittoo, 2004). The main goal of this action is to strengthen issuers' cash flow and their working capital, but increasing equity capital via debt conversion becomes of secondary importance. Moreover, by selling convertibles privately, which is usually the case, companies can decrease high flotation costs of selling corporate debt in the public markets (Arena, 2010).

For the purpose of the article, a unique database on the issuance of convertible bonds carried out in the Polish capital market was assembled. It encompasses 74 convertible sales conducted by 38 companies listed on the Warsaw Stock Exchange (WSE) over the period from 2009 to 2017. The database was created manually using annual reports of the issuing companies, market disclosures, stock exchange data, and press reports. The process of creating the final sample was as follows. First, it contains only firms that were publicly-traded at the moment of convertible issues and it does not include the companies which went public after convertible sale. Second, the sample does not comprise four issues carried out by three foreign companies listed on the WSE, but which placed their convertibles in the foreign stock exchanges outside Poland. Third, the issues conducted within capital groups related to a single stakeholder have been excluded from the sample, since they might be used for tax motives not investigated in this paper. Four, two firms carried out issues divided into several tranches with the same characteristics. Hence, in order to capture the purpose of issue, a few tranches were combined into one issue which has been then analyzed. After implementing these restrictions, the final sample encompasses 58 issues of convertibles carried out by 33 firms, of which 38 were sold for investment and 20 for restructuring purposes. The investment activities include, among others, the construction of new plants, investments in real estate projects, and merger and acquisition transactions. The issues for the restructuring process embrace, for instance, repaying liabilities, debt rollover and reinforcing the capital base.

The process of sample selection requires some further explanations. First, the sample includes data around the global financial crisis, but it may not influence the research results, since Poland seems not to have been affected by economic turmoil as were other European countries (Gradzewicz et al., 2014). Second, in order to provide a comprehensive analysis of hybrid debt market in Poland and to get a broader view of the motives for hybrid debt issuance, the sample comprises convertible sales conducted by both financial (mainly venture capital and private equity funds as well as firms from

homebuilding sector) and non-financial firms. The study limited to each group separately would perhaps bias the findings due to a small number of observations in each subset of the data. For the same reason, firms that were very active in convertible debt market and capture a significant fraction of the total convertible issuance activity were not excluded from the sample, since very often they sell convertibles in different years in which their financial situation was disparate.

The empirical research itself was divided into four parts. In the first part, the evolution of convertible debt market in Poland was presented, focusing on the number of issues and amount raised by sample companies between 2009 and 2017. The second part is devoted to the analysis of major features of convertible debt issues (including amount raised, maturity, and coupon) and the study of broad set of firm-level characteristics (including measures of size, market value, profitability, leverage, liquidity, and capital structure), differentiating between issues carried out for investment and restructuring purposes. The financial data comes from the most recent annual financial reports from the last year preceding the convertible issue. The third part presents the results of logistic regression model identifying key factors driving the issuance of convertibles debt to finance new investment projects and to restructure firms' liabilities. In the last part, the relation between the purpose of issue and a decision of bondholders to convert debt into equity is analyzed to find out whether companies consider convertible bonds as a source of cheap debt or as a deferred equity financing.

Empirical research and discussion

The evolution of convertible debt market in Poland between 2009 and 2017 is reported in Table 1. It is shown that total amount raised for investment and restructuring purposes through convertible issues by Polish companies (58 issues in total) exceeds 1.5 billion Polish zlotys (hereafter: PLN), of which about 70% was raised for the investments process (approx. 1.1 billion PLN) and 30% to restructure liabilities (approx. 0.5 billion PLN). The majority of issues (exactly 33) amounting to approx. 1.0 billion PLN were carried out between 2011 and 2014. The most funds for investment purposes were collected from 2009 to 2011 (27 issues worth approx. 700 million PLN). As for the restructuring process, the record years were 2009 (3 issues, 160 million PLN) and 2013 (7 issues, 133 million PLN).

Table 1

Number of convertible issues and amount raised for investment and restructuring purposes between 2009-2017

Year	Number of issues			Amount raised		
	Investments	Restructuring	Total	Investments	Restructuring	Total
2009	5	3	8	181.5	160.2	341.6
2010	4	0	4	168.2	0.0	168.2
2011	8	0	8	347.6	0.0	347.6
2012	5	5	10	34.6	70.7	105.3
2013	3	7	10	112.3	132.9	245.2
2014	4	1	5	217.1	81.5	298.6
2015	4	2	6	32.5	21.0	53.5
2016	5	1	6	11.7	5.0	16.7
2017	0	1	1	0.0	14.5	14.5
Total	38	20	58	1105.4	485.8	1591.2

Note. Data on amount raised are in million Polish zlotys (PLN).

Source: author's calculations based on his own database.

Table 2 displays the number and the size of convertible issues with respect to the sector classification of the issuing companies. The conclusions are as follows. First, the majority of convertibles in Poland are issued by firms from consumer cyclical and financial sector (32 issues worth 850 million PLN, representing 55% of all issues during period analyzed). Second, about 66% of companies use convertibles for investment purposes, especially from financial, consumer cyclical, energy, and technology sector; but in the case of the last two, the amount raised through convertible debt is significantly

smaller (worth only approx. 90 million PLN raised in 8 issues corresponding with about 650 million PLN raised in 24 issues by financial and consumer cyclical firms). Third, about 33% of firms issue convertibles for restructuring purposes. Convertible debt is most often used by big industrial conglomerates (3 issues totaling 194 million PLN) and firms from the consumer cyclical sector (5 issues amount to approx. 150 million PLN). Restructuring issues were also popular in the non-cyclical sector, but as many as 7 issues were carried out by only 1 firm.

Table 2

Number of convertible issues and amount raised for investment and restructuring purposes between 2009-2017 according to sector classification

Economic sector	Number of issues			Number of firms			Amount raised		
	Investments	Restructuring	Total	Investments	Restructuring	Total	Investments	Restructuring	Total
1. Consumer Cyclical	13	5	18	9	4	13	365.5	147.0	512.5
2. Financials	11	3	14	4	1	5	290.2	50.0	340.2
3. Consumer Non-Cyclical	4	7	11	1	1	2	251.8	59.3	311.1
4. Energy	6	-	6	4	-	4	87.5	-	87.5
5. Industrials	-	3	3	-	3	3	-	194.5	194.5
6. Healthcare	1	1	2	1	1	2	99.8	5.0	104.8
7. Basic Materials	1	1	2	1	1	2	4.8	30.0	34.8
8. Technology	2	-	2	2	-	2	5.8	-	5.8
Total	38	20	58	22	11	33	1105.4	485.8	1591.2

Note. Data on amount raised are in million Polish zlotys (PLN). Economic sectors are in line with Thomson Reuters Business Classification (TRBC). Source: author's calculations based on his own database.

The second part of the study addresses two questions, specifically: What are the main features of convertible issues depending on the purpose of issue outlined by the issuers, and what is the financial situation of the issuing companies?

Table 3 presents four non-price features of convertible bond issues: maturity, coupon, amount issued, and the size of issues in relation to the issuers' total assets. The results show that, first, the average restructuring issues are almost twice smaller (both in nominal value, $Mdn = 10.2$, and in relation to total assets, $Mdn = 0.05$), relatively cheaper ($Mdn = 0.07$) and have about half a year longer maturity ($Mdn = 1278.5$), compared to the size of issue (in nominal value, $Mdn = 18.6$, and in relation to total assets, $Mdn = 0.07$), coupon ($Mdn = 0.10$) and maturity ($Mdn = 1082.0$) of convertible bonds issued to finance new investments. Second, an average coupon of restructuring convertibles is 3 percentage points lower than the coupon for bonds issued for investment purposes. Third, a relatively low level of the issue size-to-assets ratio for both groups may suggest two things: that convertible debt do not constitute the main source of external financing or the issuers are rather big companies. Forth, it is noteworthy that the Mann-Whitney U test indicates the lack of statistically significant differences between two groups analyzed in terms of all non-price characteristics of convertible issues.

Table 3

Main characteristics of convertible bond issues carried out for investment and restructuring purposes

Variables	Purpose of issue	n	Mean	Median	Standard deviation	p-value
Issue size	Investments	38	29.090	18.609	35.311	.635
	Restructuring	20	24.290	10.194	36.176	
Issue size/Assets	Investments	37	0.130	0.070	0.140	.071
	Restructuring	20	0.074	0.050	0.077	
Bond maturity	Investments	37	914.000	1082.000	348.692	.178
	Restructuring	20	1387.000	1278.500	1201.607	
Coupon	Investments	33	0.090	0.098	0.032	.105
	Restructuring	18	0.076	0.068	0.031	

Note. P-value is the probability of the Mann-Whitney U test.

Note. Issue size is the size of bonds issues defined as proceeds from the issue in million Polish zlotys (PLN). Issue size-to-assets ratio is the size of debt issues divided by book value of total assets. Bond maturity is maturity of bonds issues defined as the number of days between the date of issuance and the final maturity date. Coupon is defined as annual interest rate paid on a bond.

Source: author's calculations based on his own database.

A number of patterns emerge from the statistics presented in Table 4. It shows the financial characteristics of convertible issuers, differentiating between firms that issue convertibles for investment or restructuring purposes. They include measures of size (total assets and market capitalization), leverage and capital structure (debt-to-assets ratio, debt-to-equity ratio, and leverage ratio), liquidity (EBITDA-to-interest ratio), profitability (operating margin, net margin, return on equity), and market indicators (price-to-earnings ratio, price-to-book ratio).

The outcomes show that first, firms raising funds to rebuild debt structure tend to be significantly smaller in terms of total assets (Mdn = 160.5) than companies using hybrid debt to finance new investment projects (Mdn = 221.8) (U = 333.0, p = .042), but they are still medium and big-sized enterprises.

Second, both groups of issuers seem to be strongly undervalued: their market capitalization is 3.0–3.6 times smaller than their total assets (U = 332.0, p = .343) and their price-to-book ratios are clearly below 1.0 (exactly between 0.6 and 0.9) (U = 311.0, p =.483). Although the results for price-to-earnings ratio for companies conducting restructuring issues are strongly biased by their negative net profits (Mdn = -1.1), a very low level of this ratio for firms carrying out issues for investment purposes may evidence their strong undervaluation (Mdn = 6.6) (U = 185.0, p = .002).

Third, a Mann-Whitney U test indicates significant differences between issuers' profitability. It appears that investing issuers achieve good financial results in term of operating margin (Mdn = 0.11), net margin (Mdn = 0.09) and return on equity (Mdn = 0.10). By contrast, firms in financial distress are not able to generate profits on an operational level (Mdn = -0.07) and record large net losses (Mdn = -0.10), which negatively affects the return on equity (Mdn = -0.56).

Fourth, issuers in financial troubles are significantly more indebted than firms with investment options, both in relation to total assets (Mdn = 0.73) and equity (Mdn = 2.49). The results of the leverage ratio show that they strongly rely on debt to finance their operations (Mdn = 3.49). On the contrary, companies involved in an investment process have considerably smaller portion of debt in relation to total asset (Mdn = 0.46) and to equity (Mdn = 0.85). They are also less leveraged (Mdn = 1.88).

Table 4

Comparison between firms that issue convertibles for investment and restructuring purposes

Variables	Purpose of issue	n	Mean	Median	Standard deviation	p-value
Total assets	Investments	38	467.484	221.751	635.557	.042*
	Restructuring	20	655.957	160.466	912.240	
Market capitalization	Investments	38	217.962	76.024	274.913	.343
	Restructuring	20	200.872	44.111	436.261	
Debt/Assets	Investments	38	0.507	0.458	0.235	.001**
	Restructuring	20	0.757	0.729	0.293	
Debt/Equity	Investments	36	1.315	0.847	1.817	.005**
	Restructuring	20	2.853	2.485	2.433	
Leverage	Investments	36	2.411	1.883	1.853	.011*
	Restructuring	20	3.839	3.485	2.446	
EBITDA/Interest	Investments	35	5.574	0.627	24.933	.012*
	Restructuring	20	-1.138	-2.996	4.217	
EBIT	Investments	34	0.681	0.108	5.124	.003**
	Restructuring	20	-0.536	-0.069	0.975	
Net margin	Investments	34	0.896	0.091	3.858	<.001***
	Restructuring	20	-0.701	-0.099	1.269	
ROE	Investments	38	0.427	0.095	1.798	<.001***
	Restructuring	20	-0.563	-0.562	0.654	
P/E	Investments	37	8.027	6.597	17.341	.002**
	Restructuring	20	-4.767	-1.073	13.974	
P/BV	Investments	37	1.521	0.870	1.507	.483
	Restructuring	19	1.315	0.582	1.226	

*Note. P-value is the probability of the Mann-Whitney U test; * p < .05, ** p < .01, *** p < .001.*

Total assets and market capitalization are measured in million Polish zlotys (PLN). Debt-to-assets ratio is defined as total liabilities divided by total assets. Debt to equity ratio is measured as total liabilities divided by total equity. Net debt-to-EBITDA ratio is calculated as total liabilities minus cash divided by operating profit plus amortization. Leverage is estimated as total assets divided by total equity. EBITDA-to-interest ratio is calculated as operating profit plus amortization divided by financing costs. EBIT is operating profit. Net margin is calculated as net profit divided by total sales. ROE is return-on-equity ratio estimated as net profit divided by total equity. EV/EBITDA is ratio calculated by dividing enterprise value by operating profit plus amortization; enterprise value in estimated as company's market capitalization plus book value of total liabilities minus total cash. P/E is price-to-earnings ratio defined as company's share price on the last day of the year preceding the convertible issuance divided by company's earnings per share from the last annual financial statement before convertible issue. P/BV is price-to-book value ratio calculated as company's share price on the last day of the year preceding the convertible issuance divided by company's book value per share at date of the last annual financial statement before convertible issue.

Source: author's calculations based on his own database.

In the next step, several logistic regression models with forward selection have been applied to identify potential factors that may affect the issuance of convertible debt. Table 5 reports the logistic regression results of the impact of firms' leverage, liquidity, profitability, and market value on the likelihood of convertible issuances for restructuring or investment purposes. Seven independent variables were used in the model: debt-to-assets ratio, debt-to-equity ratio, leverage ratio, EBITDA-to-interest ratio, net margin, return on equity, and price-to-earnings ratio. They were all selected at the pre-selection stage in which the result of univariate models with one explanatory variable at a time were compared to the outcomes of multivariate model including all variables. The dependent variable is the dummy equal to 1 for issues conducted for restructuring purposes and equal to 0 for investment purposes. The model demonstrates that debt-to-assets ratio ($p = .028$) and return on equity ($p = .002$) have the strongest impact on dependent variable. The results show that B coefficients are positive for debt-to-assets ratio ($B = 3.809$) and negative for return on equity ($B = -4.521$), supporting the theoretical predictions that more leveraged and less profitable firms are more likely to issue convertible bonds for restructuring process. Similarly, it is more probable that less indebted and more profitable companies use convertibles to realize new investment projects. A test of the full model against a constant model was statistically significant, χ^2 (2, N =

58) = 28.495, p < .001. The Hosmer-Lemeshow test indicates that the model is a good fit to the data (p = .426). It also overall predicts 76.5% of issues and it explains 58.0% of the variation in the dependent variable (Nagelkerke's R^2 = 0.580).

Logistic regression model predicting the determinants of convertible issues

Independent variable	B	Std. Error	Wald	df	p-value	Exp(B)
Debt/Assets	3.809	1.733	4.830	1	.028*	45.108
ROE	-4.521	1.476	9.385	1	.002***	0.011
Constant	-3.486	1.263	7.618	1	.006***	0.031
Model Chi-Square [df]	28.495 [2]					
% Correct Predictions	76.5					
Nagelkerke's R-square	0.580					

Note. * p < .05, ** p < .01, *** p < .001.

Source: author's calculations based on his own database.

In the last part of the research, a chi-square test of independence was performed to examine the relation between the purpose of convertible issue and a decision of bondholders to convert debt into equity. It helped to verify whether a financial situation of a company affects the issuer's decision to use convertible bonds either as backdoor equity financing or as a source of cheap debt. The analysis was carried out based on a new subsample (including 49 issues) after eliminating all still active bonds and the issues with missing information about either a final conversion conducted by bondholders (full or in part) or a redemption by issuers (before or at maturity).

As can be seen by the frequencies cross tabulated in Table 6, there is a significant relationship between the purpose of convertible issues and debt conversion, χ^2 (1, N = 48) = 11.021, p = .001. Importantly, this relation is moderately strong, Cramer's V = 0.479. It is shown that approx. 82% of restructuring issues (exactly 14 issues) are converted into issuers' common stock and that in only 3 cases the issues did not end up with conversion. In contrast, about 32% bonds issued for investment purposes were converted into equity (exactly 10 issues) and as much as 21 issues were redeemed by issuers. What is also interesting, 8 bonds out of 14 from among restructuring issues and 4 out of 10 among investment issues were converted into equity within first seven days after convertible issuance. It may suggests that a large group of issuers want to raise equity capital through convertible debt sale, not via the issuance of common stock. Perhaps this results from either the need to speed up the process of common stock offering or the will to achieve some tax benefits associated with debt conversion.

Interrelation between purpose of issue and debt conversion

Conversion	Purpose of issue		Chi-square	Cramer's V
	Investments	Restructuring		
Yes	10	14	11.021**	0.479
No	21	3		

Note. ** p < .01. Yes = full or part conversion. No = bonds redemption before or at maturity.

In summary, the results of empirical analysis on the use of convertible debt in the Polish capital market leads to a number conclusions. First, companies issuing convertibles to finance new investment projects are in a good financial situation: they are less leveraged and generate relatively high operating and net margins (approx.10–11% on average). These outcomes prompt the question as to what motivates such firms to use hybrid debt instead of raising capital in a more traditional way, namely through straight debt or common stock issuances. It seems that one answer lies in the market

value of the issuing companies. This supposition is backed by the levels of market-related indicators according to which the issuers may be strongly undervalued (median of price-to-book ratio is below 1.0, price-to-earnings ratio is around 6.0, and market capitalization is 3 times smaller than the book value of total assets). It can be then presumed that, in the line with concept of Stein (1992), undervalued firms use convertible bonds to increase equity capital through the backdoor at more favorable conditions. At the same time, such companies may consider convertibles as a source of non-refundable capital and use them to finance new investments, as suggested by Mayers (1998). According to the results of this research though, only every third bond is converted into equity by bondholders, and two thirds of them are redeemed by issuers before or at maturity. This may suggest that companies treat hybrid debt as a cheaper alternative of straight debt and bank loans, which will not be transformed into equity capital until debt maturity (see, for example, Bancel and Mittoo 2004). However, one should remember that a decision to exercise a conversion option remains in the hands of bondholders and companies are not able to predict, whether investors will exercise the right to convert debt into equity, particularly as the issuing companies are strongly undervalued at the moment of convertible issue. So there are many indications that firms initially issue convertibles as deferred equity in order to sell new shares at more favorable conditions via debt conversion. When it then turns out that bondholders forgo the conversion of debt into common stock due to constantly low market valuation of the issuers, the issuing firms redeem bonds at par, but it seems not to be consistent with their initial plans.

Second, the research outcomes indicate that highly indebted and unprofitable firms using hybrid debt to restructure liabilities consider convertible bonds primarily as a backdoor equity financing not as a source of cheap credit. However, it appears that raising equity through convertible debt issues is aimed more at reducing time and costs of selling common stock in the public or private market (see, for instance, Huang and Ramirez, 2010), rather than at raising equity capital at an unspecified moment in the future to bypass the issuance of undervalued shares (just like in the concept of Stein, 1992). It may be evidenced by the statistics showing that the majority of bonds are converted into common stock a few days after placing convertibles on the market as well as by the fact that almost all convertibles are sold to dedicated group of investors through private offerings. Nevertheless, there are also convertibles which are transformed into equity capital closer to their maturities and these are likely to act as a debt sweetener (see, for example, Graham and Harvey, 2001). In this case, convertible bonds can help issuers to restructure debt by early redemption of higher coupon corporate bonds and bank loans, and replacing them with lower interest-bearing convertible debt. It is noteworthy that an average coupon of restructuring convertibles is about 3 percentage points lower than a coupon of convertibles issued by highly profitable companies for investment purposes, which strongly supports the idea of using convertibles debt financing to make favorable changes in firms' liabilities. There are also a few restructuring convertibles which were redeemed by issuers at maturity. This may suggest that the injection of relatively cheap capital helped the issuers to avoid bankruptcy, but for some reason a rescuing company (mainly bank or government agency) eventually did not become issuers' shareholder.

Third, around half of the convertibles issued for both restructuring and investment purposes are converted into equity within one week after convertible sale. Supposedly, a few companies issue convertible debt for certain tax benefits available under the Polish regulations, but this motivation needs deeper examination.

Perhaps the biggest limitation of this research applies to the limited observations in the sample. 58 convertible issues carried out by 33 companies look insufficient to draw any unequivocal conclusions from the analysis. However, it must be stressed that the sample covers all convertible debt issuances carried out in Poland by publicly-traded companies since 2009, so this paper seems to provide a broad view on the Polish convertible debt market. No one before attempted to examine the motives for the use of hybrid debt by companies from transitional economies, hence each novel paper in this field (even with a small but a full sample), fits the research in international finance and extends the knowledge on convertible debt financing.

Conclusions

This paper provides useful insights into determinants driving the issues of convertible bonds in the Polish capital market which is considered as the biggest corporate debt market in Central and Eastern Europe. Its purpose was to identify the motives for the issuance of convertibles carried out by publicly-traded companies listed on the Warsaw Stock Exchange. The empirical examination encompassed 58 sales of convertibles conducted by 33 firms between 2009 and 2017. The main conclusions of the article are as follows.

First, many companies using convertibles for investment purposes appears to be in good financial performance and are likely to perceive them as a deferred equity financing in order to bypass the issuance of undervalued common stock. For many undervalued firms, convertibles are a perfect source of non-refundable debt capital which can be transformed into equity soon after convertible issuance under better conditions compared with private or public offering of common stock. Further, due to favorable changes in capital structure resulting from conversion, companies can raise additional funds to exercise other investment options.

Second, most firms in strong financial distress issuing convertibles for restructuring purposes may consider them as backdoor equity financing. Companies in poor financial performance are likely to issue convertibles to reduce time and costs of common stock sales, since the majority of bonds are converted into equity soon after selling convertibles to the small group of dedicated lenders through private offerings. However, it seems that some issuers treat convertibles as an alternative of cheap debt and use them to prematurely redeem high-coupon straight bonds and bank loans, and replace them with lower interest-bearing convertible debt.

Third, several companies probably use convertibles debt for tax benefits available under Polish law regulations, since about half of the convertibles issued for both restructuring and investment purposes are converted into equity within one week after convertible sale.

The findings of the paper relate to research in international finance which examine the motives driving convertible issues and they extends the knowledge about reasons for the use of hybrid debt by companies from emerging economies in Central and Eastern Europe. These motives do not strongly diverge from the aims for using convertible debt in more developed capital markets, such as Western European and American markets. This article is perhaps the first that provides a comprehensive financial analysis on the convertible debt market in Poland and as such, should be a contribution to further research in this field. There is a considerable research gap yet to be filled with many questions in need of precise answers, particularly concerning tax motives available under Polish law, the announcement effect of convertible issuance in the Polish capital market as well as qualitative research on the reasons behind the issuance of convertible debt among Polish firms.

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FINANCIAL REPORTING IN THE MICRO ENTERPRISES IN SELECTED EUROPEAN COUNTRIES

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Abstract. Micro enterprises are an important element of European economies. The number of micro companies constitutes average 93% of all registered entities. They employ nearly 30% of all workers in the European Union countries. It can be observed that highly developed countries as well as those still developing, having a different political, social and cultural structure have been devoting much attention to these enterprises. Their further development largely depend on their financial situation and adequate, reliable data from information system, which is based on accounting.

The main aim of this research paper is to carry out a comparative analysis of the reporting obligations of micro enterprises which keep account books in selected European countries (Latvia, Poland, United Kingdom).

At the beginning of this paper, criteria for classification of enterprises as micro, small and medium, resultant from legal regulations in selected countries, will be presented and compared. The analysis of macroeconomic data will indicate significance of micro sector. Next part will be concerning the analysis of the legal regulations allowed identification and comparison of the requirements arising from the accounting law regarding micro enterprises in the researched countries.

This paper is a basis for seeking the best solutions and practices collecting and presenting information, not only for the reporting purposes, but also for constructing effective information system which will be adequate to ensure the needs all groups of the stakeholders.

Key words: *Accounting, Financial reporting, Micro enterprise, Financial statement, Stakeholders*

JEL code: L25, M13, M41

Introduction

The micro, small and medium enterprises plays a crucial role in the national economies. They are a driving force of business, of growth, innovation and competitiveness. Their further development largely depend on their financial situation and from information which they collect. Penc (1994) indicates that a well-taken decision is made up of 80% of the information, 10% of inspiration (creativity) and 10% intuition of manager. The key issue has become information. The American Institute of Certified Public Accountants (AICPA), indicates that function of accounting "is to provide quantitative information, primarily financial in nature, about economic entities that is intended to be useful in making economic decisions, in making reasoned choices among alternative courses of action" (Accounting). The American Accounting Association (AAA) defined accounting as: "the process of identifying, measuring and communicating economic information to permit informed judgment and decision by users of the information" (How to…).

The accounting system is a source of information for the internal and external stakeholders (table 1).

Table 1

Stakeholders of information delivered by the accounting system

	External stakeholders	
Internal stakeholders	Government agencies and local government	Other the entities from outside the company
- management of the company - managers the lower levels of management - supervisory board - the audit committee of the company - the shareholders' meeting of joint stock company	- ministries and central offices - local government bodies - offices (chambers) tax and fiscal control - national statistics offices - social insurance - other bodies of state control	- customer - suppliers - creditor and lenders - investors - insurance - trade unions - governmental organizations

Source: author's description based on Sawicki K., 2008.

The both groups of stakeholders have different information needs. For the external users, accounting is focused on the preparing of reports mandatory, regulated by law. For internal recipients, preparing reports and information for income tax purposes, social security and tax on goods and services tax, have essentially a secondary nature in relation to the obligation to create in the enterprise useful for the purposes of management information system (Karmańska A., 2009). Managers need information and tools to assist with the detection of disturbing signals, tools to help assess current financial condition, techniques to management of working capital, and simple procedures for diagnosing the vulnerabilities of their businesses (Jaworski J., 2012; Martyniuk-Kwiatkowska O., 2009). The important issue is delivered optimal information, which should be characterised by credibility, usability, neutrality, comprehensibility, comparability (Martyniuk O., Szramowski D., 2017).

The main purpose of this paper is to present information about the current legal financial reporting requirements for micro entities which keep account books in selected European countries. SMEs prepare their financial statements according to local reporting framework. Financial reporting in various countries may vary in: the system of accounting regulation, interaction between accounting and taxation, application of accounting methods and accounting principles. Different countries have different models of financial reporting. Comparative analysis of these regulations and components of financial statements would be reasonable. Studies carry out by Eirle and Schonefeldt (2010) indicates the research gap in the literature on financial reporting in this sector, especially relating to micro enterprises. This gap has been partly fulfilled by the analysis carried out by the European Commission published in 2011 (Study on …, 2011) and in 2015 (Accounting Guide for SME, 2015) and studies carried out by Kotowska, Martyniuk (2016).

The European Directive 2013/34/EU – The New Accounting Directive - has been introduced to harmonise the requirements financial reporting for micro, small, medium and large enterprises throughout the European Union. After implementation Directive, in each EU country has been described situation and changes after that. Most of papers are concerned on one country only – for instance: Croatia (Mamić Sačer I., Dečman N., Sever I., 2015), Estonia (Güldenkoh1 M., Silberg U., 2014), Italy (Provasi R., 2015), Poland (Sawicki K., 2014), Romania (Deac M., 2014), The Czech Republic (Žárová M., 2013). It is very hard to find works which conduct a comparative analysis between few countries – for instance: Serbia and Slovenia (Jovanović T., 2014), Croatia, Germany, United Kingdom, Slovakia, Romania (Zager K., Decman N., 2016), Latvia, Lithuania, Poland, Ukraine (Martyniuk O., Szramowski D., 2017). Almost all mentioned papers concern on definition of micro, small, medium and large entities and on comparison changes in country's Accounting Law. Unfortunately, they do not allow to compare templates of balance sheet and profit and loss accounts for micro units (except, in limited extent - Martyniuk O., Szramowski D., 2017).

This paper may fill partially this research gap. For the analysis was chosen countries with different political, economical and historical background – Latvia, Poland and United Kingdom.

At the beginning will be presented definition of micro-entities regarding the accounting law and important macroeconomic data. Next part will be focused on result after implementation the Directive 2013/34/EU in selected countries. Then will be presented layouts of balance sheet and profit and loss accounts. The final section – summary conclusions.

1. The micro sector in the researched countries

The size of company is the basic criterion for division. However, the criteria for classification of an entity as a micro, small, medium or large-sized enterprise very often are not explicit. In selected countries, definitions of individual groups of enterprises are contained in the Accounting Acts (Latvia, Poland, United Kingdom) or in other legal regulations - Poland. In table 2 are presented definition of micro enterprises according to accounting law.

Table 2

Definition of micro enterprises according to size arising Accounting Law

Enterprise	Employment	Revenues from sales	Total assets	Other
Latvia				
Micro	0 - 9	≤ EUR 700 000	≤ EUR 350 000	-
Poland				
Micro	< 10	< PLN 3 mln	< PLN 1.5 mln	Commercial companies
		EUR 2 mln		Natural persons, civil partnerships, general partnerships, professional partnerships
United Kingdom				
Micro	0 - 9	≤ GBP 632 000	≤ GBP 316 000	-

Source: author's description based on Law on the Annual Financial Statements and Consolidated Financial Statements – Latvia, Act of 29 September 1994 about accounting – Poland, FRS105 The Financial Reporting Standard applicable to the Micro-entities Regime - United Kingdom.

Analysing countries apply three measures for division of enterprises: employment, revenues from sales and the total assets. Two criteria for micro entities in Poland and United Kingdom – revenues from sales and total assets - are followed the maximum allowed in the Directive 2013/34/EU - approximate EUR to PLN and GBP translation, as in Latvia.

In Poland, in the law on freedom of economic activity (Act of 2 July 2004…) in definition of micro enterprise the value of revenues and total assets could not exceed EUR 2 mln.

Table 3

Micro entities – important numbers, as of 2016

Enterprise	Latvia		Poland		United Kingdom		EU 28
	Number	%	Number	%	Number	%	%
Number of entities	98 458	91.5	1 535 595	95.3	1 757 336	89.3	93.0
Number of employees	192 643	31.8	3 235 347	36.8	3 401 353	17.5	29.8

Source: SBA – Latvia 2017; SBA – Poland 2017, SBA – United Kingdom 2017

In researched countries micro entities are a dominating group of businesses. They constitute nearly 93% of the total number of enterprises in EU (table 3). Number of entities constitutes from 89.3% in United Kingdom till 95.3% in Poland.

Comparison of share of the employed in this sector clearly indicates significance of the work positions offered by these entities for economies of the discussed countries. Average employment in micro entities in the analyzed countries constitutes 28.7% of the total number of the employed – from 36.8% in Poland to 17.5% in United Kingdom. In the EU countries, average employment in micro enterprises amounts to 29.8%.

The above-presented macroeconomic data characterizing the micro sectors in individual countries confirm the importance and significance of this sector for those countries' economies. It is a premise for a statement that the most effective tools supporting the managers of these entities in information acquisition and in creation of collection information systems ought to be sought.

2. Implementation the Directive 2013/34/EU

A financial statement of an SME, according to IFRS for SMEs, should consist of: a balance sheet, a profit and loss account, a statement of stockholders' equity, a cash flow statement, and notes to the financial statement. In certain cases, an entity can prepare a statement of the revenues from a retained income instead of a profit and loss account and a statement of stockholders' equity. The standard does not lay down any specific patterns of reports (Jaworski J., 2012).

On 26 June 2013, was published the Directive 2013/34/EU about the annual financial statements, which allow to micro undertakings for many simplified in preparation financial statements. According this Directive, these types of entities (FEE – Introduction):

- prepare abridged balance sheet and profit and loss account,
- publish an abridged balance sheet only,
- have no obligation to prepare notes to the financial statements and management report,
- use of "Cash +" accounting: accruals basis only for revenue, raw materials\consumables, staff costs, value adjustments to assets and tax,
- no Fair Value accounting,
- need to keep accounting records.

The New Accounting Directive for Small and Micro undertakings should support governments, standard setters, EFAA (European Federation of Accountants and Auditors for SMEs) member organizations and other interested stakeholders in the efforts to transpose into National Legislation and jurisdictions.

In 2016, EFAA has published results of surveys about implementation The New Accounting Directive in the following Member States: France, Germany, Italy, Latvia, Netherlands, Portugal, Spain and United Kingdom. Unfortunately, Poland was not take into consideration. In table 4 is presented comparison between three selected countries – Latvia, United Kingdom and Poland.

Table 4

The New Accounting Directive, Micro undertakings – Latvia, United Kingdom and Poland

Note	Area of consideration	Latvia	United Kingdom	Poland
1	When was the implementation of the micros directive effective?	Financial years starting on or after 1 January 2016	Financial years ending on or after 30 September 2013	Financial years starting on or after 1 January 2016
2	Was it considered that implementation of the micro directive should coincide with the accounting directive?	Yes	No	Yes
3	What were the thresholds used for the definition of a micro entity?	Total Assets up to EUR 350 000; Revenues up to EUR700 000; employees up to 10; two of these three requirements have to be met in two consecutive financial years.	Following the maximum allowed in the directive - approximate EUR to GBP translation. There were some elaborations on the application of thresholds.	Following the maximum allowed in the directive - approximate EUR to PLN translation.

Note	Area of consideration	**Latvia**	**United Kingdom**	**Poland**
4	The exemptions cannot be applied to investment or financial holding undertakings. Were any other scope restrictions placed on the use of the micro entity exemptions?	Yes Credit institutions, insurance undertakings and charities were also excluded.		
5	Was the exemption from the need to recognise accruals and prepayments of 'other charges' used? If not why not?	Yes	No This was not used. There were considered to be problems in relation to the definition of realised profits available for distribution. There were no tax advantages perceived and very little advantages in terms of reductions in complexity of preparation.	Yes
6	Was the exemption used from providing notes to the financial statements (except for information on financial commitments guarantees and contingencies and on credits to management)?	Yes	Yes	Yes
7	Were any other disclosure requirements added in?	No	No	No
8	Will micro entities be obligated to prepare management reports?	No	Yes	No
9	Is the balance sheet restricted to?			
	Subscribed share capital unpaid	Yes	Yes	Yes
	Formation expenses	No	No	No
	Fixed assets	Yes	Yes	Yes
	Current assets	Yes	Yes	Yes
	Prepayment and accrued income	Yes	Yes	No
	Capital and reserve	Yes	Yes	Yes
	Provisions	Yes	Yes	Yes
	Creditors	Yes Amounts due after one year shown separately		Yes
	Accruals and deferred income	Yes Except for accruals for unused holiday entitlement	Yes	No
10	Is the P&L account			
	Net turnover	Yes	Yes	Yes
	Other income	Yes	Yes	Yes
	Cost of raw materials	Yes	Yes	Yes
	Staff costs	Yes	Yes	Yes
	Value adjustments	Depreciation and other amounts written of assets		
	Other charges	Yes	Yes	Yes
	Tax	Yes	Yes	Yes
	Profit or loss	Yes	Yes	Yes

Note	Area of consideration	**Latvia**	**United Kingdom**	**Poland**
11	Micro entities cannot use the fair value alternative measurements basis. Were any other amendments made to accounting by micro entities?	No	Yes	No
12	Are the accounts regarded as giving a true and fair view?	Yes	Yes	Yes
13	Did this produce any significant difficulties?	Yes Special clauses were needed in the legislation to guide Directors and auditors in the application of these with accounting standards – especially disclosure requirements in those standards		
14	Any further implications from the implementation of micro entities directive?	The tax authorities will accept these as the basis of their assessments, though they have the ability to ask for further information.		
15	Any other observations on the implementation?	No	A separate accounting standard for micro entities (FRS105) has been issued to comply with the new law.	The Act of Accounting was amended.

Source: author's description based on Lang M., Martin R. 2016, Accounting policy – Latvia, Act of Accounting – Poland and Sawicki K., 2014,

The main conclusion of the research is: in all analysed countries, for the micro entities is compulsory to prepare a balance sheet and a profit and loss account. Notes to the financial statements are prepared in shorted version like footnotes. This comparison shows similarities in the financial reporting obligations of the micro entities in analysed countries. Although it does not mean that layout of balance sheet and profit and loss account are the same.

3. Micro entities – financial reporting in selected countries

In this part will be presented and compared layouts of balance sheet and profit and loss accounts in Latvia, Poland, United Kingdom. These layouts are proposal in national regulations, according the result of implementation the Directive 2013/34/EU.

It should be highlighted that in the researched countries, the criteria for exempting micro units from keeping accounting books are: the legal form and the sales income. While analysing the legal form criterion, it can be noticed that natural persons are exempt from keeping accounting books (Latvia, Poland), partnerships (Poland). Private limited companies in all analysed countries are not subject to this exemption. In case of the sales income, the limits exempting enterprises differ significantly. In Latvia EUR 300 000, in Poland this limit is EUR 2 000 000. Author did not find information about United Kingdom, which does not mean that such sales income limit do not exist.

Latvia

In Latvia, in the Law on the Annual Financial Statements and Consolidated Financial Statements there is no special simplified templates for micro entities. The layouts of obligatory elements of financial statements presented in table 5 include only main position from layouts presented in Annexes in mentioned Law.

If a micro-entity does not exceed two of limit values, it is permitted not to draw up an annex to the financial statement. In such case the detailed information shall be provided in the end of the balance sheet in the form of notes with figures, text or tables (hereinafter - notes to the balance sheet), as well as information regarding the average number of employees in the financial year.

The limit values referred to shall be as follows:

1) balance sheet total - EUR 50,000,

2) net turnover - EUR 100,000,

3) average number of employees during the financial year - 5.

   A micro-entity which does not draw up an annex to the financial statement and in the financial year:

1) has changed the layout of the profit or loss account, in addition shall explain the reason for such change,

2) has combined insignificant amounts, which apply to several balance sheet items, in one balance sheet item, in addition shall provide details of such total amount,

3) has detected mistakes of the previous financial years or changed the accounting policy and accordingly adjusted the data of the previous financial years, in addition shall provide an explanation regarding each case,

4) has included interest of received borrowings in the production cost price of the newly established object, in addition shall provide information regarding the amount of interest included in the cost price.

Table 5

Layout of the Balance sheet and Profit and Loss Account Scheme in Vertical Form in Latvia

Balance sheet	Profit and Loss Account

Assets
 Long-term investments
 	
   I.   Intangible investments
 	
   II.   Fixed assets
   III.   Long-term financial investments
 Current assets
   I.   Inventories
   II.   Debtors
   III.   Short-term financial investments
   IV.   Cash
 	
Liabilities
 Equity
 Provisions
 Long-term creditors
 Short-term creditors
	1. Net turnover
	2. Changes in stocks of finished goods and work in progress
	3. Costs (capitalised) referenced to own long-term investments
	4. Other income from economic activities
	5. Costs of material
	6. Labour costs
	7. Decrease in value adjustments
	8. Other costs of economic activity
	9. Revenue from participation
	10. Revenue from other securities and loans which formed long-term financial investments
	11. Other revenue from interest and similar revenue
	12. Interest payments and similar costs
	13. Profit or loss before enterprise income tax
	14. Enterprise income tax for the financial year
	15. Profit or losses for the financial year

Source: author's description based on Law on the Annual Financial Statements and Consolidated Financial Statements – Latvia

Poland

In Poland, in Annex No 4 the Act of Accounting is included the scope of information which should be disclosed in the financial statement for micro entities.

The entity has to prepare general information about:

1) business name, head office and address or place of residence and address as well as the number in the relevant court or other register,

2) the duration on the undertaking's activity, if limited,

3) the period covered by the financial statements,

4) the applied accounting principles provided for micro undertakings, indicating the selected simplifications,

5) an indication of whether or not the financial statements were prepared under the assumption that the undertaking would continue operations in the foreseeable future, and whether there are any circumstances indicating that the continuation of the undertaking's operations may be at risk,

6) a presentation of the accepted accounting principles (policy), including the methods of measuring assets and liabilities (including depreciation and amortisation methods), of measuring the financial results, as well as the method of preparing financial statements, to the extent left to the discretion of the undertaking by the Act.

In table 6 are presented templates of balance sheet and profit and loss account for micro entities.

Table 6

Balance sheet and Profit and Loss Account for micro entities in Poland

Balance sheet	**Profit and Loss Account**

Assets
   A. Fixed assets, including property, plant and equipment
   B. Current assets, including:
     - inventories
     - short-term amounts receivable
   C. Called up share capital
   D. Treasury shares
Total assets
 	
Liabilities and Shareholder's Equity
   A. Equity, including:
     - share capital
   B. Liabilities and provisions for liabilities:
    - provisions for liabilities
    - liabilities on account of bank and non-bank loans
Total Liabilities and Shareholders' Equity
	A. Income from the core operating activity and equivalents, including any change in stocks of products (increase – positive, decrease – negative value)
	B. Core operating expenses:
	   I. Depreciation and amortization
	   II. Consumption of materials and energy
	   III. Salaries, social security and other benefits
	   IV. Other expenses
	C. Other income and expenses, including asset revaluation or impairment
	D. Other gains and losses, including asset revaluation or impairment
	E. Income tax
	F. Net profit/loss (A-B+C-D-E)

Source: Annex No 4, Act of 29 September 1994 about accounting – Poland

Next, should be presented information supplementing the balance sheet:

1) amount of any financial liabilities, including on account of debt instruments, guarantees and suretyships or contingent liabilities not shown in the balance sheet, indicating the nature and form of collateralised amounts payable; any liabilities relating to pensions as well affiliated or associated undertakings are disclosed on a separate basis;

2) amounts of advance payments and loans granted to members of managing, supervising or and administrative bodies, indicating the interest, main terms and conditions thereof, as well as any amounts repaid, written off or cancelled as well as liabilities incurred on their behalf in the form of guarantees or suretyships of any kind, indicating the total amount for each category;

3) treasury shares, including:

a) the reason for the undertaking acquiring its own shares in the financial year,

b) the number and nominal value of shares acquired and disposed of in the financial year, and in the event that they do not have a nominal value, their carrying value, as well as the percentage of the share capital that these shares represent,

c) in the event that they are acquired or disposed for consideration, also the equivalent value of such shares,

d) the number and nominal value or, in the event that they do not have a nominal value, the carrying value of all the shares acquired and retained, as well as the percentage of the share capital that these shares represent.

e)

United Kingdom

According FRS 105 UK GAAP the balance sheet for micro is called statement of financial position. It could be chosen one of two formats (table 7).

Statement of financial position (balance sheet) for micro entities in United Kingdom

Format 1	CU	CU	Format 2	CU	CU
Called up share capital not paid		X	Assets		
Fixed assets		X	Called up share capital not paid		X
Current assets	X		Fixed assets		X
Prepayments and accrued income	X		Current assets		X
Creditors: amounts falling due within one year	(X)		Prepayments and accrued income		X
Net current assets / (liabilities)		X/(X)			X
Total assets less current liabilities		X			
Creditors: amounts falling due after more than one year		(X)	Capital, Reserves and Liabilities		
Provisions for liabilities		(X)	Capital and reserves		X
Accruals and deferred income		(X)	Provisions for liabilities		X
		X	Creditors		
			Amounts falling due within one year	X	
			Amounts falling due after one year	X	
					X
Capital and reserves		X	Accruals and deferred income		X
					X

Source: FRS105 The Financial Reporting Standard applicable to the Micro-entities Regime - United Kingdom.

In United Kingdom the income statement includes less detailed information than in previous countries (table 8).

Income statement for micro entities in United Kingdom

	CU
Turnover	X
Other income	X
Cost of raw materials and consumables	(X)
Staff costs	(X)
Depreciation and other amounts written off assets	(X)
Other charges	(X)
Tax	(X)
Profit or loss	X / (X)

Source: FRS105 The Financial Reporting Standard applicable to the Micro-entities Regime - United Kingdom.

Micro entities have to prepare the notes to the financial statements of as the foot of the statement of financial position and shall include the following information:

(a) advances, credit and guarantees granted to directors - the details required are: its amount, an indication of the interest rate, its main conditions, any amounts repaid, any amounts written off, any amounts waived. The details required of a guarantee are: its main terms, the amount of the maximum liability that may be incurred by a micro-entity, any amount paid and any liability incurred by a micro-entity for the purpose of fulfilling the guarantee (including any loss incurred by reason of enforcement of the guarantee).

(b) financial commitments, guarantees and contingencies.

In all analysing countries the mandatory elements of financial reporting for micro-entities are similar. In Poland and United Kingdom, there are special layouts of balance sheet and profit and loss account. In Latvia, the simplified form does not exist. In selected countries the scope of disclosures of information in financial statement, which is a basis for decision-making and for evaluation of the enterprises, is not homogenous. Also, additional information in notes has not the same range.

The implementation of The Directive 2013/34/EU does not exclude differences in preparing and presentation of financial reporting. Although, it has become a step for preparing template of presenting information on a global market which will be understandable and simplicity to compare for all interested stakeholders.

Conclusions and proposals

Internal and external users have different needs of information, but the basis for their acquisition and collection is accounting. Accounting is said to be a universal language of business and it should provide decision makers relevant information at appropriate an time. Decisions are based on the financial statements, which should be a communication tool between enterprises and the stakeholders and the basic source of information about financial and economic situation of entities. The ongoing discussion is based on the premise that organization, the scope and the shape of micro financial reporting directly determines the possibilities of this sector's development. Consequently, it also determines growth and development of the economies in which these entities operate. In cases when the financial statements are not kept properly, the decisions are made without a real and sound knowledge of the financial position of a given business, which might have serious consequences for its future.

Nowadays, when the European market is a global market even for micro company, all groups of stakeholders can be interested in getting the same relevant and comparable information from accounting system no matter in which country the enterprise is registered. It means that all EU countries should be involved in seeking solution to help micro in running business and collecting information for managing and their assessment by financial analysis tools. The European Directive 2013/34/EU is a huge step for taking care of the micro entities. The clues of New Directive are: limitation the scope of regulations, avoiding disproportionate administrative burdens on those undertakings, improving competitiveness and internationalization of information, providing necessary but not excessive financial information for competing with other micro units, providing information on transactions, improving corporate governance. The Directive formulates certain accounting principles, but allows national regulators to exclude the smallest companies from certain accounting obligations, but at the same time the application of exceptions and exceptions to the recommendations of the Directive due to the national specificity of enterprises.

Implementation The Directive 2013/34/EU does not provide that European Union countries do not use national accounting regulation. It means that they do not have to prepare financial reports by using the one unique template.

In selected countries the definition of micro entity, the basis values of classification – revenues from sales and total assets - are almost the same.

The analysis of the accounting law in selected European countries shows that the reporting obligations and mandatory elements of financial statements of micro-entities are similar. Nevertheless, the scope of disclosures is different.

Comparison analysis of layouts financial statements for micro-entities between Poland an United Kingdom clearly indicates that very hard to compare information presented in reports. Different position, accumulated information, especially in Poland do not allow to get relevant and the same scope of information like presented in United Kingdom. In Latvia does not exist simplified form of financial report for micro undertakings which would help them to prepare statements according with international recommendation in easier way.

Comparative analyses of the accounting law functioning in different European countries, not only with common political and economic ground, is necessary because it can help to prepare the list of good practices in financial reporting. The Author of the paper is planning to carry out research on this area.

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PROTECTING THE E-CUSTOMER: LEGAL AWARENESS AND CONSUMER BEHAVIOUR OF BULGARIAN YOUNGSTERS

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Abstract. During the last decade the issues of protecting consumer rights in a digital world gained momentum regarding the speed and the scale of e-commerce growth. It forces the refinement of legal frameworks and a constant effort for its harmonization at least at a European level. However, the Consumer Empowerment Index indicates certain problems which seem to be more dramatic for the younger member states such as Bulgaria. Particularly alarming is the score on awareness of consumer legislation and consumer skills which might be a reason for the low relative share of consumers online. Nevertheless, this issue is not well examined as existing existing prior researches in this field are scarce or outdated.

This article points on the reasons for the low consumer empowerment of Bulgarians and its impact on e-commerce growth by focusing on the online consumer behaviour of young people aged 18-25. The main research aim is to evaluate the impact that the unawareness of consumer rights has on consumer behaviour and especially on the process of purchase decision making. The research methods used include a content analysis of the official information published by a range of online shops in order to detect the scale of the existing information asymmetry and an online survey which aims at assessing the level of legal awareness of Bulgarian youngsters. A correlation analysis is performed in order to track its impact on online purchase and after sale decisions. The legal framework is analysed with regard to recent changes and the applicability of European low. The issues of reinforcing consumers' knowledge about their rights in a digital environment are raised and discussed. Further research can include testing the effectiveness of different techniques for fostering consumer empowerment as well as making a comparative study on a cross-national basis.

Key words: *e-commerce, consumer protection, consumer behaviour, legal guarantee, information asymmetry*

JEL code: M31, D18

Introduction

Achieving a Digital Single Market is the main objective of the Digital Agenda, proclaimed by the European Commission as one of the seven pillars of the Europe 2020 Strategy which sets objectives for the growth of the European Union by 2020. Among the priorities of this agenda therefore are the digitalization of business and the promotion of e-commerce which would enable the emergence of a borderless European digital economy. Statistics in line with the agenda report an increase in on-line sales across the EU from 13% in 2008 to 20% in 2016 (Eurostat, 2017). This accounts for 18% of total sales turnover and proves for the growing importance of e-commerce. However, there are still barriers that deter consumers from taking full advantage of e-commerce (Valarezo, Pérez-Amaral, Garín-Muñoz,García & López, 2018). Catching up with these priorities is varying across member states. According to the Digital Progress Report published by the Commission in May 2017 Bulgaria is among the countries with lowest results. While half of companies in Denmark are highly digitised in Bulgaria it is only one in ten (European Commission, 2017). The UNCTAD's Business-to-Consumer E-Commerce Index for 2017 which measures the readiness of countries for e-commerce based on the following four indicators: internet use penetration; secure servers per million inhabitants; account penetration; and postal

reliability score, also alarms for a lagging in Bulgarian e-commerce development. Bulgaria is ranked 50 which means that it is the least ready for e-commerce country in the European Union and moreover it is bypassed by many less developed states (Minges, Fredriksson, & Korka, 2017). At the same time the average connection speed in the country is over 15Mbps (while the average for EU28 is only 13 MBps). Nevertheless about 33% of the population has never used the internet and moreover the share of regular internet users is only 58% which is significantly below the mid-point for the Union (European Commission, 2017). Fig 1 illustrates data about the share of on-line consumers in selected EU countries and once again confirms the backward position of Bulgaria regarding e-commerce.
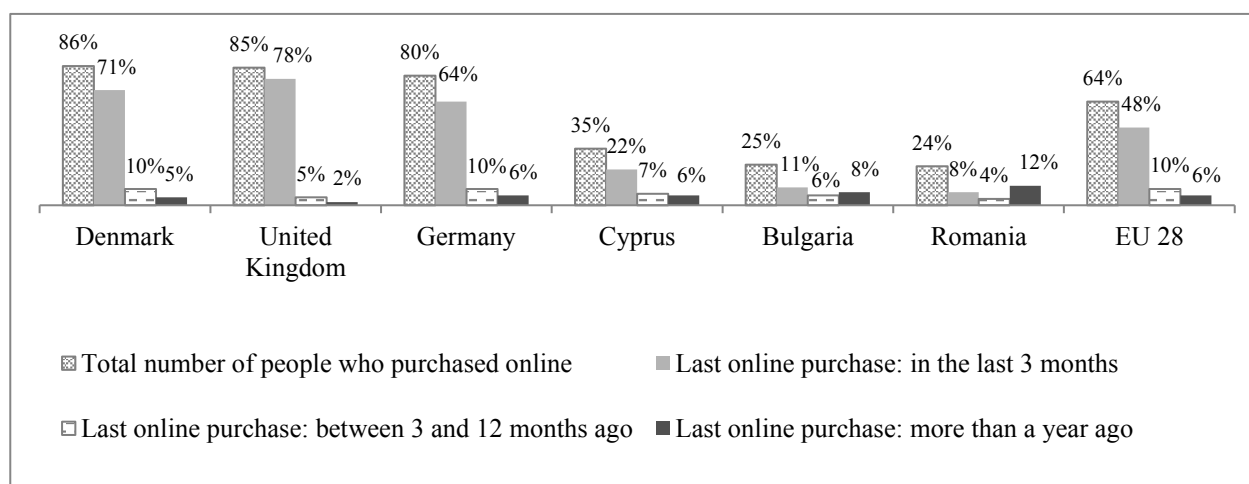
Source: Eurostat, 2016

Fig.1. **Share of e-consumers in selected EU countries**

A possible explanation for these data might be sought in the problems highlighted by the Consumer Empowerment Index which measures the skills, awareness and engagement of European consumers (Nardo, Loi, Rosati, & Manca, 2011). The Index ranks Bulgaria at the bottom of the list on 27th place in the EU, meaning that Bulgarian consumers do not feel confident, knowledgeable and protected. This uncertainty can be even stronger when it comes to e-commerce due to its virtuality and the fact that its physical existence outside the Internet is limited (Azam, 2012). Engaging in e-commerce presents legal risks to both e-businesses and consumers because "no one controls cyberspace" (Davidson, 2009, p.12). Legal actions relating to such areas as censorship, computer crime, contracts, copyright, defamation and libel, discrimination, fraud, hacking, harassment, intellectual property, obscenity and pornography, privacy, taxation, trade secrets, and trademark, among others, are an undeniable concern in e-commerce transactions (Ward, Sipior, & Volonino, 2016). From the consumer perspective, the perceived risk is even higher because goods cannot be physically inspected before full payment is made and because there is a waiting period before the goods are delivered (Ong & The, 2016). Providing that the consumer is the more vulnerable side on the transaction a reliable legal framework for e-consumer protection is needed as the lack of trust in web vendors can deter consumer adoption of e-commerce (Bhattacherjee, 2002). The obligation to provide adequate legal regulation of consumer rights stems also from Art. 38 of the Charter of Fundamental Rights of the European Union (2012) which provides for a high level of consumer protection in Union policies. Union law requires the development and strengthening of consumer rights, in particular through well thought-out regulatory measures and improved access to simple, efficient, expeditious and inexpensive means of redress, including out-of-court mechanisms for consumer protection (Regulation (EU) No.254, 2014). It is, however, equally important to enhance consumer empowerment as despite the existence of a rich regulatory framework for the protection of consumer rights, the poor knowledge about it can give rise to the use of unfair commercial practices, misleading the consumer and

changing his behaviour (Kraleva & Dimitrova, 2017). This article addresses the problem by focusing on the e-consumer behaviour of Bulgarian youngsters aged 18-25. The main research aim is to evaluate the impact that the unawareness of consumer rights has on consumer behaviour before and after an online purchase. Though the following research tasks are fulfilled throughout the study:

1. Analysis of the national legislative framework and the applicable European law;

2. Survey among Bulgarian youngsters which aims at assessing their level of legal awareness and its impact on their online shopping behaviour;

3. Analysis and interpretation of collected data;

4. Analysis of the official information published by a range of online shops in order to detect the scale of the existing information asymmetry.

These research tasks reflect a complex approach that includes an analysis of consumer rights as set in the regulatory framework, empirical testing of the level legal awareness of these rights, and an evaluation of the information asymmetry caused by the publication of faulty and incomplete information by online traders. The research methods used include an analysis of the juridical regimen in force, content analysis and correlation analysis of empirically collected data. In conclusion the issues of reinforcing consumers' knowledge about their rights in a digital environment are raised and discussed.

Consumers' rights legal framework

The main legal act regulating e-commerce in Bulgaria is the Electronic Commerce Act in force since 23.06.2006. It defines the term "e-commerce" as providing services of the information society which comprises transactions with monetary transfer that are provided at a distance by using electronic means after an explicit statement by the recipient of the service (E-Commerce Act, 2006). The law states the main rights of e-consumers and defines the responsibilities of web traders. When it comes to the relations between trader[1] and consumer[2] e-commerce in Bulgaria is regulated also by the Consumer Protection Act, promulgated the same year. The ECA and the CPA together regulate the basic consumer rights, which include: the right to detailed and correct information, the right to claim and the right to cancel the consumer contract[3]. Before the consumer is bound by a distance contract[4], the trader is required to provide him with clear and comprehensible information about: the trader; the essential characteristics of the good or service; the final price, including all taxes and charges; the payment and delivery terms; guidance on how to exercise the right to cancel the contract and a reminder of the provided legal guarantee of conformity of the good with the contract of sale. The trader is required to indicate on the sales site his name, seat and business address, telephone number and email so that the customer can contact him and interact effectively. It is also required to provide the consumer with the standard withdrawal form. Pursuant to

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[1] For the purposes of the CPA (§ 13, point 2), a "trader" is any natural or legal person who sells or offers for sale goods, provides services or concludes a contract with a consumer as part of his trade or profession in the public or private sector, and any person acting on his behalf and at his own expense.

[2] According to § 13, point 1 of the CPA the term "consumer", should be understood as any natural person who acquires goods or uses services that are not intended to carry out commercial or professional activity and any natural person who, as a party to a contract under this Act, acts outside the scope of his commercial or professional activity. According to the above-mentioned legal definition, legal persons cannot be consumers at all, even if they do not have a commercial capacity (universities, non-profit associations, foundations, etc.).

[3] The term "consumer contract" as defined by the CPA is a transaction whereby a commodity reaches its final recipient - a person who intends to use its utility rather than profit from it by re-introducing it to the market. Therefore the contract is not necessarily in a written form but it is concluded with the transaction itself. It is important however whether the recipient of the goods or services is a "consumer" within the meaning of the CPA in order to pretend for the rights to claim and withdrawal.

[4] Art. 45 of the CPA defines the distance contract as a contract concluded between a trader and a consumer under an organized distance sales or service-provision system without the simultaneous physical presence of the trader and the consumer, with the exclusive use of one or more means of distance communication up to and including the time at which the contact is concluded.

Art.50 of the CPA, the consumer has the right to cancel the contract without giving any reason, without indemnity or penalty and without paying any expenses, except for the cost of returning the goods, within 14 days as of the date of conclusion of the contract (in the case of a service) or of the date of receipt of the goods[5]. This is related to the virtual nature of e-commerce and the lack of immediate impressions about the type and the characteristics of the commodity. It is important to mention, however, that in the event that the trader has not provided information about the right to withdrawal, the period increases to 1 year and 14 days. A penalty is also foreseen if the trader has not indicated the total amount of the extra costs – in this case the consumer does not owe them.

The task of monitoring compliance with the legal provisions of ECA and CPA is entrusted to the Consumer Protection Commission. Among the problems also covered by the Commission are: to provide information about the safety of goods and about consumer rights; to resolve disputes between consumers and traders; to remove unfair terms in general terms of consumer and distance contracts; to penalize incompliance with the law; to assist consumers; to control the manifestation of unfair commercial practices and to supervise the market for dangerous goods.

Both acts regulating e-commerce in Bulgaria – the ECA and CPA are written with regard to the harmonization of European legal frameworks and thus they are being repeatedly amended and supplemented, in order to transpose all Union polices into the national legal system[6]. Enhanced harmonization means that consumers can rely on the same rights regardless of which EU country they buy, as well as simpler and more predictable rules for traders (European Commission, 2014). This guarantees for the existence of a rich regulatory framework for the protection of consumers' rights and is a sign of achieving uniform conditions for e-commerce across the Union. The insufficient knowledge about consumer rights, however, can still ruin the feeling of being protected and thus deter the expansion of online sales. Hypothesising that it might explain the lagging in Bulgarian e-commerce development the next part of this article explores the level of consumer legal awareness and its impact on online consumer behaviour.

Legal awareness and online shopping behaviour

In order to assess the level of awareness about e-consumer rights and its impact on consumer behaviour before and after purchase, a survey among Bulgarian youngsters which constitute a major market for e-commerce is conducted. The survey is distributed mainly through the social network which is a relevant channel among young people and provides access to a large number of respondents within relatively short terms at the lowest possible cost. The LimeSurvey platform is used to produce and disseminate the electronic questionnaire. The data are collected from 29 October 2017 to 24 January 2018 using a convenience sample. A total of 177 responses are received, of which 143 are complete. For the analysis all the responses are used.

The profile of the surveyed respondents includes 83.2% women and 16.8% men all of them falling into the frame of 18-25 years of age. The biggest part of the respondents (71.2%) declares to have made a purchase via internet within the last three months. Another 19.2% purchased online in the past 6 months and 8.5% did it more than a year ago. Only two of the respondents (1.1%) state that they have never used the internet to buy any goods or services. The general attitude towards online shopping is positive – respondents find it convenient (an average score of 4.31 out of 5) and inexpensive

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[5] Exercise of the right of withdrawal is not possible in some cases, for example: if the contract concerns services that have already been provided; when delivering individually customized goods; for short term products, such as food products; when delivering sealed goods that have been printed and cannot be restored in their original form for hygienic reasons, such as lingerie; when delivering sealed sound recordings, video recordings, or software after printing, as there is no guarantee that they are not copied / multiplied.
[6] Union polices regarding consumer protection are envisioned by a number of directives such as: Directive 99/44/EC of the European Parliament and of the Council of 25 May 1999 on certain aspects of the sale of consumer goods and associated guarantees; 85/374/EEC: Council Directive of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products; Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights; Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts and others.

(3.56 out of 5). However about 44% of young people define it as unsecure or rather unsecure which alarms for the lack of confidence in the consumer protection system. Another reason for this uncertainty might be the fact that only 25% declare to have never met any problems with e-purchases. Among the problems most commonly met during online shopping is the length of the delivery which in 23.9% of cases took longer than indicated. Another 15% had difficulties finding information on the web site about guarantees and 12.8% complain about receiving wrong or damaged good/service.
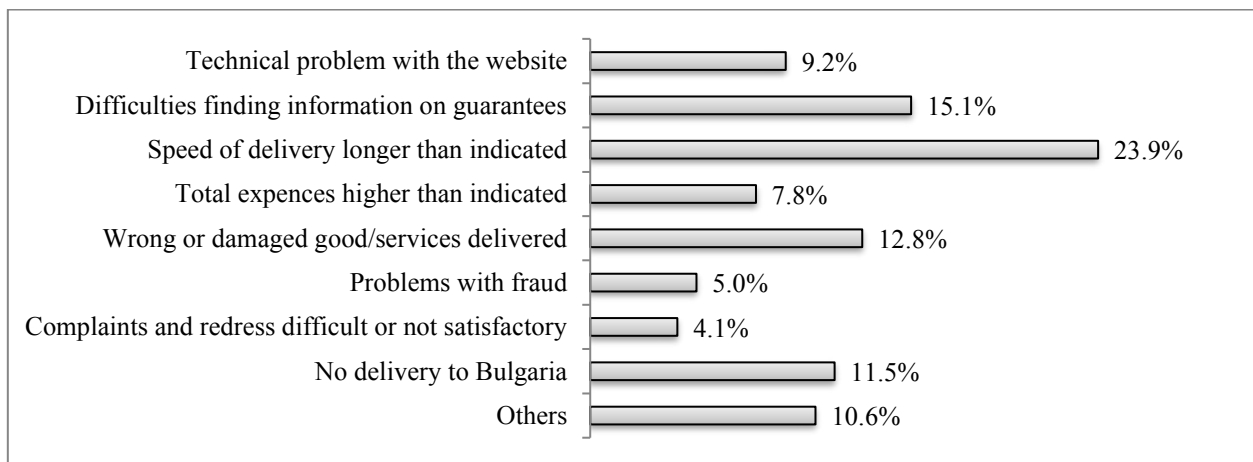
Source: authors' calculations based on collected survey data

Fig.2. **Types of problems met when shopping online**

When asked about different factors that might affect their purchase decision, 73.2% of respondents point out quality as "very important" and another 22.1% see it as "rather important". Significant attention is also paid to the price and the guarantee terms as factors that can influence the choice of the consumer (Fig.3). It is not surprising though that about 67% of survey participants state that they search for information about the guarantee service always or in most cases but apparently some of them have problems finding it. A little bit more – 69% look for information about the terms of withdrawal of the contract every time or almost every time when they purchase online.
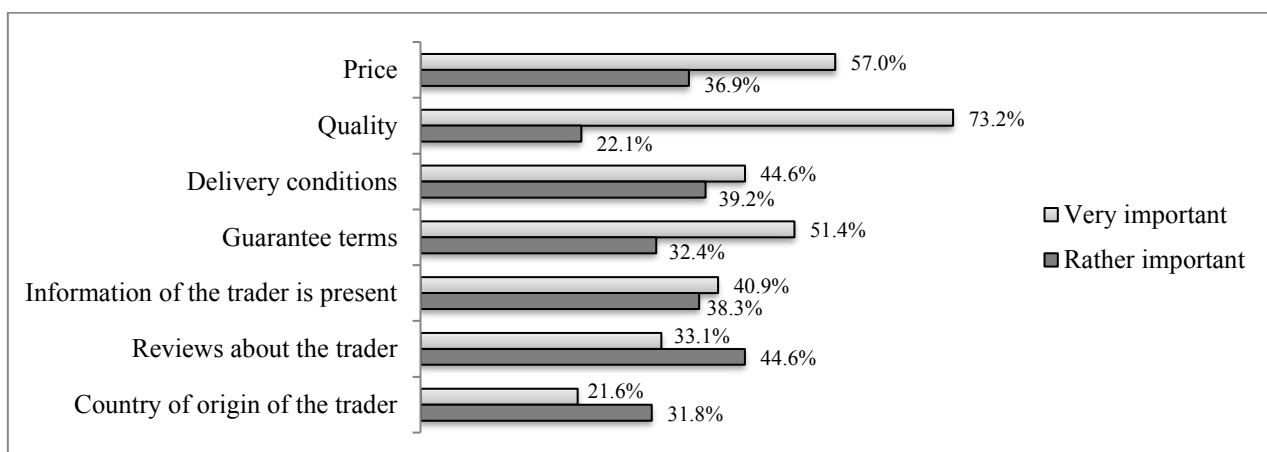
Source: authors' calculations based on collected survey data

Fig.3. **Factors affecting purchase decision**

Regarding these data it is interesting, however, that when asked about their two main consumer rights – the right to withdrawal and the right to claim – most of the respondents get perplexed. The results from the survey prove that only 18.3% of young people can point correctly the conditions and the time span of the cool-off period. Another 6.8% are aware of this right but they believe that it is valid only 7 days. The rest mix it up with the right to claim stating that a product can be returned only if it does not fit specifications or shows insufficient quality. Provided that most of the

participants in the survey declare to regularly search for such information a possible reason for their legal incompetence might be sought in the quality and the correctness of the information provided by online traders (this problem is examined in the next part of this article).
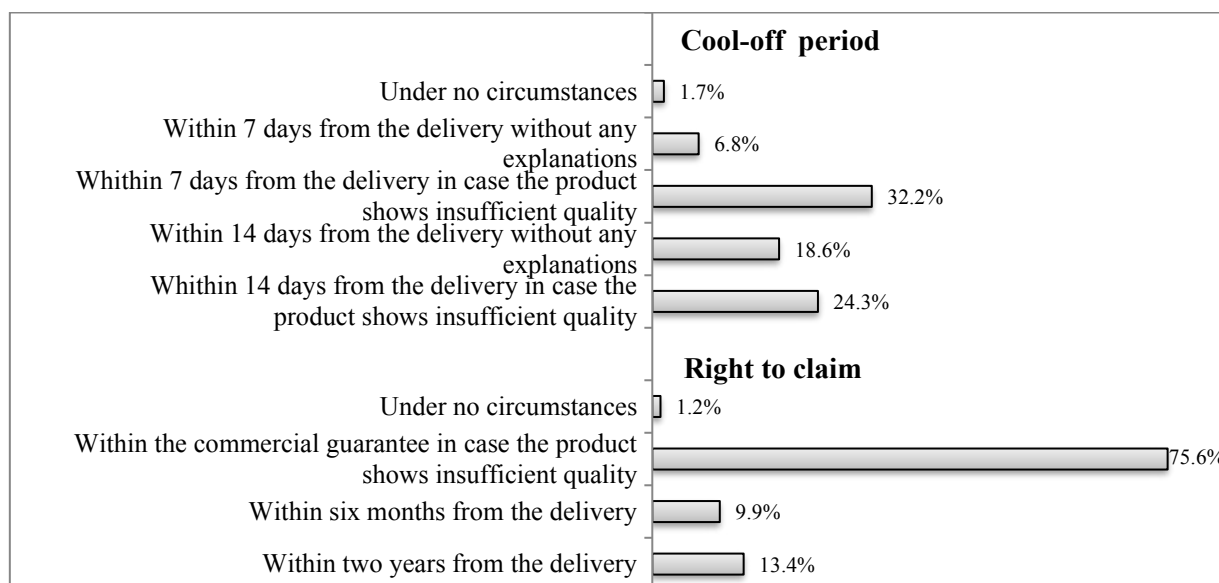
Source: authors' calculations based on collected survey data

Fig.4. **Consumer awareness regarding the cool-off period and the right to claim**

The awareness about the legal guarantee provided by the CPA is even lower. More than 75% of respondents believe that they can claim a defective product only within the commercial guarantee which might be shorter than two years. The share of respondents who know that they have the right to claim within two years from the delivery in case the product shows insufficient quality is only 13.4%. It proves for a critically low competence on a major consumer right and by itself allows for the development of unfair commercial practices. Providing that the consumer is convinced that he is protected only within the commercial guarantee, it can influence his choice in favour of the product with longer guarantee. A lot of manufacturers, however, provide a warrantee that coincides with or is even shorter than the two year legal guarantee and advertise it as a commitment to quality. In case the consumer is unaware of his rights it is in fact a fictitious competitive advantage and thus can be qualified as an unfair commercial practice.

A major problem might also be the possibility of influencing the after purchase consumer behaviour in case the information about the legal guarantee is missing. Asked what they would do if, after having purchased a durable product without warranty offered by the manufacturer, it gets damaged by routine use only a month later, 31.3% of this survey participants state that they would repair the product at their own cost. Another 4.9% would directly dispose of the product. Linking these reaction to the fact that about 75% of young people believe that they have the right to claim only within the commercial guarantee suggest that the provision of warranty service shorter than 2 years, practiced by many manufacturers, might also influence consumers' after purchase decisions. These data confirm that the unawareness of consumer rights directly affects consumer behaviour. In the event that the commercial guarantee is shorter than the legal or the information about it is missing, it obviously misleads the consumer and he might take actions that are detrimental to his financial interests.

It is also interesting to follow the reactions of online traders in the event of a claim. The empirical data show that 34.6% of respondents have attempted to return a product to the online trader because of insufficient quality, 28.1% did it because

the product didn't match the specifications, 25.4% claimed a delivered wrong product, and 11.9% exercised their right to withdrawal.
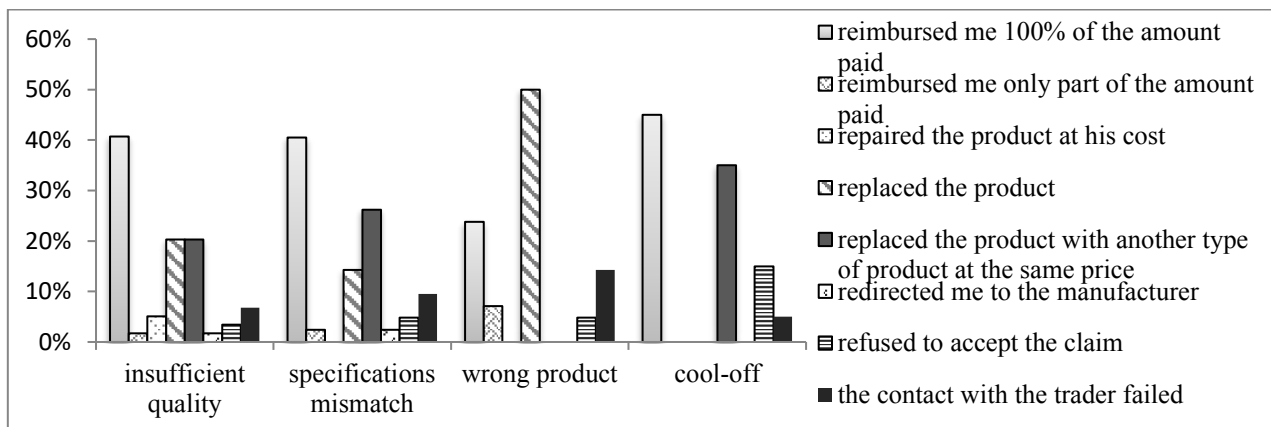
Fig.5. **Trader's reactions to a claim**

In the majority of cases the trader complied with the low by respectively reimbursing fully or partially the amount paid, changing or repairing the product. It is alarming, however, that in many cases the trader was not contactable (14% in the event of wrong delivery) or refused to accept the claim (15% it the event of cool-off). Another less common violation is redirecting the consumer to the manufacturer.

The scope of information asymmetry in e-commerce

The results of this survey highlight the critical level of legal competence demonstrated by young e-consumers in Bulgaria. A possible reason for this problem might be the information asymmetry imposed by online traders as well as the lack of a large-scale public campaign on consumer rights. Information asymmetry refers to a social situation where information is known to some, but not all, participants in the system (Mascarenhas, Kesavan and Michael, 2013). There can be identified different forms of information asymmetry regarding the product, the price, the delivery, the promotion, the contract, etc. Making a secondary data analysis provided by the Bulgarian Consumer Protection Commission Ivanova (2016) identifies that about half of the practices (43%) relate to product information asymmetry, i.e. the provision of incomplete or misleading information regarding the composition, instructions for use, characteristics, specifications, functions, storage conditions, name of manufacturer/importer, etc., i.e. information which is required by law to be placed on the label of the product or as an additional leaflet accompanying the goods, or as description of the goods in e-commerce. The legal guarantee and the cool-off period also take part in the product as an element of the marketing mix and information about them is to be provided. Nevertheless they are often subjects to information asymmetry. In order to assess the scope of this asymmetry in e-commerce in this part of the article are presented the main finding of an analysis of the official information published by a range of online shops. The sample of shops to be examined is quoted on the basis of the shops most often mentioned by the surveyed young people. The total number of visited websites is 55 which fall in the following groups according to the type of goods offered: clothes and accessories – 12 websites, technology – 16 websites, perfumery and cosmetics - 11 websites, home goods - 9 web sites, and miscellaneous - 7 websites. The sample does not include sites for sale of food and beverages, and medicines, as well as services due to the specific regulatory requirements for their supply. The analysis of the mandatory information published by online shops focuses on the following elements: information about the trader, product specifications, payment and delivery terms, information

about the right of withdrawal, including the availability of a withdrawal form, as well as information on the mandatory two-year legal guarantee.

From the collected information a number of conclusions can be drawn regarding the presence and the correctness of the information provided by web traders. In about 55% of cases, the information necessary to identify and contact the trader is not complete. In many cases only an email and/or a contact phone are available on the site. Apart from the fact that this is a severe violation of the E-Commerce Act, it deprives the consumer of the opportunity to seek his rights for breach of contract terms under the established order because the trader cannot be identified and contacted. These data correspond to the findings of the survey which show that 5% to 14% of claims ended without an answer because the contact with the online trader failed. Not publishing complete information about the trader can be regarded as a strategy for minimizing claims as well as the likelihood of being held responsible for poor quality goods and thus should be firmly penalized.

Another common offense is related to the information about the terms and conditions under which the consumer has the right to withdrawal of the online purchase. In most cases, the deadline does not meet the statutory deadline, but rather a shorter 7-day period. A reason for this might be the fact that traders did not reflect the 2014 change in legislation introducing a 14-day period for exercise of the right to withdrawal. It should be noted, however, that under the current rules, where the trader has not provided the consumer with information on his right of withdrawal, the consumer has the right to exercise it within 1 year and 14 days. At the same time in the event that the information is available but incorrect, the law is silent about the applicable sanction. This reduces the effectiveness of legislative measures and makes the enforcement of law more difficult when consumer rights are violated.

Another observed problem is the fact that in about 30% of cases when the information on the right of withdrawal and the legal guarantee is present, it is difficult to access it on the site and/or it is written in very small print, which further complicates the consumer. It is noticeable that many online traders associate the right of withdrawal with the rights that result from the delivery of wrong or defective goods, which is, in fact, a mixture of the terms 'right to withdrawal' and 'right to claim'. In some of the websites reviewed, there is implied a duty on the consumer to pay the cost of returning the defective goods in the event of claim and in others the right of withdrawal is limited to returning only unpacked or unused products which is contrary to the provisions of the CPA. This may explain the conviction of over 70% of respondents that they have no right to return the product just because after delivery they have realized that it does not fit their expectations. Another problem that has been identified is that the major consumer rights to withdrawal and to claim are not clearly and unambiguously cited, but the consumer is referred to abstract legal provisions whose meaning and content are unclear to the average consumer. The standard form for exercising the right to withdrawal and the right to claim are also not always present. It discourages some consumers from taking action and thus favours the trader.

In summary, it can be concluded that a big share of Bulgarian online shops does not provide all the necessary information in a clear and understandable manner. The consumer is embarrassed to search for information on his major rights and if present it is not always complete and correct. In general the websites offering high-tech and home appliances are more punctual which has to do with the bigger risks associated with buying them and the fact that they are often accompanied by a commercial guarantee. It is worth mentioning, however, that some of the monitored stores (about 10%) not only inform about the legal rights of withdrawal and to claim but in addition offer more favourable conditions such as a longer withdrawal period, assumption of the cost associated with withdrawal, longer free trade guarantee, etc. This can be regarded as an appropriate marketing strategy to attract users and should be encouraged.

Conclusions, proposals, recommendations

This article focuses on the issues of effectively protecting consumer rights by presenting the results from a survey among young Bulgarian online shoppers and an observation of a sample of e-shops. Based on the conducted empirical study and the analysis of the mandatory information on consumer rights provided by online traders the following conclusions and recommendations can be made:

1. Young people in Bulgaria are poorly or wrongly informed about their major rights as consumers of online goods. There is confusion as to the terms and conditions for exercising the right to withdrawal and the right to claim. This changes consumers' behaviour before and after purchase, as it can influence their choice in favour of brands that offer longer warrantee or can result in extra expenses to repair damaged goods. It gives fictitious competitive advantage to some traders and can be regarded as an unfair commercial practice.

2. In a significant number of Bulgarian commercial websites the information which according to the CPA must be published is incomplete and/or incorrect. This is misleading to the consumer and increases the information asymmetry in e-commerce. The mechanisms for control of non-compliance with the law are ineffective as measures cover only the lack of information but not the dissemination of faulty information. It is necessary to reinforce the control over the information published by online traders and to provide for more effective sanctions for unfair participants. This requires the development of a mechanism for real time tracking of the information provided as well as its accessibility. The monitoring of consumer rights respect alongside a large number of other responsibilities is currently entrusted to the Consumer Protection Commission. Given the high specificity of e-commerce, the need for continuous monitoring, and the complex knowledge required, it is appropriate to create a separate body of control over the interaction traders – consumers in the cyberspace.

3. The faulty information published by online traders combined with the poor legal competence of Bulgarian online consumers result in an expanding trust deficit and limited e-commercial growth. Therefore it is of utmost importance to take steps in two main directions: to introduce effective measures for unfair traders, and to elevate consumer knowledge on the legal framework. The first can be achieved though setting up a separate body of control regarding e-commerce and changing the law in terms of sanctions for publishing incorrect information. The later requires continuous efforts to educate consumer markets, including the introduction of consumer protection courses in secondary schools and universities.

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TOWARDS A GENERAL MODEL OF SUSTAINABLE INVOLVEMENT

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Abstract. The constantly growing number of people who embrace sustainable initiatives and lifestyles is a sign of a raised social sensitivity to the universal problems of environmental change, social inequality and economic growth. In marketing literature it is echoed mainly in attempts to understand and influence consumer attitudes and behaviour towards green and fair trade products. These studies are, however, mainly concerned with the consumer as a buyer and neglect the other roles that he/she may perform with regard to sustainability.

This article aims at proposing a theoretical model of the factors affecting consumer intentions for sustainable action which may take the form of both sustainable consumption and involvement which adds complexity to existing conceptualizations. The selection of variables to be included in the model is based partially on the theory of planned behaviour and the ideal point model. In order to set the basis for testing the proposed model, there is developed a scale, which measures one of the key constructs of the model - the gap between the ideal view of sustainable development and its perceived current state.

The research methods used include semi-structured personal interviews and associative techniques to support the design of the model and an online survey among target audience to empirically test the developed scale. As a result of the study some new perspectives to the explanation of how intentions for sustainable action are being formed is added. The constructed measurement scale can be used in further research that might include testing the validity of the model. Another research direction could be examining the differences imposed by varying cultural and economic backgrounds on a cross-national basis.

Key words: *sustainable marketing, sustainable involvement, activism, behavioural model*

Introduction

On December 28, 2017, the Bulgarian government adopted a decision to change the management of the Pirin Nature Park, which allowed the construction of a second cabin lift in Bansko ski resort and promising economic development in the region gave the green light for the construction of new ski runs and facilities in a protected zone. Such a decision was enough to enable mass protests in twenty-seven cities, remote from one another. In Bulgaria protests related to environmental issues are not uncommon. An interesting fact is that the start of the democratic changes in the country coinciding with the break-up of the Eastern European Economic Bloc began with protests against air pollution from a newly built chlorine plant on the Romanian side of the Danube. All of these events are signs of the emergence of a new consumer segment that has not been well studied in terms of marketing. Environmental protesters are in fact united not only against a concrete decision that would allow constructions in a nature conservation area which is detrimental to all ethical and environmental norms. What really unites people in this segment is the idea that meeting the needs of people living now, such as the business interests of local communities around the park, should not question the possibility of meeting the needs of future generations (it is not by chance that the slogan of the protest is "For Nature to Stay in Bulgaria"). And this fully corresponds to the basic principle laid down in the concept of Sustainable Development. The

question that has not been investigated is whether in this growing segment of people the principles of sustainable development determine only their actions related to proclaiming and asserting an active civil position or, moreover, it guides their behaviour as citizens and consumers as a whole. If the answer is positive, from marketing point of view, such behaviour can be considered as a set of ideas, attitudes, beliefs and actions that are dominated by the principles of sustainable development. On the other hand, the research and understanding of consumer motivations may allow a more complete and effective satisfaction of needs within the segment under consideration.

The segment of socially responsible consumers is widely examined across prior research but mainly focusing either on sustainable consumption (Murphy & Cohen, 2001; Quoquab & Mohammad, 2016; Geiger, Fischer, & Schrader, 2017; Joshi & Rahman, 2017; Lim, 2017; Minton, Spielmann, Kahle, & Kim, 2018) or on activism (Horton & Kraftl, 2009; Agarin & Grīviņš, 2016; Akiva, Carey, Cross, Delale-O'Connor, & Brown, 2017; Reysen & Hackett, 2017) which does not allow for a complex view of the problem. Echoing the above mentioned issues and the lack of a consistent model that accounts for the interrelatedness between sustainable involvement and consumption, this article aims at proposing a conceptual model which explains the consumer behaviour of segments sensitive to the principles of sustainable development. It is suggested that the gap between the ideal view of the world and its perceived current state is a key construct which has not been investigated by prior research. Though the following research tasks are fulfilled throughout the study:

1. Literature review on the concept of sustainable development and sustainable consumer behaviour;

2. Qualitative research (semi-structured interviews and associative techniques) to identify groups of factors that affect consumer desire and intentions for sustainable action;

3. Design of a general conceptual model of sustainable action;

4. Scale development for measuring the gap between one of the key constructs of the proposed model – the gap between the ideal view of the world and the perception of reality;

5. Online survey among target audience to empirically test the developed scale.

The measurement scale is to be tested for reliability and validity using an Exploratory Factor Analysis and reporting the values of Cronbach's Alfa.

Literature Review and Design of the Model of Sustainable Action

The current trend toward Sustainable Development, addressed by both researchers and policy makers, represents a priority for facing environmental and social issues (Linnenluecke, Verreynne, de Villiers Scheepers, & Venter, 2017; Toni, Renzi, & Mattia, 2018). The discussion on Sustainable Development traces back to 1987 when concerned about the human footprint on Earth and the growing inequality among people the World Commission on the Environment and Development (known as the Brundtland Commission) calls for a global shift towards a development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). The Commission identifies economic growth, environmental protection and social equality as the three main pillars which must maintain a dynamic balance in order to achieve sustainable development. It requires constant efforts at different levels such as building infrastructure, transforming production patterns, care for social problems, imposing regulations to list but a few. Most advocates of sustainable development, however, recognize the need for changes also in human values, attitudes, and behaviours (Leiserowitz, Kates, & Parris, 2006; Sharma & Jha, 2017). Contrary to the values of individualism, economic growth, and material abundance embraced by Western society (Davis & Stroink, 2016) a shift toward a more eco-centric world view is needed. A widely recognised instrument for measuring these changes is the New Ecological Paradigm (NEP) scale (Riley E. Dunlap, 2008) which reflects the transition to a new worldview based on

values such as the high valuation of nature; a generalized compassion toward other species, peoples and generations; careful planning and acting to avoid risks to humans and nature; a recognition that there are limits to growth to which humans must adapt, etc. (Erdogan, 2009). These changes in the Dominant Social Paradigm are reflected by the emergence of a distinct sustainable lifestyle which can be defined as a cluster of habits and patterns of behaviour embedded in a society and facilitated by institutions, norms and infrastructures that frame individual choice, in order to minimize the use of natural resources and generation of wastes, while supporting fairness and prosperity for all (Akenji & Chen, 2016). Regarding consumer behaviour it results in the emergence of different forms of sustainable consumption among which are responsible consumption, anti-consumption, mindful consumption, and voluntary simplicity (Zavestoski, 2002; Seegebarth, Peyer, Balderjahn, & Wiedmann, 2016; Kraleva, 2017; Lim, 2017).

In marketing literature the issues of sustainable action and the rationale behind it are analysed from a socio-psychological perspective with regard to underlying internal and external factors such as values, beliefs, social pressure, abilities and constraints, etc. The theories used to conceptualise the antecedents of sustainable behaviour can be divided in two main groups: based on moral obligations and based on a rational analysis of personal costs and benefits. It should be noticed, however, that most researchers limit the scope of their analysis to a certain area of sustainable behaviour, which in most cases has a pro-environmental orientation. In this context widely used in research is The Norm Activation Theory of altruism (Schwartz, 1977) which explains altruistic behaviour as a response to personal norms expressed by the feeling of moral obligation to take certain action. This moral obligation is determined by the awareness that performing (or not performing) the particular behaviour has certain adverse consequences, and the feeling of responsibility for averting those consequences. The applicability of the model is tested in different contexts including household energy reduction (Black, Stern, & Elworth, 1985), recycling (Guagnano, Stern, & Dietz, 1995), control of toxic chemical releases (Vandenbergh, 2005), electrical vehicles adoption (He & Zhan, 2018).

Another framework for investigating normative factors that promote sustainable attitudes and behaviour is proposed by the Value-Belief-Norm Theory of Environmentalism (Stern, 2000). The theory links the Value Theory (Schwartz, 1992), the Norm Activation Theory (Schwartz, 1977) and the New Environmental Paradigm (Dunlap & Liere, 1978) suggesting a causal chain in which behaviour is influenced by the sense of obligation for action imposed by personal norms. These norms in turn are influenced by three types of beliefs: the ecological worldview, the perceived adverse consequences and the belief in one's ability to reduce the threat. These beliefs are formed under the influence of biospheric, altruistic and egoistic values. The model implies that norm-based actions flow from three factors: acceptance of particular personal values, beliefs that things important to those values are under threat, and beliefs that actions initiated by the individual can help alleviate the threat and restore the values (Dietz, Abel, Guagnano & Kalof, 1999).

Other attempts to explain the drivers of sustainable action present it as a matter of rational and conscious choice. Psychologists theorise that decision making can be influenced by the cognitive expectations about the outcomes of a potential action (Ajzen & Fishbein, 1980; Bandura, 1997). In literature it is reflected by the overlapping concepts of Perceived Behavioural Control and Self-Efficacy (Antonetti & Maklan, 2014). The notion of Perceived Behavioural Control, introduced by Ajzen (1985) in his Theory of Planned Behaviour which has also proven to be successful in explaining various types of environmental behaviour (Steg & Vlek, 2009). The PBC refers to the extent to which people believe that they are capable of, or have control over, performing a given behaviour (Ajzen, 2002). It is assumed to reflect past experience and to take into account the availability of information, skills, opportunities, and other resources required to perform the behaviour as well as possible impediments or obstacles (Ajzen, 1991; Ajzen, 2005; Fishbein & Ajzen, 2015). Along with the PBC the Theory of Planned Behaviour suggests that attitudes toward an issue and subjective norms evaluated in terms of rewards and punishment for the self are the drivers of intentions which in turn determine actions.

Compared to PBC the concept of self-efficacy which according to some recent studies is a better predictor of behaviour (Parkinson, David, & Rundle-Thiele, 2017), brings a nuance which has to do with the belief in one's capabilities to organize and execute courses of action required to produce given attainments (Bandura, 1997). This belief, as suggested by the social cognitive theory, is derived by four main sources of information: personal mastery experience (performance accomplishments), other's success patterns (vicarious experience), verbal persuasion and psychological states of emotional arousal. Applying the concept to the field of sustainable development there emerged the notion of sustainable development self-efficacy (SDSE) (Hanss & Böhm, 2010). The construct has four separable facets: the perceived ability (i) to encourage others to act sustainably, (ii) to promote environmental preservation by one's own actions and consumption decisions, (iii) to promote social fairness and economic welfare through one's consumption, and (iv) to promote social fairness and economic welfare through one's actions in general. These facets cover the promotion of all three dimensions of sustainable development directly through personal activities and indirectly through encouraging others to take action which adds value also by conceptualising the different types of sustainable actions. Another attempt to define the scope of sustainable behaviour can be attributed to Stern (2000) who lists a number of environmentally significant behaviours divided in the following broad categories: committed environmental activism (e.g., active involvement in environmental organizations and demonstrations), nonactivists' support of movement objectives; private-sphere environmentalism which comprises the purchase, use, and disposal of personal and household products that have environmental impact and other environmental behaviours such as influencing the actions of organizations.

From the presented literature review there can be concluded that different types of sustainable behaviours exist and they are driven either by moral obligation or by rational analysis of the costs and benefits of a particular action. It can be argued, however, that these drivers might not invoke an action unless a certain threshold of tolerance towards the noncompliance with personal values is reached. We theorise though that a key construct to be examined in the context of sustainable behaviour is the existing gap between the ideal view of the world and the state of reality as perceived by the individual. Based on previous research and introducing the notion of the dynamic gap between the ideal view and the perception of reality (GIVPR) we propose a theoretical model of the factors affecting the formation of desire and intention for sustainable action and their further transformation to actual behaviour (Fig.1).
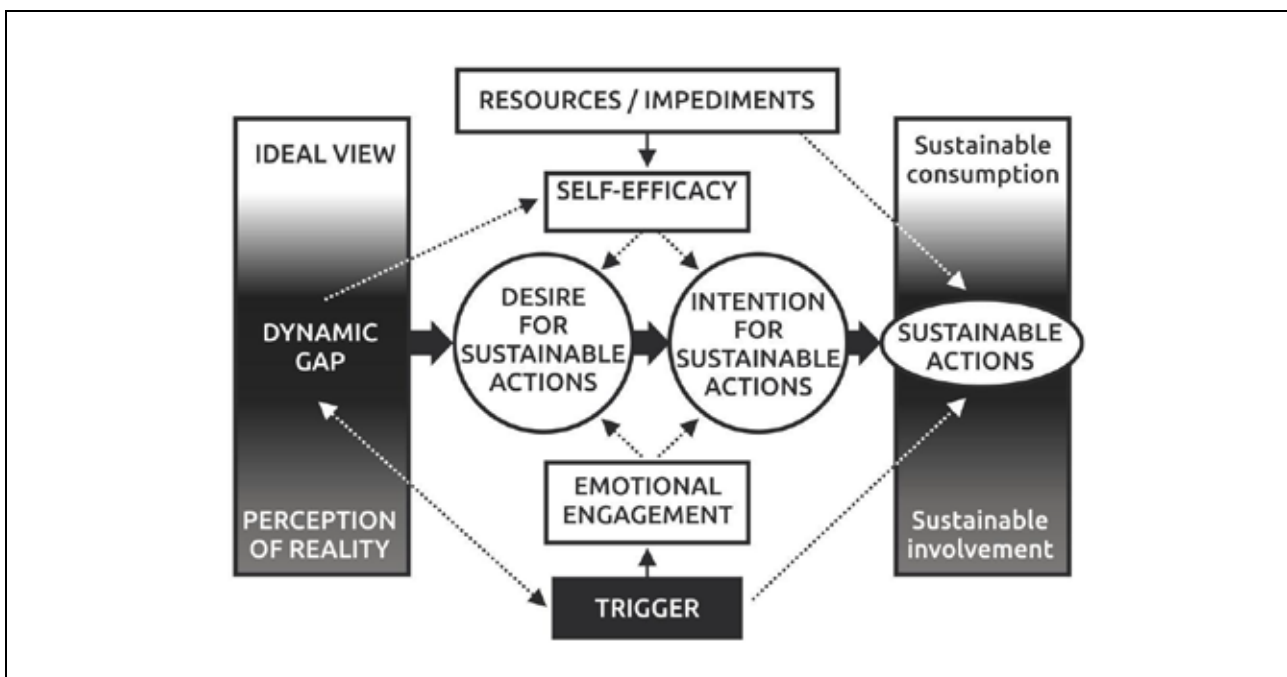
Source: author's construction.

Fig.1. **A Model of Sustainable Action**

The elements included in the proposed Model of Sustainable Action are generated on the basis of previous research and a number of in-depth interviews conducted during the formulative stage of the research program. The model consists of four main stages: realizing the existence and the scope of the GIVPR; formation of desire for sustainable action; intention for sustainable action and execution of a specific sustainable action. These stages might be influenced by the following forces: a trigger, which can be an event, surprising news, a governmental decision, etc., which turns to be a breaking point; emotional engagement, which can be catalysed by the trigger and the perception of self-efficacy, whose strength depends on the existence of resources and impediments. The model suggests also that a very big GIVPR negatively impacts the feeling of self-efficacy because the problem might seem quite unmanageable and it can itself transform into a trigger. The trigger on the other hand can lead to an increase in the GIVPR because it affects the individual and thus might distort his perceptions. It is important to notice that the ideal view of the world and the perception of reality are not static as well and together with the influence of the trigger determine the dynamic nature of the GIVPR. The existence or the lack of resources/impediments and the emergence of an event that turns the tide indirectly influence the stages of desire formation and intention, but might also directly prevent or encourage the execution of a certain sustainable action, which may take the form of sustainable consumption or involvement.

Scale Development and Validation

In order to measure the GIVPR which is a key construct of the above proposed Model of Sustainable Action, there is developed an instrument consisting of three dual scales that focus on the intersections between the three dimensions of sustainable development: economic growth, environmental protection and social equality. The scale construction followed a well-established procedure for scale development as well as the best practice of prior studies (Gerbing & Anderson, 1988). The initial item generation is based on a literature review and is assisted by a number of in-depth interviews. At first there were generated a total number of 63 items to measure the three zones of sustainable development. A panel of 8 respondents familiar with the concept of sustainable development evaluated each statement for content and face validity. As a result 17 items were removed altogether and the remaining 46 items were included in three separate dual scales: the first three for measuring the ideal view of the world and the second three for measuring the perceived reality. Following Miller (1956) a seven point Likert response scale with only the end values anchored to interpretations was used so that individual items can be treated as scale data with the maximum richness of data taking into account working memory modelling (Samuels, 2015).

For purification and initial validation of the scales using an online survey method there is collected data from a total sample of 236 respondents. The data is collected from 27 February to 17 March January 2018. The profile of the respondents includes 40.8% males and 59.2% females. The share of respondents bellow 25 years of age is 36% and those above 56 are 7%. More than 68% are Bachelor or higher degree holders and 31.5% are high school graduates. More than half of the participants in the survey declare to have participated in a form of protest during the last three years, 35.8% made donations for social or environmental causes and 21.4% took part in civil initiatives. It is important to notice, however, that the conducted χ^2 tests do not reveal any statistically significant relations between past sustainable behaviour and the evaluations given to factors that influence it.

The validity of the measurement instrument is further tested using Exploratory Factor Analysis which according to Gerbing and Anderson (1988) is particularly useful as a preliminary analysis in the absence of sufficiently detailed theory about the relations of the indicators to the underlying constructs and can be used for reducing a large number of indicators to a more manageable set. For testing the six scales the same procedure is followed. First the sampling adequacy of the variables is checked with the Kaiser-Meyer-Olkin Measure where a limit of 0.90 is considered and then the statistical significance of the correlation matrix is tested using the Bartlett's Test of Sphericity. The extraction method used is

Principal Component Analysis. The affiliation of the variables to the individual factors is based on the results of the Rotated Component Matrix. A formal reason to exclude variables from the factor analysis is the correlation coefficients of the Correlation Matrix. In the tests performed, only two variables are removed, which correlate poorly with the others (Table 1, Socio-Economic Equity Scale Test). For both scales, a secondary factor analysis is performed, as a result of which the number of factors is reduced. The obtained scales are tested for reliability using the Cronbach's Alpha and its values prove to be above the established thresholds.

Table 1

Results from GIVPR scale development tests

Scale	Cronbach's Alpha	No of Variables	Correlations	KMO	Bartlett's Test Sign.	No of Factors	% of Variance	Cumulative %
Socio-Economic Equity Scale Tests								
Ideal View Scale								
SEEi	.943	15	.130 - .755	.934	.000	2	54.5	54.5
							17.5	68.3
Perceived Reality Scale								
SEEr	.878	15	.056 - .722	.898	.000	4	26.6	26.6
							18.4	45
							10.6	55.7
							9.9	65.6
Socio-Economic Equity Scale Test (After Factor Reduction)								
Ideal View Scale (r)								
rSEEi	.955	13	.392 - .896	.942	.000	1	66	66
Perceived Reality Scale (r)								
rSEEr	.899	13	.154 - .722	.903	.000	3	31.3	31.3
							19.6	50.9
							13.3	64.1
Resources Viability Scale Test								
Ideal View Scale								
RVi	.962	15	.471 - .748	.948	.000	2	40	40
							33.8	73.8
Perceived Reality Scale								
RVr	.908	15	.273 - .606	.902	.000	3	22.5	22.5
							21.4	43.9
							17.2	61
Bearable Living Conditions Scale Test								
Ideal View Scale								
BLCi	.974	16	.499 - .836	.948	.000	1	72.6	72.6
Perceived Reality Scale								
BLCr	.944	16	.310 - .728	.944	.000	2	31.2	31.2
							30.7	61.8

Source: author's calculations based on Exploratory Factor Analysis

As seen from Table 1 the correlation coefficients within the scales are high. At the same time, the Cronbach's Alpha values show that for both types of scales the coefficient would not change significantly if one or another variable is removed. Since the main task of the performed analysis is to reduce the number of variables to be used in the analysis of the GIVPR construct, which is part of the proposed Model of Sustainable Action, it was decided to operationalize the extracted factors into new more encompassing variables. Their operation is presented in Table. 2.

On the basis of the proposed Model of Sustainable Action (Fig. 1) and the conceptualization of the dynamic gap between the ideal view of the world and the perception of reality there are defined three sustainability zones – (1) Socio-economic equity, (2) Resources viability and (3) Bearable living conditions. As for each sustainability zone there are tested two different scales – one for the ideal view of the world and a second one for the perceived reality – the number

of extracted factors using the Exploratory Factor Analysis turned to be different. In order to develop a uniform scale for measuring the GIVPR a decision is taken to take into consideration the higher number of factors extracted from the two scales for each zone. After the revision of the scales for measuring the Socio-economic equity zone there are defined three factors – (1) There exist fair labour and payment conditions; (2) There is equality among people; and (3) Public interests are protected by the law. Regarding the second and the third sustainability zones the factor analysis reveals no need for revision of the factors (Table 1). Therefore in the Resources viability zone the tested variables are grouped in the following three main factors – (1) Institutions work for ecological equilibrium; (2) People have healthy lifestyles; and (3) People play an active role in increasing quality of life. Using the same procedure there are defined two separate factors for the Bearable living conditions zone – (1) Investment in environmental protection are made and (2) Environmental protection is effectively monitored.

Table 2

Conceptual framework of GIVPR Scale

Current research				*Future research*
Zone of Sustainability	**Scale**	**Number of Variables**	**Number of Extracted factors**	**Formulated New Variables**
Socio-economic equity	Ideal view	15	2 (1 revised)	1. There exist fair labour and payment conditions 2. There is equality among people 3. Public interests are protected by the law
	Perceived reality	15	4 (3 revised)	
Resources viability	Ideal view	15	2	1. Institutions work for ecological equilibrium 2. People have healthy lifestyles 3. People play an active role in increasing quality of life
	Perceived reality	15	3	
Bearable living conditions	Ideal view	16	1	1. Investment in environmental protection are made 2. Environmental protection is effectively monitored
	Perceived reality	16	2	

Source: author's calculations based on Exploratory Factor Analysis

As a result form the conducted scale development tests the preliminary defined 46 variables for measuring the GIVPR are reduced to only 8 variables which are suggested to fully describe the mismatch between the ideal view of the world and the perception of reality regarding the principles of sustainable development. This sets the basis for the construction of a new measurement scale that should be further tested for validity and reliability before being included in future research instrument to test the proposed Model of Sustainable Action (Fig.1).

Conclusions, proposals, recommendations

The issues of Sustainable Development are of growing importance for both researchers and the society at large, especially regarding the recent events connected to global warming, rising consumerism and the resulting depletion of resources, air pollution, and local and global conflicts. At the same time civil pressure over political decisions and societal life in general gains power. In response to these trends the most innovative companies offer products and services targeting the segment of sustainably sensitive consumers. On the other hand, the focus of most scientific papers is on either sustainable consumption or activism. For the full understanding of sustainable behaviour and the factors that determine it, however, it is of great importance to investigate the relationship between these two behavioural forms.

Addressing these issues throughout this research the following tasks are fulfilled:

1. On the basis of literature review and a consequent qualitative research there is proposed a theoretical model of sustainable action which accounts for the interrelatedness between sustainable consumption and involvement;

2. There are identified a set of principal variables for analysing the gap between one of the key constructs of the proposed model – the gap between the ideal view of the world and the perception of reality (GIVPR);

3. A measurement scale of the GIVPR is designed and tested;

4. There are extracted eight factors which allow for measuring the GIVPR construct in future research.

The designed model traces back to the factors affecting consumer desire and intentions for sustainable action and stresses on the interrelatedness between its two forms – sustainable consumption and involvement. Focusing on the concept of the dynamic gap between the ideal view of the world and the perception of reality it proposes an alternative to existing models that explain sustainable behaviour as driven either by moral obligation or by rational analysis of the costs and benefits of a particular action. Therefore, it adds some new knowledge to understanding the elements of sustainable behaviour. The constructed measurement scale of this key construct can be used as a basis for further research. The proposed and tested measurement scale of the GIVPR is consistent with national social and cultural characteristics of Bulgarians, thus applying it to other markets might require adaptation in order to adequately evaluate the gap between the ideal view of the world and the perception of sustainable reality.

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PROBABILISTIC MODEL OF PROVISION FOR EMPLOYEE RETIREMENT BENEFITS

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Abstract. Retirement benefits are a valuable advantage for an employee that impacts present and future live of both – an employer and an employee. The employer is obliged by labour law, collective law agreements or employment contracts to accumulate those provisions and to apply indicators like a discount rate, an expected inflation rate and an employee turnover rate. On the other hand, an employer stays encouraged to not retire until the required seniority is achieved to receive the employee benefits such as retirement benefits, pension benefits as well as jubilee bonuses.

The article presents an innovative probabilistic (randomised) approach to the valuation of a provision for employee benefits. The main goal of the article is to create a probabilistic model of provision for an employee. To achieve the goal, actuarial methods were used to estimate the provision for an employee in accordance with current legal standards in Poland (ie the Accountancy Act, labor law, international accounting standards). The adoption of actuarial assumptions about the random structure of model parameters has a significant impact on its value, and thus on the financial result of the business entity, as well as on the faithful and reliable picture of the business unit.

Key words: *provisions for future employee benefits, valuation of employee benefits, probabilistic model to the estimation of a provision for employee benefits, Projected Unit Credit.*

JEL code: C11, M40

Introduction

According to the accountancy law, business entities are required to present the financial and property situation and financial result in a reliable and clear manner, i.e. showing your complete commitments. Liabilities include also provisions, even though their maturity date and amount are not certain. Entities create provisions most frequently for certain or highly probable future liabilities, the amount of which can be reliably estimated, and in particular for losses from economic transactions in progress, including guarantees granted, sureties, lending operations, the effects of pending litigation. One of such reserves is the provision for employee retirement benefits. This justifies the inclusion in the accounting books of provisions for future employee benefits. This issue is regulated by the International Accounting Standards, in particular the International Accounting Standard (short IAS) No. 19 "Employee benefits".

According to IAS 19, employee benefits include the following categories:

1) short-term employee benefits (including, among others, salaries, social insurance contributions, paid holiday leave, non-cash benefits for current employees - medical care, accommodation),

2) post-employment benefits (old-age pensions, other retirement benefits, retirement benefits for life, pension health care),

3) other long-term employee benefits (holiday pay, academic leave, jubilees),

4) benefits due to termination of employment.

According to (Gościniak K., 2017), the purpose of including employee benefits in the accounting system of an economic entity is that its image reflected in the periodic financial statements accurately and reliably reflects the property

and financial position of the entity and its financial result. A similar position is taken by (Kalinowski J., 2004), who notes that despite the fact that it is an entity's obligation to apply accounting principles, many entities do not recognize these benefits due to the complexity of the methods used to calculate them, as well as the negative impact of these operations on the entity's financial result. An enterprise making a decision to create a provision for retirement benefits should also consider the principle of materiality, which indicates the possibility of applying simplifications under the adopted accounting principles (policy), if it does not have a significant negative impact on a reliable and clear presentation of the property and financial situation and financial result.

Employee retirement and pension benefits as well as jubilee bonuses are called long term benefits. With these kind of benefits, there is uncertainty as to when the event conditioning the payment of the benefit occurs or whether it will take place at all. Therefore, in most cases, entities use the method of estimating provisions described in detail in IAS 19 or use actuary services. When establishing the value of the provision, appropriate indicators are adopted (discount rate, expected inflation rate, employee turnover rate and others). However, actuarial assumptions may change in subsequent periods of a valuation. Changing these assumptions may result in the need to re-estimate the provision. Among the reasons for the emergence of actuarial gains and losses, you can mention eg employee turnover and others:

1) unexpectedly high or low rates of employee turnover, early retirement, mortality, wage and benefits increase,

2) impact of changes in assumptions regarding the payment options for benefits,

3) impact of discount rate changes.

The amount of the a provision determined in line with the new assumptions differs from the amount of the provision determined in the event the change in assumptions does not occur.

(Buk H., 2005) defines the basic demographic and financial assumptions that should be considered when calculating provisions for retirement benefits. These include future features characterizing currently employed and former employees, such as: current employees' turnover, mortality during and after employment, early retirement or disability pensions, interest program participants with dependents who will receive entitlement to benefits, claims indicators within the framework of the medical care program. In turn, the financial assumptions should be based on market expectations defined as at the balance sheet date, referring to the period in which the liabilities are to be settled. This group of assumptions should include: the level of discount rates, the level of future employment, potential promotions, increase in future wages, change in the rules for determining entitlements to benefits, future costs of medical services, inflation, real increase in benefits.

As the basis for determining retirement benefits, monthly remuneration is used calculated for the purpose of determining the cash equivalent for vacation leave, which is due to the employee on the day of acquiring the right to retirement. To estimate the provision for retirement benefits, the actuarial method, the so-called *Projected Unit Credit* (see Giesecke Lee G. 1994, Atteridg J. , Daskais R., Sze M. 1991, Grizzle L.S. 2005, Krajowy Standard Aktuarialny Nr 1/2015 Wycena zobowiązań z tytułu świadczeń pracowniczych). The provision is estimated as of the balance sheet date individually for each employee according to the formula:

$$R = W \cdot \frac{S}{S+n} \cdot P \cdot v^n \qquad\qquad (1)$$

where: R – value of the provision for retirement benefits as at the balance sheet date d; W – expected value of future retirement benefits in full on the day of payment; S – length of service in the unit in the years at the balance sheet date taking into account personnel movements (rotation) and demographic (death, transition to pension); n – the number of years to pay future retirement bonuses; P – the demographic probability of payment of the benefit,; v – discounting factor.

Unfortunately, the Polish publications are dominated by the traditional model of provisioning for employee benefits, imposed by balance provisions (refer to Gierusz J., Gierusz M. 2009, Florczak W. 2014, Szydełko A. 2014).

Other authors also dealt with the issue of provisions for employee benefits. For example, in Greece (Liapis K., Thalassinos E., 2013), attention was focused on use of discount rates on high-interest bonds, such as government bonds, which significantly affects the valuation of employee benefits. However the use of IFRS in a country such as Greece, with an unstable financial situation, has led to significantly higher reserves. Calculation of provisions for employee benefits was also the subject of analyzes carried out by (Hewitt Associates 2005), where the principles for the valuation of these provisions were described in details.

The purpose of this article is to construct an innovative model for calculating the employee retirement provision based on the principles of the randomization. Until now, this reserve is estimated according to the assumptions of the International Accounting Standards, in which the structural parameters are deterministic and the calculation of the reserve is determined. In the approach presented in the paper the structural parameters of the reserve calculation model have been resolved (thanks to this they reflect reality) and, as a result, the reserve value is a random object. The first research hypothesis is: probabilistic models more precisely than the classical methods estimate provisions for pension benefits of employees in conditions of economic instability. The second research hypothesis is: the adoption of actuarial assumptions about the random structure of model parameters has a significant impact on their value, and thus on the financial result of the business entity, as well as on the faithful and reliable picture of the business unit.

Research methods are a critical analysis of literature sources in the creation of a provision for employee benefits and probabilistic description methods, in particular methods for transforming empirical information to determine the value of structural parameters of the model. Structural parameters were estimated on the basis of statistics published by the Central Statistical Office in Poland.

1.   Designations

We adopt a special convention of indicators that includes variable labels. Random values will be written ξname, and non-random (constant) values Xname. We always write the function in the form φname (·).

In the process of estimating the size of the reserve, three values from the group of so-called individual basic data: ξage – age of the employee at the balance sheet date; ξseniority – employee's work experience; ξsex – the gender of the employee. And one of the groups of individual data called the others: ξsalary – the average annual employee salary calculated as at the balance sheet date.

The above random values constitute a model of random features of an individual employee. Considering the provision for retirement benefits for many people in the company, we also include a random distribution of the number of employees.

We assume that the mentioned quantities are random quantities and their randomness is described by specific probability distributions given by their probability density or frequency functions. This problem is described in details in Chapter 2 on page 3. Other quantities (on which the calculation of the reserve is based) are deterministic or random, but randomness is induced by distributions of key variables.

1.1.   Number of years until the retirement age

One of the basic sizes of this complementary type of random variables is the retirement age. The number of years until retirement age is the number of years that the employee retires. It depends on the employee's age, gender and employee statutory limits to retirement. We assume that the statutory limits for retirement are n_F for women and n_M for men (currently in Poland $nF = 60$, $nM = 65$ years and such retirement age values were accepted in the study).

$$\varphi_{age\_retirement} : \{Male, Female\} \rightarrow N , \tag{2}$$

$$\varphi_{age\_retiment}(x) = \begin{cases} n_F & for \quad x = Female \\ n_M & for \quad x = Male \end{cases}. \tag{3}$$

Thus, the age limit at which an employee retires depends on the employee's gender and is expressed in the form of a function:

$$\xi_{years\_to\_etiment} = \varphi_{age\_retiment}(x) - \xi_{age} = \varphi_{age\_retiment}(\xi_{sex}) - \xi_{age}, \tag{4}$$

where: $\xi_{years\_to\_etiment}$ – the number of years until retirement age.

There are no elements of randomness in the formula (4), but if we consider the number of years to reach the retirement, this size becomes randomized due to the randomness of age and sex. Thus, the conditional distribution of the variable $\xi_{years\_to\_retirement}$ provided variable vector (ξ_{age}, ξ_{sex}) is a Bernoulli distribution focused distribution at two points.

1.2. Basis of benefits and multipliers

The payment of the benefit is calculated by modifying the basis for the provision of further multipliers. The base benefit may be regarded as a worker's average annual salary based on the balance sheet date (ξ_{salary}), but not necessarily. Details of this issue are discussed in Chapter 2.

The multipliers analyzed belong to two groups. Groups of factors related to the change in the value of money over time are the nominal and actual inflation rate and a group of endogenous factors related to the company and employee. First, we will analyze endogenous factors. These factors include the employee's years of work in the company in terms of working time increased by the number of years to retirement, rotation rate and probability of survival.

1.2.1. Fraction of working time

The share of the employee's working time in the company in relation to the total working time (that is, working time to the date of payment of the benefit) is given by a model (eg. in Poland for a person starting work $nM - 18 = 65 - 18 = 47$):

$$\varphi_{fraction\_of\_working\,time} : N \times N \rightarrow N, \tag{5}$$

$$\varphi_{fraction\_of\_working\,time}(Male) : (0, \quad 47) \times (0, \quad 47) \rightarrow (0, \quad 1), \tag{6}$$

$$\varphi_{fraction\_of\_working\,time}(n,s) = \frac{s}{n+s} = 1 - \frac{n}{n+s}. \tag{7}$$

Seniority and the number of years until retirement age are random quantities and for this reason this factor is random and has a form:

$$\xi_{fraction\_of\_working\,time} = \frac{\xi_{seniority}}{\xi_{seniority} + \xi_{years\_to\_etiment}} = 1 - \frac{\xi_{years\_to\_etiment}}{\xi_{seniority} + \xi_{years\_to\_etiment}}. \tag{8}$$

Conditional distribution of the share of work $\xi_{fraction\_of\_working\_time}$ provided variable vector (ξ_{age}, ξ_{sex}) is a breakdown dependent only on seniority.

1.2.2. Probability of reaching the retirement age

The next parameter determines the survival of the employee until the payment of the benefit and is related to two random variables. One of these variables is the employee's age on the balance sheet date, that is, ξ_{age}, and the second is a random variable corresponding to the employee's life. The variable corresponding to the worker's life time is of technical nature and will not be used in a clear form, but due to the definition formulas used, we will use the term ξ_{life_time} for this variable. In actuarial analyzes, the term "survival time" is usually used, which refers to the conditional distribution of the variable ξ_{life_time}, provided that the event ξ_{life_time} exceeded a certain value. Because the design of the model requires a broader look at this issue, so we will be based on the global concept of life time, not on its details.

An event where the employee's life span has exceeded the benefit payday induces a new random variable defined as follows:

$$\xi_{getting\_to\_retirement} = \begin{cases} 1 & for & \xi_{life\_time} \geq \varphi_{age\_retiment}\left(\xi_{sex}\right) \\ 0 & in \quad other & cases \end{cases}. \tag{9}$$

The factor taking into account the probability of survival until the payment of the benefit in the next year is a conditional probability:

$$\Pr\left(\xi_{getting\_to\_retirement} = 1 \mid \xi_{age} = \varphi_{age\_retiment}\left(\xi_{sex}\right) - 1\right). \tag{10}$$

In establishing the reserve, we use only the above conditional probabilities. Numerical values for women aged 59 are 0.99046, and for men aged 64 are 0.9756 according to the Polish Life Expectancy Tables 2016.

1.2.3. Parameters of employee mobility

The last multiplier is the so-called Employees rotation. The variable $\xi_{rotation}$ assumes the value 0 or 1 and defines the mobility of employees. Based on empirical observations, we assume that this indicator is 0.98 regardless of age and gender.

2. Distributions of the examined random values

Recall that the random variable ξ has a standard beta distribution with the parameters $p > 0$ and $q > 0$ if its density is:

$$f_{\xi}(x) = \frac{1}{B(p,q)} x^{p-1}(1-x)^{q-1}, \quad x \in (0,1) \tag{11}$$

For any numbers a and b, where $a < b$ random variable $\eta = a\,(1 - \xi) + b\xi$ has a density distribution:

$$f_{\eta}(x) = \frac{1}{B(p,q)} \frac{(x-a)^{p-1}(b-x)^{q-1}}{(b-a)^{p+q-1}}, \quad x \in (a,b), \tag{12}$$

where: $B(p,q) = \dfrac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$, $\Gamma(p) = \int_0^\infty x^{p-1}\exp(-x)dx$, $\quad x > 0, p > 0.$

The distribution (12) corresponds to the percentage balancing of the size a and b by random weighting factors (see Lloyd Johnson N., Kotz S., Balakrishnan N., 1995 chapter 25). This distribution will be called the scaled beta distribution with the parameters (p, q, a, b). We will use this form of density in the definition of further distributions.

2.1.   Worker's age

Since the retirement age has been different for men and women, we assume that conditional age distributions depending on the gender are defined as follows. For women, the conditional distribution of the employee's age on the balance sheet date (ξ_{age}) provided sex (ξ_{sex}) is the beta distribution with the parameters $p = 2$ and $q = 3$ scaled to the interval (18 years, 60 years). For men, the conditional distribution of the employee's age is a beta distribution with the parameters $p = 3$ and $q = 2$ scaled to the interval (18 years, 65 years). The densities of conditional distributions have the form as in the formula (12).

Note that the conditional expected value of the age variable under the condition of the event that we consider it for women is 34.8 years, and the conditional variance 70.56 (year^2), that is, the standard deviation of 8.4 years. For men, the conditional expectation is 46.2 years, the variance is 88.36 (year^2), and the standard deviation is 9.4 years.

2.2.   Seniority

Similar to age, the employee's period of employment at the balance sheet date – $\xi_{seniority}$ – is related with sex and the conditional distribution of seniority on the condition of gender is given by two conditional distributions. For women, the distribution of the random variable seniority is a scaled beta distribution with parameters ($p=2$, $q=3$, $a=1$, $b=42$), and for men with parameters ($p=1.5$, $q=3.5$, $a=1$, $b=47$), where the parameter b is the difference between the retirement age and the age of majority - the age of the beginning of work ($42 = 65 - 18$; $47 = 60 - 18$). These assumptions imply that the conditional expected value of conditional distribution for women is 17.4 years, and the variance 67.24 (year^2), i.e. the standard deviation of 8.2 years. For men, the conditional expectation is 15.1 years and the variance is 77.315 (year^2), which is the standard deviation of 8.79 years.

2.3.   Gender

The employee's gender (ξ_{sex}) is a random variable with a two-point distribution:

$$\Pr(\xi_{sex} = Famale) = p_0, \quad \Pr(\xi_{sex} = Male) = 1 - p_0 \tag{13}$$

We accept $p_0 = 3/5$.

2.4.   Basis for the benefit

The basis for payment of the benefits may be determined as the average annual salary of an employee, medium or minimal remuneration in a company. Additionally, the base may be included in the a pay multiplication. In the adopted model, the basis for calculating the benefit is a three-fold average remuneration, i.e.:

$$\xi_{base} = 3 \cdot \xi_{salary.} \tag{14}$$

There is a minimum salary in Poland, which in 2017 amounted to 2 thous. PLN. Thus, the salary can be treated as the sum of the minimum amount and the amount above the minimum. The amount of salary above the minimum (2 thous. PLN) is random and we assume that it has a gamma distribution with α and β parameters:

$$f\_\xi_{salaryPlus}(x) = \frac{\beta^{\alpha}}{\Gamma(\alpha)} x^{\alpha-1} \exp(-\beta x), \quad x \in (0, \infty)$$

$$\text{(15)}$$

For women it is a gamma distribution with parameters (α = 1.5, β = 0.75), and for men it is a gamma distribution with parameters (α = 1.8, β = 2/3 = 0.67). Hence, the conditional distribution of the variable ξ_{salary} under the variable ξ_{sex} is displaced by the gamma distribution. In contrast, the random variable ξ_{base} has a shifted gamma distribution with a scale parameter β divided by 3 $\left(\xi_{base} \sim \Gamma\left(\alpha, \frac{\beta}{3}\right)\right)$. Finally, conditional distributions have densities:

$$f_{base\_Famale}(x) = \frac{\left(\frac{0.75}{3}\right)^{1.5}}{\Gamma(1.5)} x^{1.5-1} \exp\left(-\frac{0.75}{3}(x-6)\right) = 0.141 \cdot (x-6)^{0.5} \exp\left(-\frac{x-6}{4}\right), \quad x \in (6, \infty), \quad \text{(16)}$$

$$f_{base\_Male}(x) = \frac{\left(\frac{0.67}{3}\right)^{1.8}}{\Gamma(1.8)} x^{1.8-1} \exp\left(-\frac{0.67}{3}(x-6)\right) = 0.072 \cdot (x-6)^{0.8} \exp\left(-\frac{2(x-6)}{9}\right), \quad x \in (6, \infty), \quad \text{(17)}$$

where, $x-6$ means that 6 thous. PLN is the minimum base (3 times minimum salary equal 2 thous. PLN).

The distribution of the base of the benefit corresponds to a threefold level of the average salary. The conditional expectation value of the base for women in this distribution is PLN 12 thous., which corresponds to a monthly salary of PLN 4.0 thous., and the median is PLN 9.44 thous. which corresponds to the median monthly salary of PLN 3.1 thous., which is confirmed by the data published by the Central Statistical Office in 2017. The conditional expected value of the base for men in this distribution is PLN 14.1 thous., which corresponds to the monthly salary of PLN 4.7 thous., and the median is PLN 11.58 thous. which corresponds to the median monthly salary at the level of PLN 3.86 thous.

In the period from the balance date to the payment date, the salary is increased according to a specified growth rate, which we will denote X_{index_salary} (salary indexation). We assume that for a model company this indicator is constant (non-random). The index value is obtained on an empirical basis and we accept X_{index_salary} = 0.042. The salary indexation index is also an indicator of indexation for the benefit base.

2.5.   Indexation indicators

We assume that nominal interest rate of $X_{rate\_nominal}$ is a determined (non-random) value and is calculated on the basis of information about the financial market. Similarly, the actual interest rate X_{rate_actual} is not random and is determined on the basis of the inflation rate according to the formula:

$$X_{rate\_actual} = \frac{1 + X_{rate\_nominal}}{1 + X_{rate\_inflation}} - 1 = \frac{X_{rate\_nominal} - X_{rate\_inflation}}{1 + X_{rate\_inflation}}.$$

$$\text{(18)}$$

3. Provision valuation formulas

The size of the reserve is considered on the payday. Variable $\xi_{benefit}$ means a random value as of the date of payment of the benefit. The provision is the product of the amount of basis for payment of the benefit at the balance sheet date,

adjusted with indexes of wage indexation, share of work in the period up to the retirement age, duration of life and rotation, i.e.:

$$\xi_{benefit} = \xi_{base} \cdot \left(1 + X_{index\_salary}\right) \cdot \xi_{fraction\_of\_working\,time} \cdot \xi_{getting\_to\_retirment} \cdot \xi_{rotation}. \qquad (19)$$

The last two variables are $\xi_{getting\_to\_retirment}$ and $\xi_{rotation}$ assume a value of 0 or 1, therefore $\xi_{benefit}$ can be non-negative or zero.

The natural parameter of the variable $\xi_{benefit}$ is its expected value, but the median is also intriguing. Additionally, a conditional expected value of the variable $\xi_{benefit}$ under the condition of the variable ξ_{age} or variable $\xi_{seniority}$ or both variables simultaneously can be analyzed.

The relationship between variables and, in particular, the assumption of independence play a key role in the analysis of the amount of the service. Independence or functional relations are derived from theoretical and empirical assumptions. We therefore accept that the basis for the benefit is not dependent on sex and does not depend on age. Therefore, the conditional expected value of the benefit under the condition of sex/gender ($\xi_{sex} = x$) and age ($\xi_{age} = y$) for (x = Female, y = 59) is:

$$\begin{aligned}
&E\left(\xi_{benefit} \mid \left(\xi_{sex} = x, \xi_{age} = y\right)\right) = \\
&= E\left(\xi_{base} \mid \left(\xi_{sex} = x, \xi_{age} = y\right)\right) \cdot \left(1 + X_{index\_salary}\right) \cdot E\left(\xi_{fraction\_of\_working\,time} \mid \left(\xi_{sex} = x, \xi_{age} = y\right)\right) \cdot \\
&\cdot E\left(\xi_{getting\_to\_retirment} \mid \left(\xi_{sex} = x, \xi_{age} = y\right)\right) \cdot E\left(\xi_{rotation} \mid \left(\xi_{sex} = x, \xi_{age} = y\right)\right) = \\
&12 \cdot \left(1 + 0.042\right) \cdot 0.9285 \cdot 0.99046 \cdot 0.98 = 12 \cdot 0.9391 = 11.27.
\end{aligned} \qquad (20)$$

The expected value of the annual benefit for women (according to the formula (20) will be 11.27 thous. PLN. For men, i.e. for parameters (x = Male, y = 64), the expected value is equal:

$$E\left(\xi_{benefit} \mid \left(\xi_{sex} = x, \xi_{age} = y\right)\right) = 14.1 \cdot \left(1 + 0.042\right) \cdot 0.9346 \cdot 0.9756 \cdot 0.98 = 13.13. \qquad (21)$$

The expected value of the annual benefit for men (according to the formula (21) will be PLN 13.13 thous. We calculate the provision for retirement benefits by discounting the benefit :

$$\xi_{reserve\_benefit} = \frac{1}{1 + X_{rate\_actual}} \xi_{benefit}. \qquad (22)$$

The actual rate may be random or non-random, which results in a further potential extension of the model.

4. Numeric experiments

Numerical experiments include simulation as a result of which we receive a pension benefit. The service as a random variable has the form of the product of random variables. We do not know the distribution of member variables, but we know their conditional distributions. In addition, without a large start, we can assume that by accepting the condition of gender and age, we get conditional independence. Let us assume that the conditional event has the form of gender ($\xi_{sex} =$ Female) and age ($\xi_{age} = 59$). Then the conditional distribution (i.e. the conditional distribution of the variable $\xi_{benefit}$ under the condition of the accepted event) is the distribution of the product of four random variables and the increase rate of salary, which is not random. Hence, the simulation can be based on the variable $\eta = \eta 1 \cdot \left(1 + X_{index\_salary}\right) \cdot \eta 2 \cdot \eta 3 \cdot \eta 4$

<div align="right">Table 1</div>

(according to the formula (19)), where the variables ηi, $i = 1, 2, 3, 4$ are independent and means accordingly: base, fraction of working time, getting to retirement and rotation:

$$\eta_1 = 3(2 + \xi_1), \quad \xi_1 \sim \Gamma(1.5, \quad 0.75)$$

$$\eta_2 = 1 - \frac{1}{\xi_2 + 1}, \quad \xi_2 = (1 - \zeta) + 42\zeta \quad \zeta \sim Beta(2, \quad 3)$$

$$\eta_3 : \Pr(\eta_3 = 1) = 0.99046 \qquad \Pr(\eta_3 = 0) = 0.00954$$

$$\eta_4 : \Pr(\eta_4 = 1) = 0.98 \qquad \Pr(\eta_4 = 0) = 0.02$$

<div align="right">(23)</div>

Similarly, we only carry out simulations of benefits for men with the change of parameters. The histogram of the simulation result is shown in Fig. 1 and in Table 1 contains empirical descriptive statistics of the simulation.

Table 1. Empirical descriptive statistics of the simulation

Gender	Min.	Q1	Median	Mean	Q3	Max.
Women	0.000	7.958	10.230	11.260	13.610	55.560
Men	0.000	8.996	12.000	13.100	16.270	75.180

Source: author's calculations
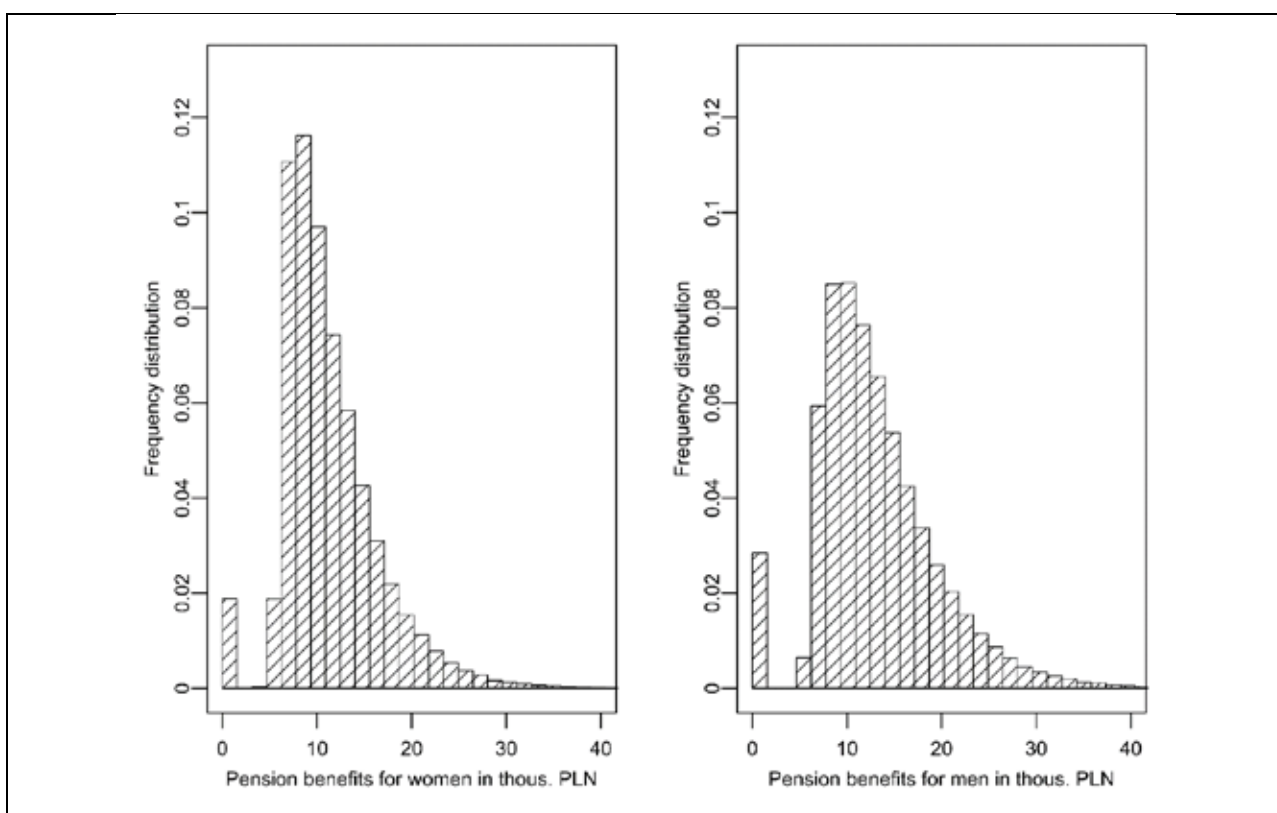
Source: author's construction

Fig. 1. **The histogram of the simulation**

The resulting distribution is consistent with the distribution of Zero adjusted Gamma distribution (short ZAGA) as defined by (Rigby B. and Stasinopoulos M., 2017, p. 114), (AIC $= 5.7 * 10^6$ for Females and $6.2 * 10^6$ for males).

Conclusions

The results of the study are as follows:

1) The presented probabilistic model is very forward-looking for enterprises (business units), because it allows a more reliable and faithful image of the company.

2) The result of the work is an innovative approach that allows an extended analysis of the employee retirement provision, not only based on expected values, but also on the entire distribution structure, i.e. allows to designate other descriptive statistics (e.g. quartiles, deciles, percentile) and Value at Risk.

3) The presented approach enables description and analysis of the amount of the provision, taking into account specific situations occurring in the company. It allows you to compare trends in the reserve structure over time and gender classification.

4) The new reserve formula allows to indicate the occurrence of rare and unexpected phenomena that have a significant impact on the entity's financial result.

Deterministic methods are applied to individual cases. In practice, it is often necessary to have a global view of the functioning of an enterprise. Then the probabilistic methods are irreplaceable because they allow to predict extreme values (eg in costs due to employee retirement benefits).

For this reason, the probabilistic methods are more precisely than the deterministic methods estimate provisions for pension benefits of employees in conditions of economic instability, confirming the first research hypothesis. The random structure of model parameters has a significant impact on their value and on the financial result of the business entity, thus confirming the second hypothesis.

The proposed approach focuses on the construction of a probabilistic model, of which the distribution of the analyzed quantities is an important part. These distributions are dependent on the type of company and significantly affect the distribution cost of retirement benefits. The presented study is a preliminary examination. Further research will focus on the description (empirical confirmation) of real behaviors in a particular company in the latest adopted distributions.

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CAPITAL ADEQUACY AND LIQUIDITY IN THE CONTEXT OF BANK STABILITY: CASE OF LATVIA

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Abstract. The importance of bank capital management and liquidity is widely discussed in scientific literature and professional industry publications. Besides, capital adequacy and liquidity indicators are the most important tools used for regulatory purposes to maintain stable banking system in a country. Capital and liquidity are essential for ensuring bank stability as well as form the basis for successful bank performance. Consequently, bank stability is vital for the economic growth of any country.

The objective of this paper is to analyse the capital adequacy and liquidity of Latvian commercial banks in the context of stability. The paper provides analysis of z-score as a measure of stability as well as of capital adequacy, liquidity of Latvian banks in the period from 2008 until 2016. The analysis is done using quantitative and qualitative analysis methods based on the financial statement data of Latvian commercial banks over nine years. The analysis is based on classification of banks into groups depending on the size of bank total assets. The paper reveals the differences in formation of liquid reserves and reserves of capital in different groups of banks. The analysis has shown the dependence between bank size in terms of assets and bank liquidity: small banks maintain higher liquidity standards to preserve its stability. Besides, decrease in bank liquidity is associated with an increase in risk-weighted assets and a decrease in bank stability. This dependence was revealed in all bank groups independently from its size. Moreover, in small banks growth of capital is accompanied by a decrease in liquidity.

Key words: *bank, capital adequacy, liquidity, stability*

Introduction

Deterioration of the stability of banks is often seen as the beginning of financial crises that periodically shake the financial system. Well-functioning financial system is crucial in channelling funds to the most productive uses and in allocating risks boosting economic growth (Rupeika-Apoga, 2013). Besides, stability of the banking industry is extremely important to ensure sustainable development of the state economy. The stability of commercial bank system is the result of balanced development, which can be characterised by equilibrium and security over a longer period of time (Saksonova and Solovjova, 2012).

One of the measures widely used in the context of bank stability is the z-score. Z-score is seen as an accounting-based measure of bank insolvency risk and the distance to default. The main idea of the z-score is the relation of the bank financial leverage level and the level of risk that is determined by the standard deviation of the return on assets (ROA). Thereby, the negative z-score indicates a high probability of insolvency and a high z-score shows that bank capital is able to absorb the risk taken by the bank; therefore it shows a high low level of bank insolvency risk.

Studies of the use of the z-score to assess bank stability have been conducted since the mid-20th century. For the first time the z-score was used by Roy (1952) to assess the likelihood of bank failures, and furthermore the theory of using the

indicator to evaluate financial holdings was developed in the studies of Boyd and Graham (1986), Hannan and Hanweck (1988), and Boyd, Graham, and Hewitt (1993). Further, researchers offered various possibilities of using the Z-score indicator. De Nicoló (2000) and Stiroh (2004) proposed to use the z-score to assess the risk performance of banks; Lepetit and Strobel (2015) suggested using a log-transformed z-score to assess insolvency of banks. Currently, the Z-score is actively used by both researchers and industry to assess the level of bank stability.

There are several approaches used to calculate z-score. Beck and Laeven (2006) as well as Hesse and Čihák (2007) use standard deviation of ROA computed over the full sample in the combination with current period values of ROA and equity-to-asset ratio. This approach is often used to assess the bank insolvency risk. Yeyati and Micco (2007) use the moving average and the standard deviation of the quarterly ROA values for the previous 12 quarters, comparing it with the current equity-to-asset ratio. Bertay, Demirgüç-Kunt, and Huizinga (2013) calculate the Z-score using the average values of ROA and equity-to-asset ratios, besides, the ROA standard deviation is calculated over the period of 5 years.

The objective of this paper is to analyse the capital adequacy and liquidity of Latvian commercial banks in the context of stability. The paper provides analysis of z-score as a measure of stability as well as of capital adequacy, liquidity of Latvian banks in the period from 2008 until 2016. The analysis is done using quantitative and qualitative analysis methods based on the financial statement data of Latvian commercial banks over nine years. For the calculation of the Z-score, we use the approach proposed by Hesse and Čihák (2007) as we believe that in case the longer period is used for calculation, it may distort the Z-score as banks can change the business strategy and attitude to risk, thus changing the risk profile.

Research results and discussion

1. Analysis of the Z-score for the Latvian banking industry

In this paper, calculation of the z-score for the Latvian banks is done using standard deviation of ROA[*] calculated over the full sample in the combination with current period values of ROA and equity-to-asset ratio. For the calculation of the z-score indicator, quarterly reports of Latvian commercial banks for the period from 2008 to 2016 were used. The results of the z-score calculations are summarized the Figure 1.
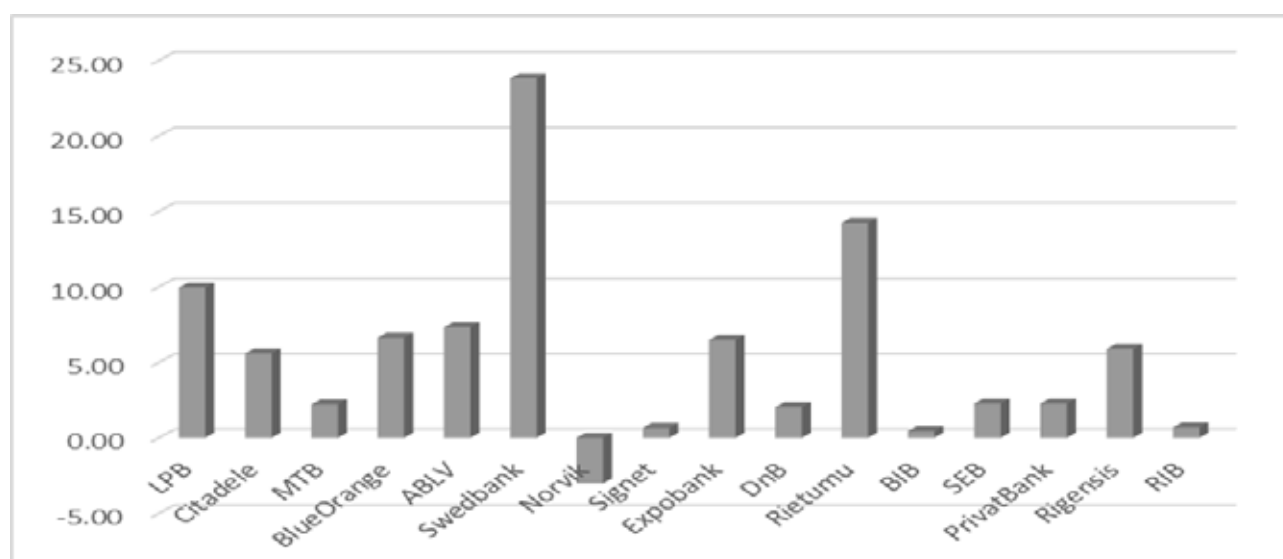
Source: authors' construction based on the financial statement data of Latvian commercials banks, 2008-2016

Fig.1. **The average annual Z-score of Latvian commercial banks, 2008-2016**

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[*] ROA calculated as quarterly profit/loss to average assets.

The results of Z-score calculations shown in the Figure 1 indicate that in the period from 2008 to 2016 the level of z-score in the Latvian banking industry was quite fair and only Norvik banka in the research period had an average z-score below zero. This suggests that the capital of this bank didn't correspond to the level of risk, making the probability of bank financial problems relatively high. On the other hand, Swedbank, the largest commercial bank in Latvia (in terms of assets), had the highest z-score level indicating lower risk level of the bank.

Based on the individual bank z-score indicators, the aggregated indicator of the banking sector was calculated to assess the level of risk of the sector as a whole. To calculate the aggregated indicator we used the weights reflecting the share of the particular bank assets in the total assets of the industry and the z-score of the bank. Figure 2 shows the dynamics of the aggregated z-score indicating changes in the risk level of commercial banks in Latvia.

Source: authors' construction based on the financial statement data of Latvian commercials banks, 2008-2016

Fig.2. **Aggregated industry reliability indicator Z-score of Latvian commercial banks, 2008-2016**

The analysis of the aggregated industry z-score indicators shows that in the research period of 2008-2016 a negative indicator was observed only in 2009 that can be explained with the higher risk level of the banks due to the financial crisis. Starting from 2010, the average industry z-score indicator had a steady tendency to grow reaching its' peak in 2014. The average z-score of the entire research period of nine years was 8.91 with the standard deviation of 10.31. Thus, the results suggest a sufficient stability level of the Latvian bank industry.

In order to determine the banks that had the most significant influence on the reliability of the banking industry in Latvia, we have classified Latvian commercial banks into 3 groups by the size of total assets:

- large banks (total assets at the end of 2016 exceeded 2 billion EUR): Citadele banka, Swedbank, DnB bank, Rietumu banka, ABLV, SEB banka;

- medium-sized banks (total assets at the end of 2016 ranged from 500 million EUR to 2 billion EUR): RIB banka, Norvik banka, Blue Orange bank;

- small banks (total assets at the end of 2016 didn't exceed 500 million EUR): Pasta banka, MTB, Signet bank, Expobank, BIB, PrivatBank, Rigensis.

Table 1

Analysis of the Z-score in the context of bank groups, 2008-2016

Bank group	The share of the group assets in the total assets of the industry, 2016, %	Average z-score, 2008-2016	Standard deviation of z-score, 2008-2016	Z-score 2016
Group (total assets exceed 2 bln. EUR)	84.07	9.22	73.81	18.24
Group 2 (total assets range from 0.5 bln. EUR to 2 bln.EUR)	8.20	1.43	4.26	3.43
Group 3 (total assets don't exceed 500 mln. EUR)	7.73	4.03	5.03	4.47

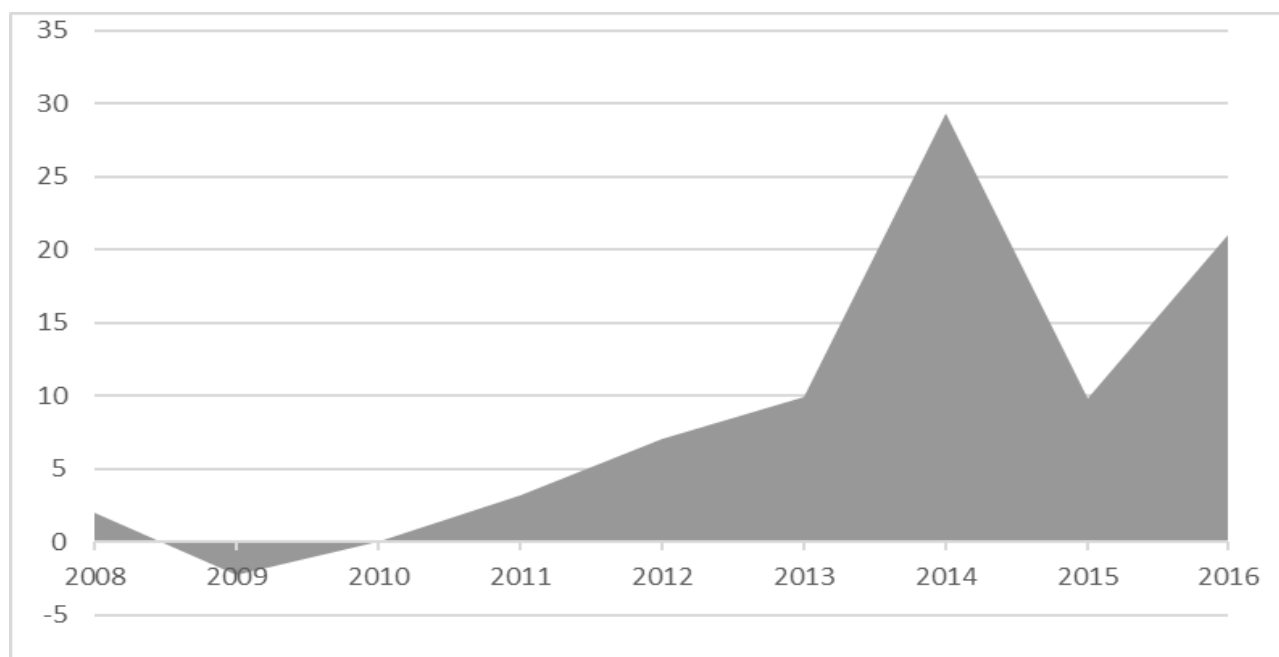*Source: authors' construction based on the financial statement data of Latvian commercials banks, 2008-2016*

Analysing the results of the z-score in the context of bank asset size, we conclude that large banks with total assets exceeding 80% of the total assets of the banking industry have higher financial durability. Besides, the level of financial strength tends to grow indicating positive changes in the reliability of the Latvian banking industry.

Significant changes in the landscape of the Latvian banking industry related to the beginning of the self-liquidation process of the third largest commercial bank (in terms of assets) – ABLV – started in February/March 2017. Relative to the liquidation of the ABLV bank, we have determined the contribution of this bank to the overall risk level of the Latvian banking system. The calculations were made based on the approach proposed by De Nicoló, Bartholomew, Zaman, and Zephirin (2004), i.e., constructing an aggregate z-score of the banking industry with and without the z-score of the ABLV bank. The percentage change is the difference between the aggregate z-score (for the industry) and the "minus one bank" of the z-scores of each bank, which is used as a proxy for the contribution of each bank to the overall risk of the whole banking system. The results of calculations for 2016 without the ABLV bank show, that the z-score would have been 17.34, which is 19% less, thus indicating a significant impact of this bank on the z-score of the Latvian banking industry. On the other hand, the results should be evaluated taking into account business model of this bank that is non-resident oriented. If the business operations of bank would be resident-oriented, the liquidation of such a large bank could cause a systemic effect despite the safety reserve of the z-score of Latvian banking industry as a whole.

2. Analysis of capital adequacy and liquidity in the context of bank groups

Liquidity and capital adequacy are important factors contributing to the stability of banks. Previous analysis has shown that in the post-crisis period Latvian commercial banks have experienced an upward trend in the share of liquid assets relative to the total bank assets. It can be explained with the more conservative bank lending and tight lending conditions, higher requirements from supervising authorities regarding the bank liquidity level as well as political and economic instability in the region of non-resident clients etc. (Kudinska, 2017). On the other hand, more conservative lending policy and restriction of risky transactions has also contributed to a slight growth in capital adequacy of Latvian commercial banks in the post-crisis period.

In order to carry out a comparative analysis of capital adequacy and liquidity of banks in the after-crisis period (2008-2016), the following main indicators of banking performance/activity were calculated in the context of bank groups:

- to assess capital adequacy:

- capital adequacy (CapAd)

- capital adequacy Tier 1 (CET 1)

- financial leverage (LEV_Tier1)

- risk-weighted assets to total assets (RWA_A)

- to assess liquidity:

  - liquidity ratio[†] (Liq)

  - non-resident deposits to total deposits (NRD_D)

  - loan to deposits ratio (Cr_Dep);

  - loans to assets ratio (Cr_As)

  - demand deposits to total deposits ratio (DD_D).

The results of calculation are summarized in the Table 2.

Table 2

Average indicators of capital adequacy and liquidity in the context of bank groups, 2008-2016

Ratios	large banks	medium-sized banks	small banks
CapAd	17.62	17.79	28.44
CET 1	13.05	15.34	25.87
LEV_Tier1	9.60	9.01	13.92
RWA_A	58.10	52.05	45.40
Liq	55.88	67.56	95.67
NRD_D	31.02	34.89	70.94
Cr_Dep	109.38	73.75	29.45
Cr_As	52.08	26.70	22.80
DD_D	56.46	53.10	67.72

Source: authors' construction based on the financial statement data of Latvian commercials banks, 2008-2016

Analysis of data shows that all indicators of capital adequacy and liquidity in small banks are higher in comparison to the large banks. In our opinion, there are several reasons for this tendency. First, large and small banks have different business strategies in the market. The main business of large banks is lending (loans constitute more than 50% of total assets). Large banks use different sources of financing for lending operations – resources are attracted as bank deposits, as well as other sources, for example, bond issues. Besides, the cash flows of large banks are more predictable. It should be noted that four out of six large Latvian banks are subsidiaries of European financial groups, which in turn means a higher degree of stability as well as the possibility to avoid maintenance of excessive reserves to absorb potential risks.

The loan portfolio of medium-sized and small banks constitutes on average less than 30% of bank total assets, which means that for the majority of these banks, lending is not the main profit generating business activity. Analysis of bank financial statements shows that the business activities of medium-sized and small banks are related to the maintenance of current accounts. In small banks ca.70% of total deposits (on average) are represented by the demand deposits, with the

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[†] Liquidity ratio = liquid assets/current liabilities (with maturity up to 30 days).

large share of these funds being non-resident investments. Therefore, to ensure continuous operations under conditions of cash flow unpredictability, small banks are required to have high liquidity indicators. Therefore, on average, the liquidity ratio for this group of banks is 95.67.

We estimate the dependence of capital adequacy and liquidity indicators on the z-score of Latvian banks. The Figure 3 shows that the largest impact on the z-score for all groups of banks have bank capital adequacy and the ratios representing the share of risk-weighted assets to total assets of banks.
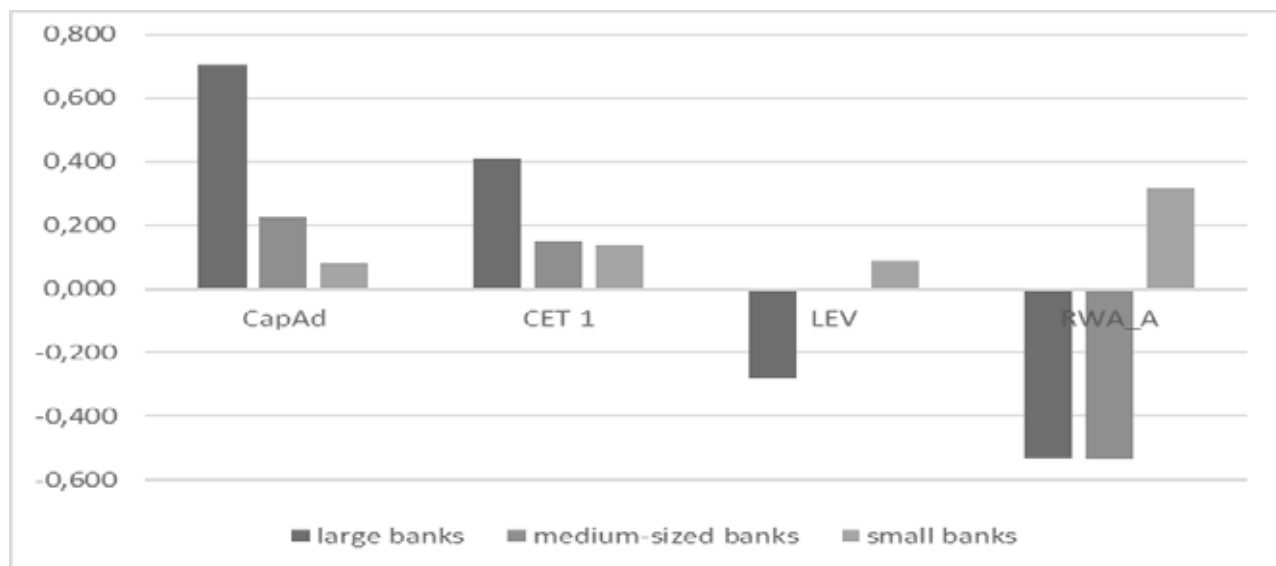
Source: authors' construction based on the financial statement data of Latvian commercials banks, 2008-2016

Fig.3. **Correlation of capital adequacy and z-score of Latvian banks, 2008-2016**

The analysis of data (see Figure 4) suggests that in the period of the last nine years the capital adequacy ratio has a strong upward trend that can be explained by the requirements of Basel III. In turn, steadily increasing capital adequacy ratio has a positive effect on the z-score of banks. Since the capital adequacy is inversely proportional to the risk-weighted assets, the share of risk-weighted assets in the total bank assets has a negative impact on the stability of banks (correlation coefficient for large banks is -0.533 and -0.534 for medium-sized banks). Small banks have on average a small share of loans in assets (22.8 percent) and therefore the growth of risk assets has a positive correlation coefficient with the z-score.
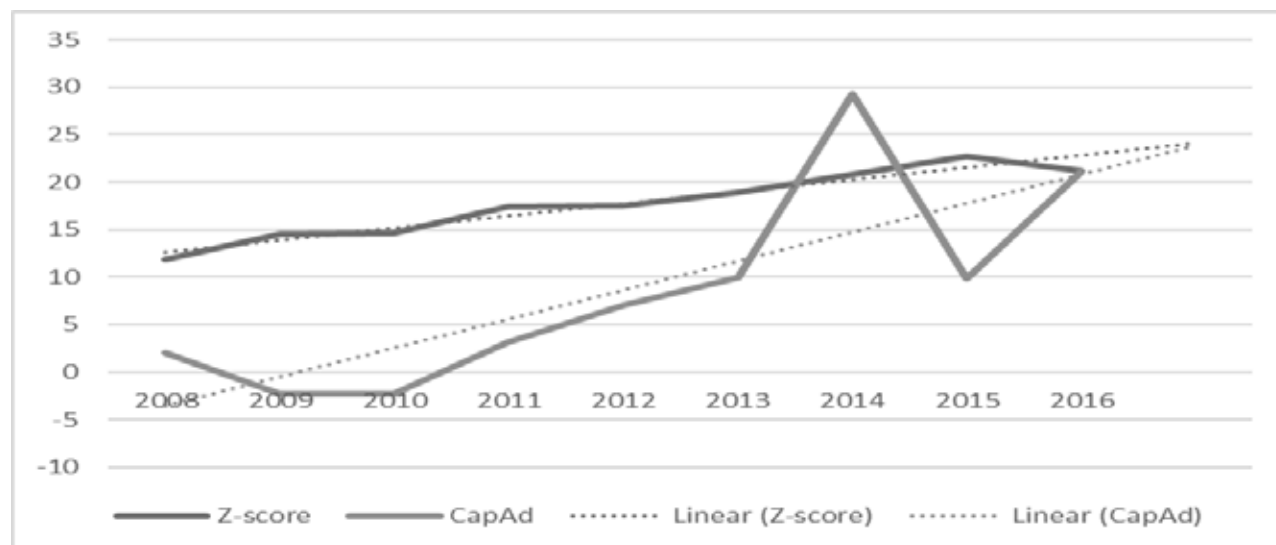
Source: authors' construction based on the financial statement data of Latvian commercials banks, 2008-2016

Fig.4. **The trend of z-score and capital adequacy ratio of Latvian banks, 2008-2016**

Based on the liquidity ratio analysis made, we conclude, that the dominant factors of risk that characterize liquidity in all groups of banks are the share of demand deposits in the total volume of deposits and the share of non-resident deposits in the total volume of deposits. Moreover, for a group of large banks, the share of non-resident deposits has a correlation coefficient with the z-score (-0.8), the group of small banks (-0.68), and the group of medium-sized banks (-0.17).
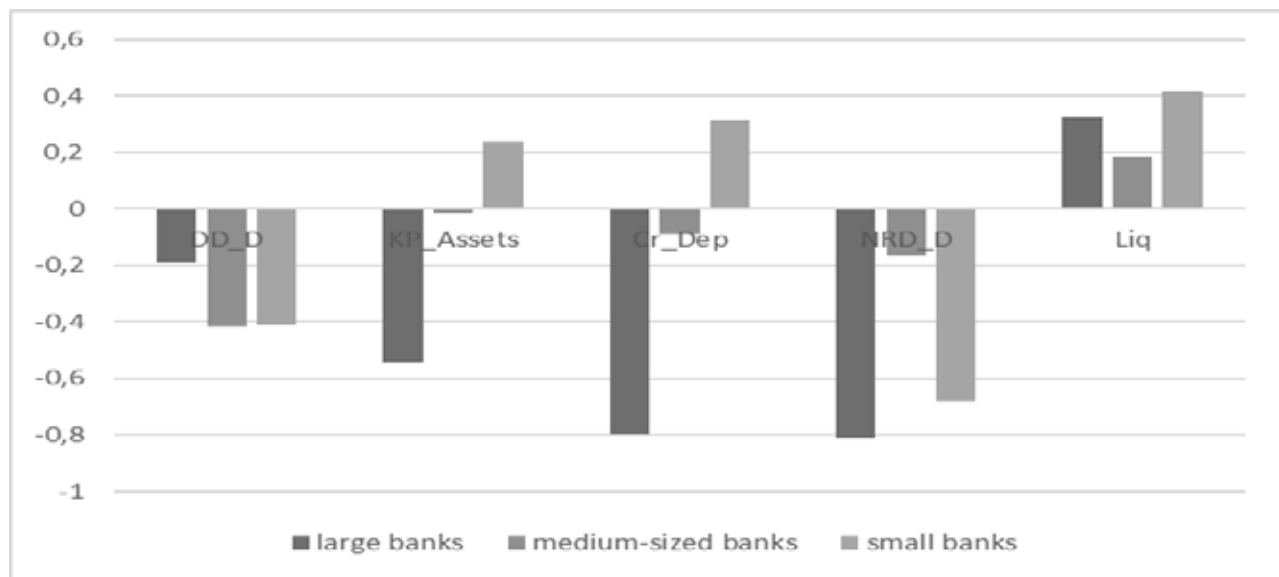
Source: authors' construction based on the financial statement data of Latvian commercials banks, 2008-2016

Fig.5. **Correlation of liquidity ratios and z-score in Latvian banks, 2008-2016**

Moreover, for the group of large banks, strong negative correlation is identified between the z-score and the share of loans in assets, share of loans in deposits, as well as the share of non-resident deposits on total deposits (see Figure 5). This is explained by the fact that the main business activity of large banks is lending (more than 50% of assets are loans).

Conclusions, proposals, recommendations

Bank capital adequacy and liquidity indicators are frequently used tools for the assessment of bank stability/risk level. The paper analyses the capital adequacy and liquidity as well as the z-score as a measure of stability of Latvian banks in the period from 2008 until 2016. The analysis has shown that in the research period:

1. The level of z-score in the Latvian banking industry was quite fair with only one bank showing a negative average z-score, but a negative aggregated industry z-score was observed only in 2009 with a steady tendency to grow reaching its' peak in 2014.

2. Large banks with total assets exceeding 80% of the total assets of the banking industry have higher financial durability.

3. All indicators of capital adequacy and liquidity in small banks are higher in comparison to the large banks. It can be explained with different bank business strategies with lending as the main business operations of large banks.

4. The largest impact on the z-score for all groups of banks has bank capital adequacy and the ratios representing the share of risk-weighted assets to total assets of banks. In the research period the capital adequacy ratio has a stable upward trend indicating a positive effect on the z-score of banks. For large and medium-sized banks the share of risk-weighted assets in the total bank assets has a negative impact on the stability. In case of small banks,

growth of risk assets has a positive correlation coefficient with the z-score due to on average small share of loans in assets (22.8 percent).

5. The main factor of risk that characterize liquidity in all groups of banks is the share of demand deposits in the total volume of deposits and the share of non-resident deposits in the total volume of deposits.

6. Moreover, for the group of large banks, strong negative correlation is identified between the z-score and the share of loans in assets, share of loans in deposits, as well as the share of non-resident deposits on total deposits (see Figure 5). This is explained by the fact that the main business activity of large banks is lending (more than 50% of assets are loans).

Due to differences in business strategies and potential risk exposure, commercial banks in Latvia have different levels of liquidity and capital adequacy indicators: small banks are forced to maintain higher liquidity standards in order to preserve its stability. On the other hand, in small banks growth of capital is accompanied by a decrease in liquidity. Therefore, for the small banks it would be recommendable to review the business strategy towards the traditional banking services, as well as to work out the long-term business development programs. This will in turn allow making the bank cash flow more predictable strengthening the stability of banks. Future research can be conducted on other indicators influencing stability of the banks.

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THE KNOWLEDGE AND COMPETENCIES REQUIRED FOR THE FINTECH SECTOR

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Abstract. In this paper the authors aim to identify the knowledge and competencies necessary for a specialist to successfully work in the fintech industry by conducting interviews with fintech experts. The authors analyse the history of digital transformation and the development of the fintech market in the context of the development of modern financial services and information technologies, and evaluate the demand for fintech specialists in the labour market. They show that fintech has developed rapidly in terms of new market entrants and the volume of the market. The authors also show that fintech specialists are required to have a diverse set of skills combining information technology (e.g. cybersecurity or blockchain applications) and finance. Although the lack of qualified labour force is not perceived as a problem by domestic fintech experts, this may change in the future. The authors suggest that the government consider supporting education institutions' initiatives in adapting their programs for fintech demands, while education institutions should keep in close contact with employers to ensure that they can tailor their services to the demands, which are likely to change in the future.

Key words: *Fintech*, *knowledge, skills, competence, finance, technology.*

JEL code: G21, G23.

1. Introduction

"Fintech", a shorthand for financial technology, has by now become a household name. New companies are challenging traditional banking and financial services, providing products and services that are faster and more customizable than traditional offerings. The latter qualities are letting start-ups spread quickly around the globe. Thus, customers' involvement and expectations are being altered dramatically. Traditional customers of the financial services sector mostly benefit from this trend, for example, by having access to information with the speed and convenience enabled by devices such as tablets or smartphones.

This trend has already made financial institutions, for example insurance companies and banks, seriously consider altering the way they operate and utilize information technology. However, they face significant obstacles to achieving this goal. One of the main problems to solve is the existence of old business procedures and routines and inflexible business models. The authors analyse the reasons for the acceleration in fintech development and the potential for a significant decline in the consumption of financial services provided by the traditional financial institutions in Section 2.

In this paper the authors aim to identify the knowledge and competencies necessary for a specialist to successfully work in the fintech industry by conducting interviews with fintech experts. This paper relies on the qualitative survey methodology to identify the knowledge and competencies required for the fintech sector and uses comparative analysis of the literature to document fintech development trends and their impacts on fintech demands to education professionals.

Financial institutions recognize that their business relies on giving sufficient priority to their customers. From day to day, they are realizing the need for drastic changes to be able to face a new and fast-changing environment. Once the process starts, it is full of difficulties. Resistance to change, old routines, principal – agent problems and asymmetries of information make this path more challenging than it would seem at first glance. Also, there is a danger that the process

obscures the main goal: achieving constant growth and above-average profitability by embarking on a customer-centric transformation (Sieljacks, 2014).

Listening to customer opinions is vital. According to the survey by TransferWise (Hinrikus, 2016) there are four main factors prompting clients to pick fintech companies over banks (respondents could choose multiple factors) as shown in Figure 1. One can see that the most significant priorities of customers were greater security of services as well as lower cost (34 and 29 percent of respondents respectively). This was followed by greater convenience of services, often associated with greater ease of access to financial services (26 percent). Finally, only 18 percent put the priority on better customer service as such. This could be explained by the fact that fintech customers are accustomed to conducting business online without interacting with service oriented professionals on the spot.
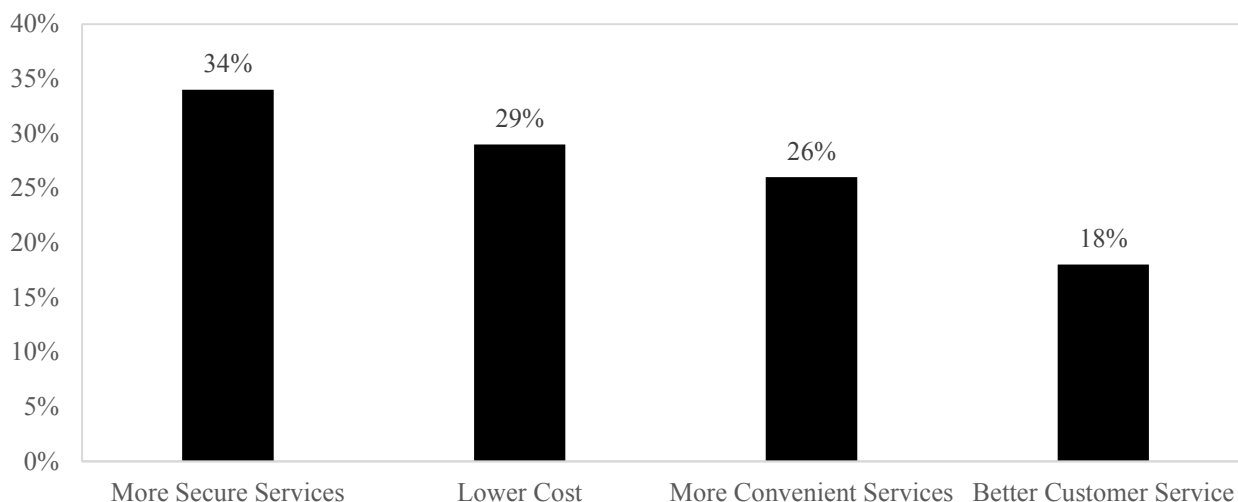
Source: Hinrikus (2016).

Fig. 1. **Survey Results on Reasons for Choosing Fintech Firms over Banks (percent respondents)**

New approaches have played and are still playing a key role in the definition of the new environment. The growth of new financial products on the one hand and updated regulation on the other hand has tremendously altered not only the needs and wants of clients but also the way they are being engaged.

In this paper the authors focus on the question of what kind of transformation in the labour force is necessary to deliver customer-centric fintech innovations. The authors focus on the educational needs of future fintech employees. To answer this question, the authors rely on structured interviews of fintech experts in Latvia as well as a comparative analysis of the available literature on the topic.

The remainder of the paper is structured as follows: Section 2 provides an overview of fintech development trends against the background of broader financial sector development, Section 3 considers the impact of fintech on the job market and the demand for new skills resulting from the development of the fintech industry. Section 4 documents the results of a survey of fintech experts and their views on the necessary knowledge, skills and competencies required to successfully work in the fintech industry. Finally, Section 5 concludes and provides some recommendations.

2. Financial Sector and Fintech Development Trends

The last decade has brought a lot of changes to the financial sector due to several reasons. The first reason is the global financial crisis of 2007-2008. The crisis caused major disruption in the financial sector. Industry participants and policymakers understood that financial sector had a much larger amount of systemic risk than what was previously believed. This gave an impetus to the development of various measurements to quantify the risk.

The second reason is the tightening of regulations, which relied on the new measures of risk, such as the provision of Basel III on Banking Supervision that implied an increase in the reserve requirements of banks to reflect their individual contributions to global risk (Benoit et al., 2016). Likewise, regulators asked banks and other financial institutions to strengthen their solvency. Financial organizations suffered from a double whammy due to regulatory tightening: first, the need for additional capital to increase reserves had a direct, adverse financial effect, and, second, they were assigned blame for the financial crisis by the public opinion.

As the crisis receded, many customers, especially millennials, lost trust in traditional financial institutions and the services they provided. The belief that these institutions were at the root of the financial crisis was one of the reasons for this. The fact that most of those institutions could survive in the crisis only thanks to the significant financial support provided by the public sector only made their reputation worse (Sorkin, 2009). After all, if the banks, insurance companies and other organizations were not able to manage risks that they have accumulated prior to the crisis, why would there be a need for someone to rely on their professional advice or entrust them with one's savings? It became obvious that not only millennials, but also older customers demanded an alternative to the services of traditional providers. Thus, there was an opportunity for new providers to exploit this niche and offer financial services in an innovative way.

European financial institutions have accumulated significant losses during and after the financial crisis. There are several examples of this. The government of Italy is working on the plans of setting up a bad bank requiring €50 billion in financing (Wallace and Marlow, 2016). This is the total amount of loss that the Italian banks accumulated after the spread of the crisis to Italy in 2011. The Royal Bank of Scotland alone, since 2007, has experienced a loss in the amount of £48 billion (Wilson, 2014). The biggest commercial bank in Germany, Deutsche Bank has experienced a significant reduction in its profitability over several years. The bank registered its new record loss - €6.8 billion (Brinded, 2016). Other major European financial institutions, such as Commerzbank and Credit Suisse had likewise incurred significant losses. Specifically, the net loss of Credit Suisse was €2.6 billion (Wilson, 2014).

The stability of the financial sector is closely linked to the ability of the real economy to function smoothly. The global financial crisis of 2008 has vividly demonstrated the impact that a deterioration of financial stability can have on the real economy. Small businesses, which in Europe are responsible for much of employment, may be unable to get financing to initiate, sustain or expand their operations. Large depositors of financial institutions facing difficulties might have to be "bailed-in", and, as in the Greek case, the payment system itself might be under threat.

These events made regulators move in a new direction that includes new regulation of solvency, reforms to capital regulation and adequacy requirements, and other structural reform of the financial services industry (e.g. discussions on the separation or banning of the proprietary trading). Government and central banks had to intervene significantly, for example, by providing additional capital and cheap liquidity to stem the crisis of confidence engulfing the private sector and avoid further instability. These interventions are credited with avoiding even worse consequences on economic growth and the real economy. However, even now, financial institutions must contend with "stock problems", for example, the record levels of non-performing loans on the balance sheets of European banks. The increase in the fintech sector activity was just one more challenge for financial institutions in a complicated economic and regulatory landscape.

Therefore, traditional financial institutions are forced to take decisive measures. One of the traditional countermeasures is dealing with the decline in the profitability by cutting costs. Some examples from three systemic financial institutions indicate how they are acting to achieve sustainable growth with the help of cost-cutting policies. Deutsche Bank has announced a cut of 9,000 permanent employees and 6,000 contractors from its staff. Additionally, there were other 20,000 staff in the process of outsourcing and selling assets and businesses. The senior management of the bank argued that it will allow to save €3.8 billion by 2018 (Wallace, 2015). Meanwhile, Unicredit is expected to fire

18,200 workers that would allow for savings of €1.6 billion, also by 2018 (Bray, 2015). Similarly, Barclays was going to eliminate 1,000 jobs in investment banking around the globe.

One of the catalysts behind the huge losses of financial services institutions was their business model. Financial institutions usually have outdated business models, tailored for old-style markets and clients that have already altered their needs. Despite their attempts to build closer customer relationships, financial institutions were not able to sufficiently prioritize their customers' needs. Most of their products and services lacked customization ability. Other common issues among them were the inefficiency of services, especially those that are provided in the call centres and branches, and, real or perceived, inadequacy of their professional advice. At the same time financial institutions were still charging high fees for overdrafts and other usual operations.

The fintech industry can be characterized by the innovative application of information technology to the delivery of financial services. This tends to simplify and accelerate the process of providing financial services. Fintech companies tend to deliver services in the following areas: roboadvisors providing wealth management services, innovative delivery of traditional banking services, payments and remittances (including cross-border transactions), lending services (notably peer to peer lending). While some fintech firms use information technology to offer traditional services, others rely on entirely new technologies to develop new services. The most notable example is the idea of a distributed ledger and blockchain for booking financial transactions, which, among other developments enabled the creation of digital currencies.

Some indication of the fintech development trends can be provided by the dynamics of start-up creation in fintech in Europe. Figure 2 shows that the number of newly created companies more than doubled since 2012 and reached its peak in 2014. The largest number of enterprises exists in the key European markets (e.g. Germany with 50 companies and France with 44 companies), but other markets are covered as well including Central Europe and Scandinavia (Roland Berger, 2016).
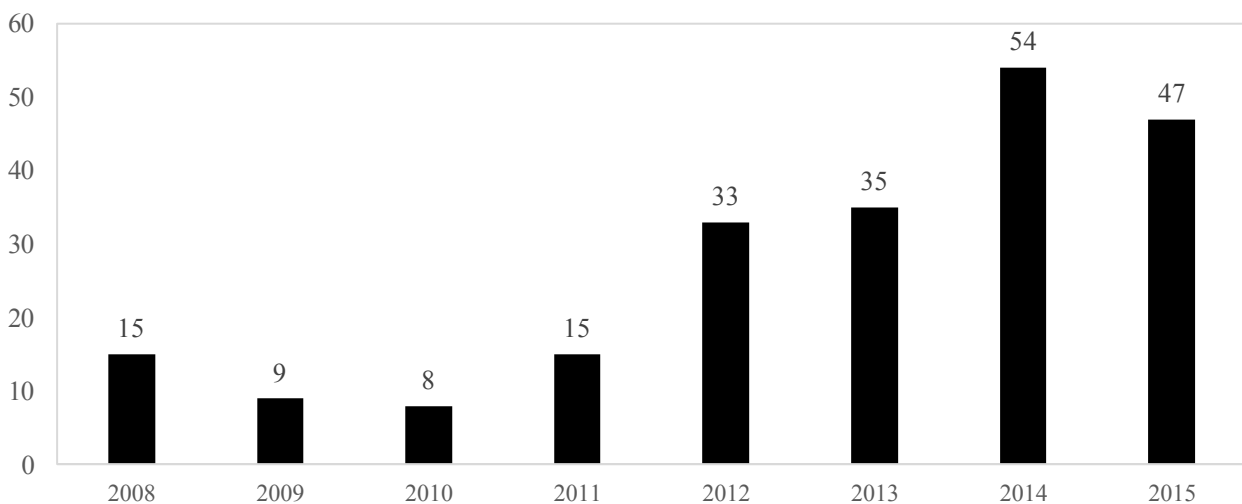
Source: Roland Berger (2016)

Fig. 2. **Number of Fintech Companies Established in Europe**

However, even though fintech growth in Europe has been impressive, it has not yet transformed the consumer marketplace as much as it did in other parts of the world – notably Africa. The role of fintech there has been transformative in part because the reach of traditional financial institutions (banks) has been limited. Therefore, fintech developments have been led by telecommunications companies instead. For example, they developed the technology to provide basic payment and savings services via e-money recorded on a mobile phone – a technology, which achieved its greatest success in Kenya and Tanzania. This application of fintech has helped boost growth by providing customers previously not served

by banks with a way to save funds, remit money safely to their families, pay bills, and receive government payments safely and securely (Arner et. al., 2016).

Mobile money has also been a key ingredient in the development of fintech in Asia, which had one of the highest mobile and smartphone penetration rates. Importantly, lack of trust in financial institutions highlighted earlier also played a role. Arner et.al. (2016) argue that the development of fintech in Asia has been facilitated by public distrust of the typically state-owned banking systems.

Asia also provides an illustration of the significant potential of fintech development. Zhang et. al. (2016) study the growth of alternative finance markets in Asia, which they define as the provision of finance to individuals and businesses through alternative channels via online marketplaces, outside of the banking system. This could be considered a subset of the fintech industry. Zhang et. al. (2016) find that Chinese alternative finance market had an average growth rate of 328 percent between 2013 and 2015. Similarly, the market in the rest of the Asia-Pacific region grew by 313 percent between 2014 and 2015.

Fintech development in Latvia has been relatively slow, in part due to credit constraints faced by all young businesses in Latvia. Saksonova and Kuzmina-Merlino (2017) show that strict licensing regulations in Latvia are one of the main drawbacks preventing fintech development together with the lack of information and trust in fintech among the general population. Nevertheless, fintech development has slowly continued with Latvian companies offering services in most areas of fintech.

To summarize, one can see that Fintech has been developing rapidly in different parts of the world as measured by the number of companies and the size of the market. A survey by Roland Berger (2016) of 248 fintech firms from 18 European countries asked the respondents about the industries holding the greatest potential for fintech development. The results are summarized in Figure 3.
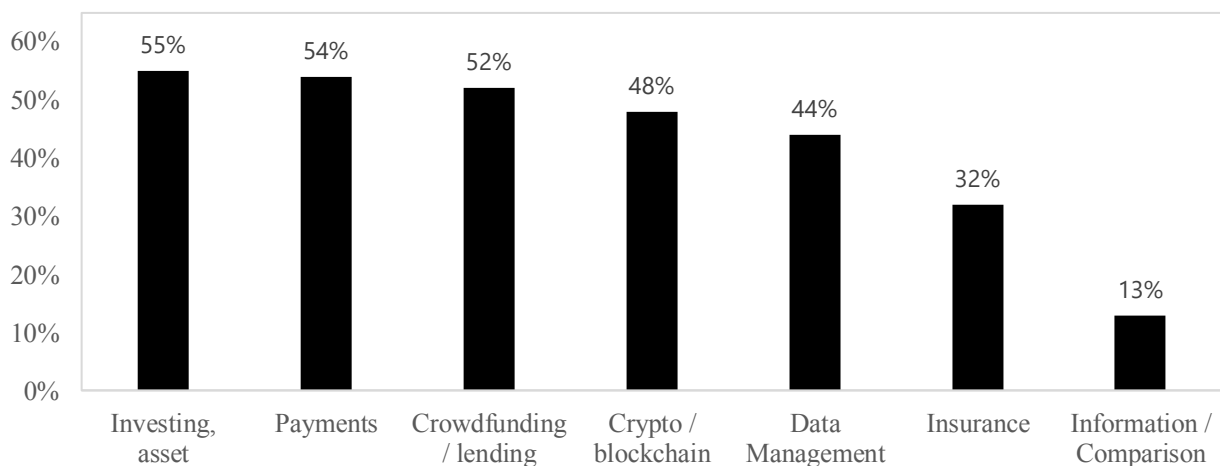
Source: Roland Berger (2016)

Fig. 3. **Most Promising Industries for Fintech Development (percent respondents)**

Perhaps not coincidentally, the areas where fintech has been shown to be the most transformative in Asia (crowdfunding and lending) and Africa (payments) have had more than 50 percent of respondents choose them as the most promising industry for fintech development. However, investing and asset management was considered the most promising industry by 55 percent of respondents. On the other hand, information and comparison shopping portals were considered the least promising area, with respondents believing that disruptive innovation there has already occurred and that potential for further development is limited (Roland Berger, 2016).

3. The Impact of Fintech on the Job Market – Employment and Demand for New Skills

The development of fintech has the potential to comprehensively change the job market. For example, fintech has the potential to simplify working across jurisdictions by making online payments easier. An increasing number of online freelancers and contractors can use solutions such as PayPal that has invoicing and global payment features (Kuznetsov, 2017).

For advanced economies, there is evidence that the growth rate of jobs in fintech is faster than in the economy in general. For example, in the UK in 2016 the monthly growth in the rate of Fintech jobs posted was 5 percent, while the whole job market grew at the rate of only 1 percent. Similarly, in the USA despite job losses in the traditional financial institutions, the financial services sector is expected to increase its overall number of jobs by 12 percent in the coming decade, according to the government projections (Joblift, 2016). Financial institutions generating jobs are more focused on typical fintech applications such as machine learning and advanced data analysis.

The focus of this paper is on the new knowledge and competencies that fintech industries require from employees and the impact they have on financial industry specialists in general. The rapid growth of fintech industry is pushing companies to reconsider the skill sets they need to survive in the environment characterized by rapid development of fintech.

Employees of traditional financial institutions will face the most pressure to adapt. Financial services are currently hiring data analysts to work on big data, experts in cybersecurity to work on improving safeguards to both financial fraud and common threats, and specialists to create internal competencies in modern technologies like blockchain and machine learning. The importance of the so-called "soft" skills is also increasing and they have come to be among the most demanded professional qualifications across industries including fintech. This is because fintech companies aim to develop user friendly applications. A customer-centric mindset is vital for the people who are involved in developing and implementing customer experience.

Research on the relationship between fintech and the job market is relatively rare. Haddad and Hornuf (2016) find that the available labour force has a positive impact on the supply of entrepreneurs in the fintech industry, whereas the unemployment rate does not. However, they do not focus on the skills required in the fintech industry.

Karkkainen et. al. (2018) review the skills shortages in the fintech area and discuss the corresponding changes in the educational curriculum. They document significant empirical evidence (primarily survey based) that finance is an industry with rapidly increasing complexity and emphasize that fintech is a field that can benefit from the development of multi-disciplinary skills. They also find that a successful curriculum preparing students for the career in fintech should include elements from both finance curricula: investment management, financial risk management, quantitative finance, financial regulation and ethics, entrepreneurial finance, etc., as well as from information and communication technologies curricula: programming, artificial intelligence, cryptography, human-computer interaction and design, as well as blockchain technology.

4. A Survey of Fintech Experts

In this paper the authors document the results of interviews of five experts on the fintech industry. The aim was to establish, via structured interviews, participants' views on the important factors to become an effective fintech entrepreneur or have a career in the industry. The interviews contained questions to the experts about the education needed for success in fintech, and the types of skills and competencies needed from someone working in the fintech industry.

The interview also asked a broader set of questions about the motivations to become a fintech entrepreneur and the obstacles faced by fintech businesses in Latvia specifically. They were carried out in November - December 2017; with

the permission of the participants the interviews were recorded. Each interview lasted between 40 and 60 minutes. All respondents were men between 20 and 35 years old

Table 1 summarizes the main knowledge, skills and competencies that experts believed were necessary for successful fintech careers. Four out of five respondents agreed that ICT skills, finance, and banking knowledge were essential, while one respondent argued that none of this specific prior knowledge was required – only an innovative idea fixing some pre-existing problem in the market and entrepreneurial skills. All respondents agreed on the importance of the latter, but also emphasized other skills – notably knowledge of finance and broader IT skills. In terms of required competencies one respondent emphasized the ability to learn constantly and quickly adapt to the changing circumstances, another suggested leadership skills and industry knowledge.

Table 1. Main characteristics of Fintech Specialists

Indicator	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5
Requirements to be a successful entrepreneur	Luck, hard work, good idea.	Luck, hard work, mentors, guts.	Money, hard work.	All of the options	Money, hard work.
Primary motivation to start a business	Dissatisfaction with the previous job	Absence of a solution on the market	Dissatisfaction with the previous job	Someone's personal example	Dissatisfaction with the previous job
Knowledge	IT, Finance, Business Communication	None of the fields of knowledge	IT and Finance	Banking and IT	Banking and IT
Skills	Entrepreneurial, soft skills, finance skills	Entrepreneurial	Technical and mathematical	Entrepreneurial and IT	Entrepreneurial and IT
Competences	No comment	Entrepreneurial	Ability to adopt fast to any circumstances and constant learning	Contacts and work ethics	Leadership and industry know-how

When asked about the main obstacles facing fintech in Latvia most experts pointed out the need for improvements in regulation, overall economic and investment climate, the positive potential of special economic areas, etc. Regulatory improvements could be especially important as the experience with other financial innovations, such as financial derivatives, has shown that changes in regulations, standards, and recommendations can inspire further innovation among firms (Grima et.al. 2016). The lack of qualified labour force was not perceived as a problem by the respondents. Similarly, the lack of qualified labour force is not seen as a problem by the financial sector development plan adopted by the Latvian government in 2017, which puts forward digitalization and innovations in the financial sector as one of the key priorities (Saksonova and Kuzmina-Merlino, 2017).

5. Conclusions and Recommendations

In this paper the authors had shown that the development of fintech industry can be explained by the global financial crisis and the resulting loss of trust in the traditional financial institutions and tightening of regulations. By combining financial services and information technology, fintech companies could entice customers with lower costs, greater security and convenience, and better customer services.

The potential for further development of fintech is considerable as illustrated by the rapid creation of new enterprises and growth in the volume of transactions. Furthermore, fintech will have profound effects on the job market not only by expanding choices for employees of other industries (e.g. getting paid online), and generating new jobs, but also by introducing new qualification requirements for prospective fintech employees.

The new industry demands that its prospective employees have knowledge from fields that were not necessarily related to each other previously – information and communication technologies (including entirely new areas such as blockchain applications), and finance. Fintech will also increase the demand for "soft" skills to enable the development of applications that meet customers' increased applications for user friendliness, for example.

The results of the interviews documented in this paper show that Latvian fintech experts agree that a successful career in fintech requires knowledge of both information technology and finance as well as a diverse set of skills and competencies. However, they do not see lack of adequate preparation among labour market entrants as an obstacle facing fintech development, focusing instead on regulatory obstacles. It is important to note that regulatory obstacles can in principle be resolved faster than the lack of adequate skills in the labour force.

Therefore, the government should consider supporting new developments in the education sector aiming to prepare students (including people pursuing further education) for a career in fintech. This could be achieved by designing new master's programs or concentrations in the bachelors' programs. Educational institutions should work with employers (including both fintech companies and traditional financial institutions) to be able to adapt their educational programs in response to the new demands. In that way stakeholders could cooperate on maintaining a highly skilled labour force that would be ready to support fintech development in the long-term even as technology continues to evolve and change.

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GAINING COMPETITIVE ADVANTAGES WITH RISK MANAGEMENT

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Abstract. Managing risks is a vital process which often has substantial impacts on the performance of organisations. In risky situations, managers have to make several decisions, ranging from easy to very complex issues. Therefore it is essential to establish a risk management system in order to identify, analyze, assess and to control risks properly. Many companies suffer on ill-structured decision-making processes and insufficient risk management systems. This can be traced back to fact that risk management is often underestimated in organisations. Due to the fierce competition and rapid changes on the markets, the topic of risk management has become vital in both academia and in practice over the last several years. The aim of this paper is to develop a comprehensive risk management model which allows the responsible bodies to gain structure under uncertainty and to turn risks into competitive advantages. The research of this paper is based on an extensive literature review from different scientific areas such as Management and Risk Management and should raise awareness for further scientific research.

Key words: *Risk Management, company performance, competitive advantage, strategy*

Introduction

Recent events in the economic world raised awareness for the topic of risk management (Hopkin, 2017). Financial crises as well as unexpected market developments had substantial negative impacts on the financial situations of many companies in the past. These crises resulted in several consequences including in the reduction of economic activities, loss of confidence as well as in unstable financial environments. Excessive risk taking in the past is probably one key factor for these developments. In addition, increasing competitiveness worldwide requires fast changes of companies. Therefore, several companies are likely to accept higher risks to remain competitive on the market (Tuan-Hock /Lee-Lee /Hishamuddin, 2012).

The aim of this paper is to compile previous research and scientific literature to develop a risk management model which allows executives to gain competitive advantages in risky situations. Furthermore, this paper connects two different scientific disciplines, in particular Risk Management and Strategy, and should raise awareness for further studies. The research is based on an extensive literature review using databases, journals, monographs and serial publications as well as previous research in the fields of Risk Management and Strategy.

Risk Management

The academic discussion about risks is relatively new in management science, but until now no common definition has been determined (Myšková/Doupalová, 2015) (Elahi, 2013). Culp (2001) defines risk "as any source of randomness that may have an adverse impact on a person or corporation" (Culp, 2001). Risks and uncertainty are closely related and can be traced back to a lack of information (MacCrimmon/Wehrung/Stanbury, 1986). Elahi (2013) defines uncertainty as a "situation in which decision makers have limited knowledge to exactly describe future outcomes" (Elahi, 2013). According to Ettore Piccirillo/Massimo G. Noro (2008), employees define a decision as risky when the outcomes of the actions cannot be predicted. That means the responsible bodies are not able to give a single answer with confidence.

Following that, "risk management" is the consequence of "risk" by individuals or companies (Culp, 2001). From the mathematical point of view risk can be defined as the likelihood of an adverse event multiplied by the extent of damage (Mills, 2001).

Risk Management can be described as a process of identifying, assessing and judging risks, assigning ownership as well as taking actions to mitigate or anticipate risks with supervision along the whole process (Hopkin, 2017). According to Myšková/Doupalová (2015), many executives misunderstand the term "risk management" as it is often only referred to interventions (Myšková/Doupalová, 2015). This is in fact a dangerous interpretation as risk management requires a holistic approach to deal with upcoming issues properly (Wu/Olson/Dolgui, 2015). Therefore, it is vital to understand the different risk management phases in order to intervene in time.

Szymański (2017) developed the following phase model which illustrates the sequences of steps that are required to find solutions or alternatives to the facing risks and additionally proposes actions (Szymański, 2017):

Process phase	Proposed actions
Risk identification and early warning system	- determining the causes of risk; - determining possible consequences; - identifying entities affected by risks.
Risk analysis	- determining the probability of event; - determining the consequences of event.
Formulating variants	- identifying possible alternatives; - analyzing expeditures and costs of different variants.
Risk assessment	- declaring readiness and determining ability of the entity to make decisions; - determining the actual level of risk; - qualifying the use of possible alternatives to manage risk.
Decision and actions in the area of risk (risk control)	- choosing tools; - setting priorities; - using optimal combination.
Control, monitoring and evaluation of undertaken activities	- checking and ex post evaluation of impact of undertaken actions; - new formation of risk management process in the case of wrong decision; - further use of tools which ensured success in risk management.

Source: Szymański, 2017.

Fig. 1. **Risk Management Process**

Practice shows that many mangers suppose they pay close attention to risk management but especially smaller companies do not monitor risks systematically and rely on gut feeling rather than on risk management instruments. The main belief is that managers or owners are able to identify all emerging risks by themselves (Myšková/ Doupalová, 2015).

According to the research of Elahi (2013), companies have to acquire certain capabilities in order to deal with risks. These capabilities need to be embedded in the culture and processes of a company to be most effective. For a constant successful risk management, the following capabilities should support the company to achieve resilience. Resilience describes the ability to compete with the competition and to anticipate changes in the business environment (Elahi, 2013):

- Establishing a risk awareness culture
- Setting proper levels of risk appetite in different parts of the firm
- Recognizing potential risks
- Detecting an evolving or happening risk
- Assessing the likelihood and impacts of risks

- Assessing the potential benefits and opportunities associated with risks

- Categorizing and prioritizing risks

- Transferring / sharing risks

- Preventing/ reducing the probabilities of risks

- Mitigating the impacts of risks

- Reducing the sensitivity of the enterprise to risks through flexibility and agility

- Ability to recover from risks

In general, risk management might seem to be straightforward in the concept but in practice the implementation requires time, acceptance and expertise. In order to introduce a sustainable risk management system, it is of utmost importance that risk management is seen as an organisation-wide issue. Employees must support and understand that risk management is able to keep up the performance of the company. The requirement for Risk Management implementations and the level of involvement depend substantially on the level of uncertainty. Following that, in a world with no uncertainty risk management instruments would not be necessary. The current business environment is facing a trend of increasing uncertainties and risks (Elahi, 2013). In the following, five major drivers explain this development (Elahi, 2013):

1. Faster pace of change: The human world is changing and the pace of chain has dramatically increased over the last years. The growing information, technology as well as the fierce competition change faster than several years before. This development limits the ability to predict future trends. As a consequence, the forecasts are less reliable. Less reliability makes companies vulnerable for risks and uncertainty. Moreover, these developments reduce the time span in order to make well-conceived decisions.

2. Increasing complexity: Complexity increases risks. The problem needs to be broken down into parts to make it understandable. New technologies make it more difficult to determine and to predict risks. This is due to the fact that these issues need to be understood first in order to deal with them.

3. Multi-polar global order: New economic powers are signs of a trend towards multi-polar-world order. In case of a higher number of influential powers in the world, individuals can expect more unexpected due to the interaction between these powers.

4. Globalization: Due to the increasing connections between businesses and countries, a local risk can turn into a worldwide one. Disruptions can spread out very fast which means that business activities are rarely safe from major disruptions.

5. Increasing interconnected risks: In addition to globalization, the raising connections between different types of risks make the situation even worse. Different risk categories are not independent and can influence other sectors. That means that one risk category can influence the other category.

It is worth pointing out that the level of influence depends on the sector in which the company operates. That means that one risk might play a decisive role in one industry while it is less important in other ones (Elahi, 2013). The following chapter deals with the issue of gaining competitive advantages with risk management in-depth and illustrates the developed model by the author.

Gaining competitive advantages - Risk Management model development

Classical management literature provides different ways how to create competitive advantages (Elahi, 2013). Derived from the current literature of Risk Management as well as classic management theory the author of this paper developed

the following Risk Management model which allows executives to gain a systematic sequence of steps under uncertainty as well as competitive advantages on the market in case of risk occurrence. In the following, each phase will be explained in detail and different risk management tools derived by previous research will be discussed afterwards.
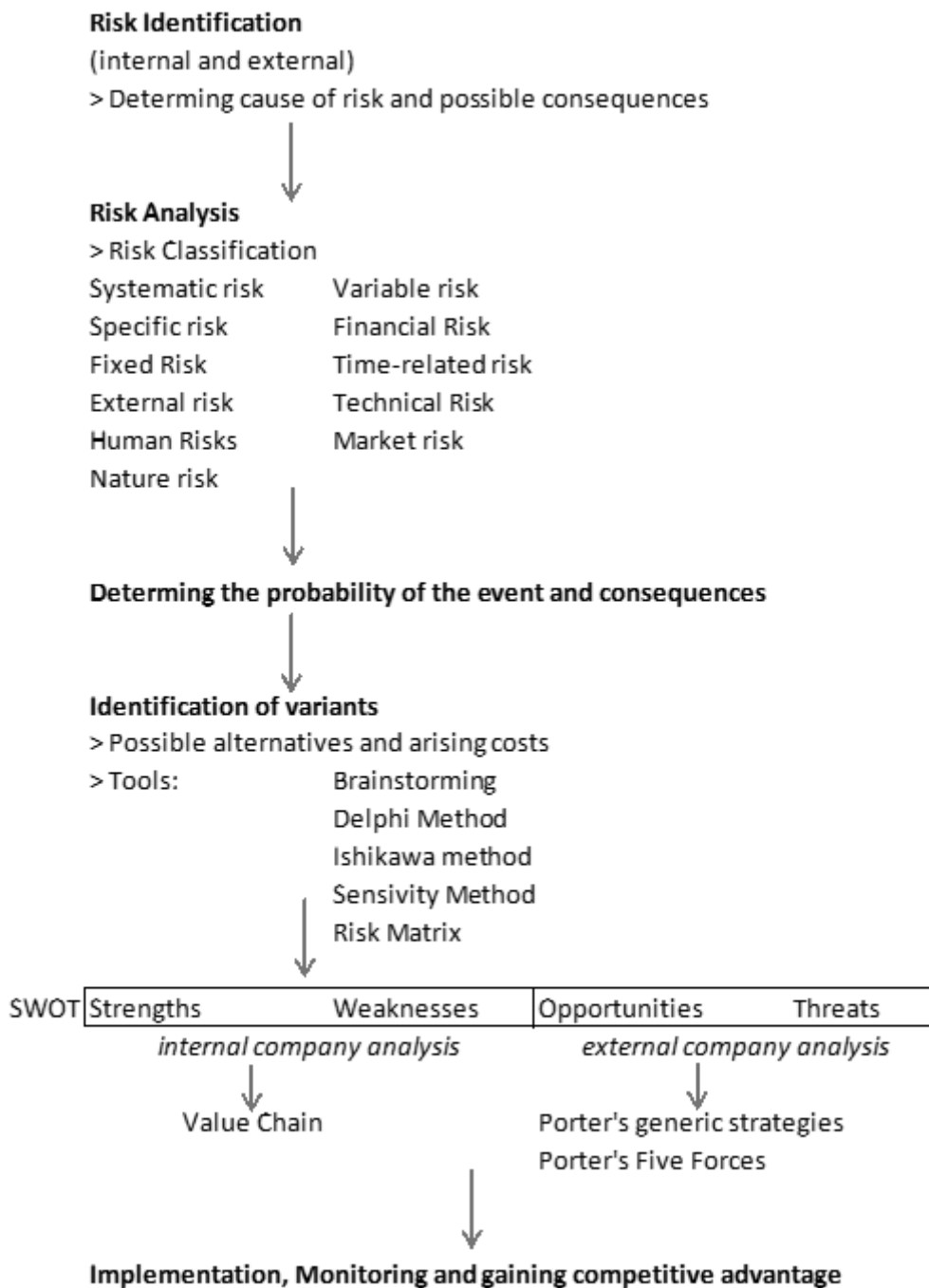
Fig. 2. **Gaining competitive advantage with Risk Management**

1.   Risk Management Process

According to Borghesi/Gaudenzi (2013), risk identification sets out to identify an organization's exposure to uncertainty. It should be approached in a methodical way to ensure that all significant activities and all risks flowing from these activities are defined (Borghesi/Gaudenzi, 2013). In order to identify risks, it is advisable to create a template for recording appropriate information of risks. Risk identification requires a great deal of pre-project planning and research (Olson/Wu, 2008). After identifying the potential internal and external risks the aim of the risk analysis is to describe risks in order to give an informative risk picture. The risk analysis shall identify the initiating events and develop the cause-effect relationship (Aven, 2015). By carrying out risk analyses it is possible to (Aven, 2015):

- establish a risk picture

- compare different solutions with regard to risks

- identify factors, conditions, systems and components with respect to risks

- demonstrate the effects of different risk measurements

Aven (2015) highlights the possibility to carry out risk analyses in different phases - from the early concept phase through the planning phase up to the operation phase. The main aim of risk analyses is to support the decision-making process. Risk analyses are vital instruments in order to find an appropriate balance between safety and costs (Aven, 2015). According to Szymański (2017), risks need to be classified to gain structure and awareness about possible solutions and alternatives. In the following, the different risk categories are indicated (Szymański, 2017):

- Systematic risk: also called market risk which is independent of entity control

- Specific risk relating to specific projects: along with all variants

- Fixed risks: affects the whole economic system

- Variable Risks: concerning a certain company

- Financial Risks: concerns the financial situation of the company

- Time-related Risks: risks arise from the failure to implement the activities in time

- Technical Risks: inability to provide the intended quality of the products

- Market risks: risks that arise from market activities that affect the outcome of the project

- Nature risks: risks arise from the environment which is nearly impossible to predict

- External risks: risks that come up from socio-economic environment

- Risks related to the human factor: knowledge risks

In order to identify possible alternatives for the current risks, Rudani (2013) recommends to use different techniques that can be used to support the decision-making process. In the following, two qualitative group-based decisions are discussed (Rudani, 2013). Firstly, brainstorming is commonly used as group-based instrument for decision-making which should stimulate new ideas on a certain topic. For that reason, it is essential to clearly define the problem to all participants. After that, each member of the team is asked to generate ideas to solve the problem in a free, relaxed and frank environment to gain maximum output. During the process no individual is allowed to comment or criticise the ideas of any participant. Moreover, an appropriate system needs to be used to record the ideas. Participants are asked to explain their ideas for solving the defined problem without limitations. The goal is to generate as many new ideas as possible without evaluating them. However, team members are allowed to add improvements or combinations in a complete new idea. The session ends with all collected ideas. Ideas are evaluated by the manager to select the best results. Thus, brainstorming can be a base for tackling challenging problems such as Risk Management issues in order to gain a comprehensive risk picture and is strongly recommended by classic management literature (Rudani, 2013).

Besides, the Delphi-Method can be applied as a survey technique for achieving consensus among isolated anonymous participants with feedback. This technique uses expert opinions to certain problems. The main principle of this method is that structured and interactive questionnaires serve as instrument to draw attention from experts to certain problems or predictions. The following purposes for this method are of main interest (Krishnaswamy/Sivakumar/Mathirajan, 2009):

- Determining and developing a range of possible alternatives
- Exploring underlying assumptions for information leading to different judgments

The features of this method are anonymity, interaction, controlled feedback as well as statistical responses. In addition, this method utilizes series of approximately four to five pooling's with questionnaires, whereas the first is generally open ended. The target is to receive significant group consensus on certain issues or divergent opinions (Krishnaswamy/Sivakumar/Mathirajan, 2009). Pérez (2012) strongly recommends this approach for risk forecasts and market evaluations (Pérez, 2012).

According to Conger (2010), classic management literature also proposes applying the Ishikawa diagram to support a systematic identification and classification of different types of causes that contribute to a certain problem. The development of cause-effect diagrams uses brainstorming activities in order to identify as many sources of errors as possible. The backbone of the diagram is a right-facing arrow which leads to the main problem. The lines creating the fishbone effect branch off the backbone and embody the different types of causes and usually include 4-Ms: methods, man, machines, materials as well as the 4-Ps: policy, procedure, people or plant. It is possible to customize the bones to fit the context. This model allows the management to identify sub-causes relating to each cause type and paves the way for further discussions (Conger, 2010).

Moreover, these approaches can be complemented by sensitivity analyses to determine how sensitive the issue is to certain risks by evaluating the impact and level of each risk. This tool tries to evaluate the probability of occurrence of certain risks as well as the variables that have more influence on the event of risk. In management science sensitivity analyses have therefore become vital to be able to break down the issues into essential components and to support the decision-making process (Loganathan, 2018).

After having identified and analyzed the main risks risk matrices are widely accepted instruments and serve as simple, effective approaches to risk managers and provide a clear framework for a systematic review of risks consisting of colored grids and different categories (Cox, 2009). A risk matrix is a block diagram with two axes, the probability of occurrence and the potential severity. Both axes can be ranked low, medium, medium-high, high and extreme (McKinnon, 2017). It is one of the simplest forms to increase visibility of risks and assist management decision-making (Obicci, 2017).

After having ranked and categorized all risks, the SWOT-analysis serves as strategic planning tool (Parniangtong, 2017). SWOT stands for strengths, weaknesses, opportunities and threats and is a vital method for strategy development. Strengths and weaknesses are internal to organizations whereas opportunities and threats underlie external considerations. A main advantage of SWOT analyses is the combination of internal and external factors (Sweeting, 2017). The SWOT-analyses are therefore useful in situations in which an in-depth inventory control of the company is necessary. According to Paul/Wollny (2014), such situations comprise of fundamental internal and external changes or in case of revisions of strategy (Paul/Wollny, 2014). The following chart illustrates previous research work by Sweeting (2017) and considers potential determinants in SWOT analyses:

Strenghs	Weaknesses
Market dominance	Low market share
Economics of scale	Extensive specialism
Low cost base	High cost base
Effective leadership	Lack of direction
Strong balance sheet	Financial weakness
Good product innovation	Reliance on contracting markets
Strong brand	Limited recognition
Differentiated products	Differentiation by price alone
Opportunities	**Threats**
Innovation	New entrants
Additional demand	Price pressure
Opportunities for diversification	Contraction of key markets
Positive demographic change	Damaging demographic change
Cheap funding	Falling liquidity
Economic liberalisation	Increased regulation

Source: Sweeting, 2017.

Fig. 3. **SWOT**

According to Parniangtong (2017), this framework suggests that a company can gain competitive advantages by implementing strategies that use their internal strengths through responding to environmental opportunities, while neutralizing external threats and avoid internal weaknesses. In order to identify competitive advantages, the company must first identify their strengths, weaknesses, opportunities and threats to find possibilities to match them. The downside of the SWOT analysis is that future developments cannot be predicted. This means that strengths, weaknesses, opportunities and threats can only be considered as they are currently existing (Parniangtong, 2017).

2. Internal Company Analyses

Parniangtong (2017) defines Michael Porter's value chain as internally focused, resource based strategy model with the goal of screening the company processes in order to identify competitive advantages (Parniangtong, 2017). Following that, the Value Chain analysis offers a systematic view of the company consisting of different stages in which the transformation processes of values takes place (Paul/Wollny, 2014). This means that the concept of value chain divides the company into a chain of activities where each element in the value chain delivers a part of the total value to the clients (Sekhar, 2010). Under this framework, top managers must identify these strategic resources and make sure that enough attention is given to the processes to receive a competitive gap. In order to obtain competitive advantages from its resources, the company resources must possess additional characteristics: superior resources, perfect imitable resources, durability or unsubstitutability (Parniangtong, 2017). Porter distinguishes between primary activities and supportive activities such as procurement, technology development, finance and accounting, human resource as well as corporate management and support the core business processes (Harmon, 2015). According to Porter, a competitive advantage refers to a situation in which a company is able to dominate a sector over a period of time. Gaining competitive advantages is a combination of different processes. Porter states in other words that "activities" are the basic unit of competitive advantages. In addition, it is highlighted that several companies are only focusing on one or two approaches when they seek to improve the activities (Harmon, 2015).

3.　　External Company Analyses

Schnaars (2000) refers to Porter's three generic strategies in order to gain competitive advantages. According to Mintzberg et al. (2003), Porter's framework of "generic strategies" has become widely accepted and applied. The generic strategies can be divided into low cost, differentiation or focus. In addition, Mintzberg et al. (2003) highlight that companies that want to gain competitive advantages must "make a choice" in order to avoid "stucking in the middle" (Mintzberg et al., 2003). According to Mintzberg/Ahlstrand/Lampel (2005), the strategic mediocrity, the effort to please all customers is a sure recipe for underperformance. Companies must make decisions in order to gain competitive advantages (Mintzerg/Ahlstrand/Lampel, 2005). The following chart illustrates the Porter's three generic strategies:

Strategic Advantage

	Uniqeness Perceived by the Customer	Low Cost Position
STRATEGIC TARGET Industrywide	DIFFERENTIATION	OVERALL COST LEADERSHIP
Particular Segment Only	FOCUS	
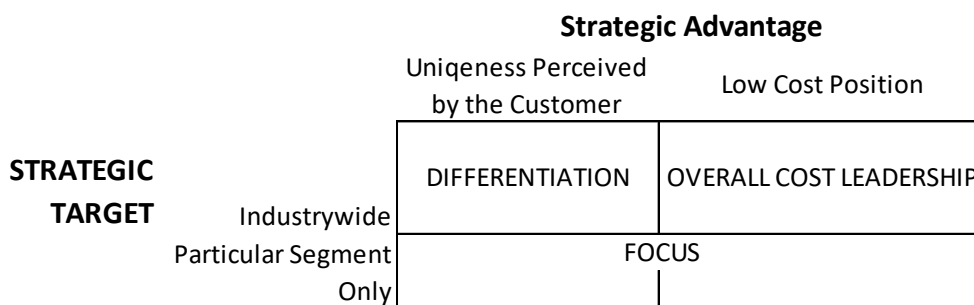
Source: Schnaars, 2000.

Fig. 4. **Porter's three generic strategies**

Companies that follow the strategy "overall cost leadership" focus on lowering costs of production in order to reduce the selling prices to consumers. The aim of this strategy is to underprice the competition. In this context, the low cost-low price strategy leads to lower profit margins but increases the market share. This strategy requires selling high quantities in order to be successful (Schnaars, 2000).

Product differentiation on the other hand aims at differentiating the products from the competitors. This strategy can be applied to tangible and intangible items or service attributes. In general, differentiators charge higher prices for the superior quality (Schnaars, 2000). Mintzerg et al. (2003) mention basic ways how companies can differentiate (Mintzberg et al, 2003):

- Price Differentiation Strategy: The most basic way to differentiate a product from competitors is to charge a lower price. This strategy is often applied for mass-produced-goods as the market is overcrowded.

- Image Differentiation Strategy: In some cases, marketing is used to feign differentiation where it does not otherwise exist. The company creates an artificial image for the products.

- Support Differentiation Strategy: This strategy does not have a direct effect on the product itself. Special services such as 24-hour delivery should gain new customers.

- Quality Differentiation Strategy: The product should convince with better qualities such as greater initial reliability, greater long-term durability and/or superior performance.

Finally, market segmentation can lead to competitive advantages as companies focus on small parts of the market where the competition is not fierce. Companies that operate in this segment are aware of the fact that it is not possible to satisfy all consumers due to the specialization (Schnaars, 2000). With this approach, the company can seek either lower costs or differentiation (Thompson/Martin, 2005).

A further useful instrument for external company analyses can be found in Porter's five force model. It serves as a tool for assessing the industry structure and the intensity of competition. The model considers five factors: suppliers, customers, potential competitors, substitution products and the rivalry of the competition. The interaction between these forces determines the attractiveness and the profit potential of the sector. Insights and expertise about these forces allow the company to assess its position on the market and to derive measurements in order to improve the competitive position (Paul/Wollny, 2014). If all five forces are weak, then it is likely that the industry will be attractive with firms that are profitable whereas if all five forces are high it is almost certain that the industry is low-profit. Once a company has understood the five forces it is possible to develop a strategy to take advantage of the market (Ahlstrom/Bruton, 2010).

Based on the above findings and research, it is essential to timely implement new strategies in order to deal with risks properly and to operate in a focused and effective manner. According to the research of Kolbusa (2013), three issues might arise to hinder new strategies implementations (Kolbusa, 2013):

- Time and resources: Strategy implementations require resources such as money and employees. The need for these resources has impacts on the ordinary business activities. Therefore, it is essential to tackle this conflict by generating genuine implementation monuments.

- Activities instead of results: The key focus on strategy implementations can be found on the activity side. The actions are the preconditions of the desired results. Only a self-imposed structure and discipline makes it possible to achieve the set goals.

- Self-interest versus corporate or project goals: Strategy implementations usually lead to changes. Individuals that are affected by new strategy implementations are trying to influence the process. This third dilemma is the most difficult one and requires a well-thought-out consistently applied implementation policy.

Companies that are inexperienced at dealing with changes are usually facing limited or exhausted resources. Organisations must master both, the strategy implementation as well as the operational business simultaneously. Kolbusa (2013) highlights that companies which gained experience in strategy implementations are afterwards more well-versed and achieved learning-effects (Kolbusa, 2013).

Conclusions, proposals, recommendations

The current business environment is facing rapid changes. This can be traced back to several developments such as financial crises, globalisation as well as the fierce competition on the market. Therefore, it is vital to establish a risk management system to compete with the current developments. The main target of Risk Management systems is to identify, analyse, assess and to control risks. Gaining competitive advantages from risky situations requires profound expertise about the company itself as well as its environment. In order to support the decision-making process, the author of this paper developed a risk management model which additionally supports gaining competitive advantages. Summarizing the main results on the issue of gaining competitive advantages in risky situations, the author comes to the following conclusion and recommendations:

1. A new risk management model was developed by the author to support the decision-making process in order to gain structure about the sequences of steps that are essential to deal with risks and to gain competitive advantages under uncertainty.

2. Gaining competitive advantages in risky situations require a holistic approach and thus it is essential to distinguish between internal and external company environment. Due to the thorough differentiation, it is possible to identify core drivers for competitive advantages.

3. Well-established risk management processes allow the management a timely recognition and rapid search for alternatives as well as constant learning effects for the organisation. Thus, this risk management model enables the management to perceive negative trends and to derive countermeasures.

4. It must be emphasized that several papers deal with the topic of risk management but research lacks on scientific papers that combine risk management and strategy.

5. It is proposed to carry out further research in order to adapt this model to individual industry needs.

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MULTIDIMENSIONAL ANALYSIS OF INNOVATIVE COMPANY FIELDS

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Abstract. Innovation is factor that determines the company's development and competitiveness in the market, in recent years the number of innovative enterprises in both Latvia and the world market is increasing steadily. One of the most important conditions for successful development of the country is to support innovative enterprises, providing them with the guidelines for analysis and global trends. Therefore, it is worthwhile to find out in which fields the process of development and financial attraction for already existing innovative enterprises has been successful, which will provide other entrepreneurs with guidelines where it would be more appropriate to invest and develop.

Multidimensional analysis is considered as one of the most accurate and reliable data analysis methods. Within the study author has performed multidimensional analysis of the fields of innovative business by using correlation and regression analysis according to the indicators of Finance, Employment and Investments. These indicators were chosen on the basis of European Union studies and their results that are generally accepted and recognized as qualitative. Author has performed analysis of the fields of activity of innovative companies in Latvia comparing with European tendencies.

The data of the Central Statistical Bureau and the Bank of Latvia has been used. The aim of the article is to provide the basis for further research, as well as to provide an analysis of the current situation. Entrepreneurs who are only planning their innovative activities, or think about the development of an innovative service or product, have the opportunity to compare and take into account the experience and results of their colleagues in Latvia, as well as to take into account the development trends of innovative companies in the European Union. In the research author has come to the conclusion that Latvia falls behind other Baltic States in EU Innovation rank and main reason is low level of innovations; Analyzing correlation between number of employees, turnover, investment in ICT and venture investments showed only relationship between number of employees and investment in ICT, regression analysis showed that 80% of investment in ICT is explained by an increase in the number of employees that supports given model, but the field of an enterprise does not have any effect on the success of an innovative companies.

The paper does not cover all the characteristics of innovation but it presents basis for a proper usage of innovation and ways of transforming it in competitive advantage for companies. Also this paper identifies the impact that innovation has on economic growth.

Key words: *Multidimensional analysis, innovations, regression analysis*

JEL code: O3

Introduction

Innovations are prime manifestations of competitive economy; increased firm innovativeness has prime importance in today's environment and is fundamentally important for marketing as for SME's as for large companies. Due to differences between theoretical background, EU data and current situation with Latvian innovative enterprises, it is essential to conduct literature review of what has been written regarding factors associated with innovation. Such research is essential as there might be an important factors already identified that explains development of innovative enterprises. Moreover, research of important factors in innovative company development in Latvia and European Union is likely to provide benefits to the innovative companies and to further studies- as knowledge will be effectively used and help innovative companies to develop and to economy to grow.

In the paper author would like to understand does developed theoretical framework meet with situation in Latvian enterprises? Is there a connection between Investment, Finances and Employment in the innovative sectors in Latvia, what kind of effect these factors have on each other? Do innovative companies in Latvia and among EU innovative leaders have the same innovation strengths and weaknesses?

In the paper author has made brief literature review to find theoretical guidelines for empirical research. Author has used data from European Union Investment Scoreboard to identify trends in among European innovative companies, as well as to look at strength and weaknesses of innovative leaders and Baltic States, to understand the difference between EU innovative leaders and Baltic States, to point out why Latvia is one of the last countries in the innovative country rank; Investment Scoreboard, 2017 helped as resource for making research dimension. Author has taken statistical data from Central Statistical Bureau and the Bank of Latvia and conducted a multidimensional analysis using correlation and regression analysis, where has shown relationship between Investment, Finances and Employment factors in the innovative sectors in Latvia, these dimensions were chosen on the basis of Investment Scoreboard 2017, in the end making conclusions and giving proposals for further studies. Paper presents novelty as such studies have not been conducted in the region especially looking at high demand of innovation in modern world that shows actuality of the topic. Due to limitations of paper size author is not looking at innovation definition, there are no intention to develop a complete theory of factors affecting innovation, as well as not compering the other Baltic States to the research data; author has data only about innovative sectors in Latvia.

The aim of this research is to conduct multidimensional analysis of factors and to understand their relationship, as well as to perform a comparison between data in Latvia and EU innovative leaders, thus giving enterprises in Latvia guideline to improve their results.

Research results and discussion

Innovative business has complex characteristics, innovative companies must not only update through the development but must learn to implement new ideas and think out of the box. Innovativeness shows the potential of the company that could be defined by resources, financial and legal opportunities, technics, technologies and culture. Innovative potential is the most important priority for the innovative company, intensity of innovation process will show performance results expressed in effectiveness of innovations.

According to Schumpeter (1939) innovation is essential for sustainable growth and economic development. In the modern economic society, innovation processes occur at the different levels from the enterprise to the national. Innovation increases competitiveness of new and of existing enterprises. There exists a thought that big enterprises as well as developed countries which have resources for innovation processes, develop with a negative effect on innovation (Schumpeter, 1939). Once enterprise has outreached a size of SME it requires better control system, they lose ability to innovate as freely as they could (Turner, J. R., Ledwith, A., & Kelly, J. F., 2010), and thus enterprises are turning to improvement rather to innovations (Gopalakrishnan, S., Bierly P. & Kessler, E. H., 1999). Vision of innovation becomes more complex and hard to implement (Agle, B. R., Mitchell R. K. & Sonnenfeld J. A., 1999). This theory has opposite opinion of higher opportunities for enterprises in wealthy thicker markets comparing with developing countries (Shane, 2003), when larger firms may put increased resources behind innovation process (Iwamuraand Jog, 1991) and Silicon Valley could be the best example of implementation and development of innovations in highly developed and wealthy conditions. Theoretical framework yields two results. First is that firms all finances depends linearly on turnover and non – linearly on number of labor. In addition innovations are related to number of labor or fixed production costs. The second result is that investment depends nonlinearly on the number of labor and it depends on firms' cash flow. In addition, the

number of labor is fully determined by the cash flow and though this investment becomes also related to number of labor. (Bhagat and Obreja, 2012). Many papers have looked at the sensitivity of corporate investment to firms' internal funds and employment. In this paper, investment relation to employment and finances has been taken as the most important (Fazzari et al., 1988, Carpenter and Petersen, 2002). However, several studies criticized afterwards the empirical test based on the cash flow sensitivity as a meaningful evidence in favor of the existence of financing constraints (Kaplan and Zingales, 2000), arguing that the significance of cash flow in investment equations can be the consequence of measurement errors in the usual proxy for investment opportunities. In any case, empirical evidence widely supports the positive link between cash flow and investment (Hernando, Martínez-Carrascal, 2008).

Huge numbers of studies were made on size of enterprise and R&D expenditure. Researches show that there is a connection between R&D expenditure in large companies, basically determined by the size of R&D programs instead of the size of the firm (Freeman, 1995). If we look on small firms, there are uncertain situation: a vast majority of small firms do not perform any specialized R&D program, in several countries those small firms that do perform R&D have R&D intensities above average (Freeman, 1995, p. 232). In a survey of German food industry, Weiss and Wittkopp (2005) find that an increase in market power in the retail sector decreases innovation by manufacturers. The market power of retailers has negative effects on innovation in food manufacturing, which is measured by the number of new products introduced in the market.

Rothwell and Dodgson (1995, p. 323) have developed such conclusions:

1. Innovatory advantage is unequivocally associated neither with large nor small companies. Small firm advantages are mainly behavioral while those of large firms are mainly material.
2. Available data suggests that the firm size/innovation share relationship is U-shaped.
3. Small firms´ innovatory contribution varies significantly from sector to sector.
4. Small and large firms do not operate in isolation from each other and they enjoy a variety of complementary relationships in their technological activities.
5. Any study of the roles of small and large firms in innovation should be dynamic: their relative roles vary considerably over the industry cycle (Utterback, 1994).

Spillover Theory of Entrepreneurship states that knowledge is the basic factor for innovation process as well as economy development (Acs, Armington, 2006). Theory describes three basic factors that positively correlate with economic growth- infrastructure, knowledge and individuals. Shumpeter has made conclusion that the firm is ultimately responsible for managing both technological and knowledge assets. The firm can develop new technologies in order to keep up with competitive markets. In competitive and dynamic environment the firm seeks knowledge about consumers and competitors to try long term strategies. System of innovation model (Freeman, 1995; Lundvall, 1992) has an idea of systemic interaction among enterprises and institutions. Necessity of incorporating internally and externally sources of knowledge to the enterprise not in collaboration with others, it means that it is possible to understand about the company when you analyze how does it cooperate with others (Rothwell, Dogson, 1995; Tidd, Bessant and Pavitt, 1997); It has been insisted on the necessity of fully analyze and research innovative companies at micro and macro level. (Nelson, 2006).

Recently developed Human Interaction Dynamics model shows that mentality is one of the key factors that drive innovation process (Hazy, Backstrom, 2013). It has been described that supply and demand relationship exists in innovation process, if innovation processes have already been supplied to the society; it will have high demand of it in long run, intensity of innovation process is determined regionally (Casson, 2005). National level characteristics have been

linked with innovation processes, number of innovative companies (Whitley, 2000). Institutional differences in states lead to variation in innovation strategies, resulting in success of innovation implementation, knowledge, familiarity with organizational competencies. Diamond theory of national competitive advantages (Porter, 1985) is the one which is counted as a base for these thoughts.

European Innovation Scoreboard since 2007 works on factors that impacts strengths and weaknesses of European countries in the innovation implementation process. Four dimensions have been developed to analyze innovative rank of the countries: first dimension is human resources (e.g. where and how people are employed as well as do they have necessity and willingness to participate in innovation process, students, lifelong students), that consist of two more indexes- research system (e.g. is it used in the country, how effective it is, number of scientific publications), and innovation friendly environment (e.g. do enterprises have support from the government in the innovation process implementation, lower tax policies, lectures etc.). Second dimension is investments (e.g. government investments in the R&D, venture capital expenditures, is government willing to support innovative companies, where innovative companies invest, compering R&D and non- R&D investments, is country interesting for investors in the field of innovations). Third dimension is innovation activities that include division of innovation implemented (e.g. product, process, marketing or organizational innovations); linkages or how enterprises collaborate with other enterprises, public, government institutions as well as internationally The last dimension is impacts that include employment impacts (e.g. knowledge intensive activities, fast growing enterprises in innovative sectors) and sales impacts (e.g. high tech product, knowledge intensive services exports, new product sales).

According to European Innovation Scoreboard (2017), Latvia is ranked as 24th country the top; other Baltic states are far more successful in being innovative (Estonia takes 15th and Lithuania 16th place). Comparing data it is seen that Human resources are the strength of Baltic States, even though countries are not highly populated, though people are willing to except, implement innovation in their work places, are willing to work in innovative companies, this result is highly possible of high demand of IT specialists and their salaries that are counted as reasonable for Baltic States. It is also possible to explain with the popular trend of idea of working for innovative company. It is necessary to mention countries that are counted as innovative leaders, are decreasing workforce numbers in agriculture and other sectors, though this number of employees is high in Baltic States (employing 23% of people after the age of 41), that shows high percent of adults employed in agriculture.

Latvia and Lithuania has advantage of innovation friendly environment that shows positive trend during last 6 years, this index has been growing steadily. Estonia which has been the most successful innovative country compering to other Baltic States has positive investment index, for last ten years Estonia is interesting for venture investors, government and private companies invest in R&D as well as innovation processes have been made national level priority.

Speaking about weaknesses author can mention innovation implementation, Latvia has very low index of innovation that could be a problem for long term sustainable development of the countries' development and economic growth. Though author should mention that even innovation leader Sweden has comparably low index of innovation, it is weakness in almost all European Union countries, and the reason for that could be mentality. It is proved that in USA people are more opened to new ideas and they have "do it" phycology as it is proposed by Spillover Theory of Entrepreneurship. Linkages are also showed as weak point for Latvia but here it is necessary to mention that companies in Latvia are generally against large foreigners entering the market as it would destroy local economic ecosystem, but Lithuania is the only country from Baltic States that has positive linkage index, though it has some troubles with foreign countries. It is worth to mention that the Baltic leader has high sales impact that slows the innovation implementation. The last of researched weak points – research system, Latvian enterprises do not invest in knowledge, in employees as well as Latvia doesn't have proper and tight relationship between universities and enterprises, there are no unite and deep

research system that could be used and developed in the future. The system that is highly prioritized in Europe is neglected in Latvia; it is possible that due the historic conditions, in Europe free atmosphere of researching has been in the air since 1980s, though in Latvia it is still not student friendly. As well as we can mention the fact that companies need to think about economic indicators, salaries, due to lack of funds enterprises neglect necessity of investing in the education and research system. A lot of even large companies do not have educational centers, not speaking about SME's.

Thus we can come to the conclusion that Latvia falls behind other Baltic States and main reason of it could be unwillingness to develop and invest in research, unwillingness to cooperate and thus get new ideas from outside, implement them that could mean develop together with other European countries.

Author has used the second dimension of European Innovation Scoreboard, 2017 and compared this information with Employment in the fields. To compare EU data and research results, author has performed research looking at one of the dimensions using the data of the Bank of Latvia and the Central Statistical Bureau, regression analysis was performed, analyzing the fields of activity of innovative companies and their performance in 2016. 7 innovative business sectors were selected (Mining and quarrying (B), Manufacturing (C), Electricity, gas, heating and air conditioning (D), Water supply, sewage, waste management and remediation (E), Wholesale trade, except of motor vehicles and motorcycles (46), Transport and storage (H), Financial and insurance activities (K)), data on their investment in ICT, venture investment and turnover were chosen, complementing the data with number of employees.

To analyze data using regression analysis, a data correlation analysis was initially performed. Analyzing the correlation coefficients, the author has come to the conclusion that the strongest link is between the number of employees in innovative enterprises and their contribution to ICT (information and communication technologies). This conclusion seems logical enough, since innovative companies, regardless of their field of activity, are related to ICT, and bigger they become more they develop, the information technology enables them to grow and it fully agrees to theoretical background that companies reached certain size stop to innovate and look more to improvement. This raises the question of whether the use of ICT by enterprises forces companies to grow. Does the current trend directly determine that the company's growth and development, competitiveness indicators depend on the company's contribution to ICT? Due to limitations of the paper this must be researched during next studies.

It must be admitted that there is a conclusion upon correlation coefficient results, correlation coefficient show that there are no connection between number of employees and venture investment as well as turnover. It means that even small companies can have great foreign investment and have impressive turnover, but innovative enterprises as they develop must have investment in ICT. It is positive result, though it agrees with theoretical background mentioned above when company is big enough it stops to innovate but begins to develop, it is hard to say about innovation process due to lack of data but is obviously that numbers of employees are related to development process in the company and necessity to control their activities.

Correlation analysis does not answer the other question how strong this relationship between number of employees in innovative enterprises and their contribution to ICT is. That is why the author has used a regression analysis. The purpose of this is to determine whether there is a statistically significant connection between the variables, the analysis of regression, both gives the opportunity to observe common regularities and gives explanation to those that do not fit in the common picture.

Regression analysis explains most of the dispersion with the regularity of the existing variables. Typically, the description of the regression model is based on the ratio of the explained dispersion to the unexplained dispersion. This indicator is called the determinant coefficient and is denoted by R - square. In this case, it is 0.583, which means that 58% of the variation of the dependent variable is explained by the variation of the independent variable. The fact that 80% of investment in ICT is explained by an increase in the number of employees supports the given model. Non-standardized

ratios show that at 0% of employees, investment in ICT would be 1,776 thousand EUR, but as the number of employees increases by 1%, the investment volume increases by 0.088 thousand EUR The standard error coefficient shows the variance of the independent variables. Non-standardized ratios show how the dependent variable varies by changing the dependent variable per unit, while standardized coefficients allow getting the total exposure of each predictor to the dependent variable. An indicator can support or reject a hypothesis with a lack of correlation. In our example, a is significant at 0.076, that proves stated the hypothesis. ICT is factor that increases when company grows. Innovative companies choose investment in ICT as one of the most important factor to their development, but it is important to mention that trend in EU is completely different, innovative leaders reduce number of people in innovative sectors, they invest in ICT, linkages, knowledge and employee education, but decrease number of the staff.

The next step is to determine the significance of a determinism indicator, or F statistics. F is 6.976, at the significance level of 0.076 >0.05. This means that with a probability of 69% we can say that the number of employees affects the number of contributions to ICT.

The R-square shows that the number of jobs is not related to the volume of investments, only 2.8% of the model is explained, this requires an in-depth analysis to find out in which way and what factors influence the investment attraction among innovative companies in these areas. Increase in the number of enterprise employees by 1% for 0.004 million. EUR will increase investment and, in addition, both indicators of significance > 0.05, therefore, are insignificant.

Similar results are also provided by variance analysis, only 14% of the model can be explained, and the indicator is not significant. Consequently, it can be concluded that the number of employees does not affect the investment flow among innovative enterprises, as influenced by other factors. Similarly, the author has also performed analysis of turnover and has come to same results. Results proves previously made hypothesis that the size of enterprise does not affect turnover or amount of investment to the enterprise. Author assumes that this is due to modern technologies that are used by innovative companies. The question for the further studies is what factors affect amount of investment to the company.

The last point in this analysis would be the residual values that prevent the linear function from being obtained. By looking at these indicators and looking at the resulting graph, it can be said that it is similar to the linear function, but with a positive balance in the manufacturing industry. This means that dispersion is not accidental.

It is also necessary to mention that after conducting the multidimensional analysis author has looked into the data and has come to the conclusion that compering to EU leaders in Latvia the most people are employed in Manufacturing industries, but this sector has the biggest investment in the ICT, second turnover and venture investments, in authors opinion which is based on theoretical and practical background this industry needs to head to downsizing of employees, or developing new ways of employing them by growing and developing, as well as improve the linkages, invest in the research system that will show the way to the companies in the sector. This could lead to development of the economy and give positive vibe to long term development. In authors opinion such practice as foreign brain drain (in little amounts), experience exchange possibilities that will improve situation in general. As well it is worth to mention that the wholesale amount of investment is the lowest of the fields, but has the highest turnover and this trend is the same as in EU where wholesale companies do not invest, do not have venture investments, but have high turnover.

Conclusions, proposals, recommendations

Conclusions

1) Latvia falls behind other Baltic States in EU Innovation rank and main reasons of that are: a) low level of innovations, investment in research, b) unwillingness to cooperate and thus get new ideas from outside, implement them that could mean develop together with other European countries, this one of the lowest indexes in EU shows negative opportunity for long term development, taking into account very low rise;

2) Analyzing the strength and the weakness of companies in EU and in Latvia, data shows that the main difference is that EU innovative leaders try to reduce numbers of employees, while in Latvia it is increased, Latvian enterprises do not invest in knowledge opposite to EU companies, as well as Latvia doesn't have proper and tight relationship between universities and enterprises, there are no unite and deep research system that could be used and developed in the future, as that was developed in EU.

3) Analyzing correlation between number of employees, turnover, investment in ICT and venture investments showed only relationship between number of employees investment in ICT; This conclusion seems logical enough, since innovative companies, regardless of their field of activity, are related to ICT, and bigger they become more they develop, the information technology enables them to grow and it fully agrees to theoretical background that companies reached certain size stop to innovate and look more to improvement;

4) Regression analysis showed that 80% of investment in ICT is explained by an increase in the number of employees that supports the given model;

5) Increasing of number of employees and investment in ICT is not a trend among innovation leaders in EU; innovative leaders try to decrease number of employees in all innovative sectors;

6) The size of enterprise does not affect turnover or amount of investment to the enterprise and it agrees with theoretical framework that even small companies can have high venture investments and turnover, size is not the main factor of being successful;

7) Enterprises in Latvia should head to EU innovative leaders, invest in knowledge and research, have strong linkage with EU, from where entrepreneurs can get new ideas and implement them in Latvia. Downsizing of employment and reemploying this workforce in new developed sectors would also improve the situation.

Proposals

1) For further studies deeper theoretical background would be important step, looking at innovative companies' strategies and comparing them with Latvian practice, it would help to identify deeper problems that exist nowadays;

2) Further analysis is required to find out in which way and what factors influence the investment attraction among innovative companies in these areas, that would help to create guidelines for the innovative companies, which would improve the results of these companies;

3) It is necessary to understand whether the use of ICT by enterprises forces companies to grow. Does the current trend directly determine that the company's growth and development, competitiveness indicators depend on the company's contribution to ICT?

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LES DILEMMES DE LA THEORIE DE LA CROISSANCE ECONOMIQUE VERSUS LA THEORIE DE LA CROISSANCE ECONOMIQUE UNIFIEE D'ODED GALOR

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Résumé. Les problèmes de la croissance et du développement comme mécanismes et processus économiques réels restent toujours au centre des analyses et reflections théoriques des économistes contemporaines. Ces travaux permettent identifier les frontières cognitives qui ont avant tout le caractère méthodologique. Dans cet article on présente neuf dilemmes, trois classifications de la théorie de la croissance économique (TCE) et les éléments fondamentaux de la théorie de la croissance unifiée (TCU) d'Oded Galor (2011). L'objectif majeur de cet article consiste à la confrontation de la TCU d'Oded Galor avec les majeurs dilemmes de la TCE.

Mots-clés: *croissance économique, développement économique, dilemmes de la théorie de la croissance écnomique, théorie de la croissance économique unifiée*

Classification JEL: O40, O49

THE DILEMMAS IN THEORIES OF ECONOMIC GROWTH VERSUS ODED GALOR'S UNIFIED GROWTH THEORY

Abstract. The problems of economic growth and development, such as real economic mechanisms and processes, are still at the center of analysis and theoretical reflections of contemporary economists. This work serves to identify the cognitive boundaries that have primarily methodological nature. In this article we present nine dilemmas of contemporary theory of economic growth, three classifications of contemporary theories of economic growth, as well as the fundamental elements and achievements of the unified growth theory by Oded Galor (2011). The major objective of this contribution is to confront Oded Galor's unified growth theory with the major dilemmas of the theories of economic growth.

Keywords: *economic growth, economic development, dilemmas of the economics growth theory, unified growth theory*

Introduction

Dans l'introduction à l'ouvrage d'Oded Galor, *Unified Growth Theory,* on trouve la citation de Stephen W. Hawking : "*A complete, consistent, unified theory (...) would be the ultimate triumph of human reason*" qui est la formulation d'un archètype de la recherche de la vérité sur la réalité économique.

En raison de diversité de science économique par rapport à la science [Czerwiński (1996), Malaga (2009), (2011)] on peut se demander si une telle exigence qui est justifiée pour la science est réalisable en sciences économiques et plus généralement en sciences sociales.

Dans cet article[1] nous allons confronter neuf les plus importants dilemmes de la théorie de la croissance économique contemporaine avec la théorie de croissance unifiée d'Oded Galor[2], [2011] laquelle d'après nous est très prometeuse et

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[1] Certains éléments de cet article ont été discutés au cours de IX Congrès des Economistes Polonais, Varsovie, 28 - 29 novembre 2013 et au cours de 59-ème Congres de l'Association des Economistes de Langue Française, Valladolid, 20-22.05.2013 et finalement ont été publiés Malaga (2014).

[2] Avec les co-auteurs: Quamrul Achraf, Stelios Mitchalopoulos, Omer Moaw, Andrew Mountford, Dietrich Voltrath, David Weil et al.

probablement la plus avancée théorie de la croissance économique qui reste en relation étroite avec la théorie du développement économique.

La structure d'article est suivante. Dans le point 1 on présente les plus importants dilemmes de la théorie de croissance économique contemporaine. Dans le point 2 on discute la classification des théories de croissance économique. Dans le point 3 on présente d'une manière descriptive la théorie de la croissance unifiée d'Oded Galor. Ensuite dans le point 4 on présente le modèle de base de la théorie de la croissance unifiée et ses applications. Enfin, dans le point 5 on formule les conclusions qui résultent de la confrontation de la théorie de la croissance unifiée d'Oded Galor avec les dilemmes majeurs de la théorie de croissance économique contemporaine.

1. Les dilemmes de la théorie contemporaine de la croissance économique

Selon Perroux [1961], [1993] la croissance économique c'est une catégorie macroéconomique, qui est définie par l'augmentation positive de la valeur d'indice de production nette, exprimée en termes réels[3] et soutenue à long terme. C'est une catégorie quantitative qui néanmoins reste la composante du développement économique. D'autre part le développement économique c'est la catégorie macroéconomique qui est qualitative.

Le premier dilemme est lié avec la réponse aux deux questions fondamentales: qu'est-ce que c'est la croissance économique et comment la mesurer ? Dans la théorie de la croissance économique depuis longtemps a prévalu le consensus selon lequel c'est le produit intérieur brut (PIB) réel[4] qui est la meilleure mesure de croissance économique. En même temps la discussion sur les nouvelles mesures de la croissance économique reste très vivante[5]. L'accent est mis sur l'extention de la notion de croissance sur les facteurs qualitatives de la croissance économique (capital humain, capital social, qualité des institutions formelles et informelles, capital et l'héritage culturel, capital intelectuel, mais aussi sur l'environnement, les écosystèmes, la qualité de vie, du bien-être, de la prospérité, etc.) et la durabilité ou bien à la soutenabilité de la croissance économique à long terme.

Le deuxième dilemme concerne la notion du développement économique : qu'est-ce que c'est le développement en tant que tel et par rapport à la croissance économique ? Les économistes essayent faire la distinction entre la croissance et le développement économique. Au fond de cette différentiation on trouve la conviction que le développement économique a surtout les attributs qualitatifs. D'où vient la question : comment mesurer le développement économique ? De plus, si le développement économique est une catégorie qualitative et en même temps non mesurable, alors comment interpréter les indicateurs du développement économique de plus en plus nombreux ? En tout cas, la distinction entre la croissance et le développement économique n'est pas suffisamment précise et malgré les efforts, pour trop nombreux économistes, la croissance et le développement économique restent pratiquement les synonymes.

Le troisième dilemme est lié aux statistiques de la croissance économique. La construction des séries temporelles des indicateurs macroéconomiques, y compris le PIB mesures dérivées, c'est l'effet final d'enregistrement des mécanismes et des processus économiques qui ont les bases microéconomiques et mésoéconomiques et qui sont les vraies sources de la croissance économiques en tant que la catégorie macroéconomique. D'où vient la question: est-ce que certaines régularités[6] identifiés à la base des séries statistiques, de plus en plus longues et fiables, concernant les variables

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[3] À l'exception de l'inflation et des fluctuations des taux de change.

[4] Ainsi que leur mesures dérivés : PIB par tête, PIB par travailleur, PIB par employé, PIB par l'unité effective du travail, taux de croissance du PIB, etc.

[5] La discussion sur le PIB comme la mesure inappropriée de la croissance économique a déjà très longue l'histoire. Elle est animée actuelement par les propositions des nouvelles mesures de la croissance économique par exemple PIB « verte » (Green Gross Domestic Product) mais aussi par discours beaucoup plus profondes telles comme les travaux d'une groupe de recherche crée autour de J.P. Fitoussi, A. Sen et J. Stiglitz (2010).

[6] Il s'agit de « faits stylisés de la croissance économique ». Voir : Gomułka [2009].

macroéconomiques qui décrivent la croissance économique constituent ou doivent constituer le point du départ de la construction des modèles mathématiques de la croissance économique?

Le quatrième dilemme est lié à l'existence de deux façons de décrire la croissance économique: la statistique et la modélisation de croissance économique. Est-ce que les mécanismes et processus qui sont la source de la croissance économique sont pris en compte de même manière par les statisticiens et par les auteurs des modèles mathématiques de croissance économique? Est-ce que ces deux approches différentes sont neutres, complémentaires, substituables mais avant tout cohérents[7]?

Le cinquième dilemme concerne le rôle du temps dans analyse de la croissance économique. Suite aux acquis en physique et mathématiques, les économistes ont appliqué certains instruments de description des changements de la plupart des variables économiques dans le temps. Le temps est considéré comme variable qui permet décrire une séquence de mécanismes et de processus économiques, ou bien de reconstruire leur chronologie. Le temps est donc variable discrète ou continue. Le fait que les variables, en tant que fonctions du temps, sont discrètes ou continues peut être le résultat de la fréquence d'enregistrement statistique des différentes catégories économiques. En ce qui concerne les mécanismes et les processus économiques qui se déroulent dans la sphère réelle d'économie, les statisticiens préfèrent les enregistrer en temps discret. Par exemple, le PIB est traité comme une variable discrète. Tandis que dans la sphère nominale (financière) où la fréquence d'enregistrement est très haute (la bourse, les marchés financiers) les catégories économiques sont considérées comme des fonctions continues du temps. Même si les instruments des mathématiques continues et discrètes sont équivalents (l'un est l'approximation de l'autre, avec une certaine marge d'erreur) on peut avoir certains distorsions qui peuvent résulter de l'application des indicateurs macroéconomiques discrets dans les modèles de la croissance économique en temps continu.

Le sixième dilemme est lié au caractère a-spatiale[8] d'analyse de la croissance économique. En effet, l'adoption de la convention selon laquelle à chacun des pays du monde ont peut attribuer la valeur de l'indicateur de la croissance économique n'est pas compatible avec les principes d'analyse économique spatiale. Il faut rappeler toujous que localisation des processus économiques dans l'espace géographique ou bien dans l'espace économique n'est pas neutre. D'où vient la question: est-ce que la valeur cognitive des donnés statistiques élaborés selon les mêmes régles et procedures mais séparément pour les différents pays ne déforme pas de la nature et l'essence des mécanismes et des processus économiques qui se déroulent dans l'espace géographique et économique mondiale? En conséquence, on dispose les données statistiques comparables entre le pays, tandis que les mécanismes et les processus économiques qui sont les sources de la croissance économique dans ces pays dépassent leurs frontières.

Le septième dilemme est lié à la dichotomie persistante dans la théorie d'économie en domaine d'analyse dynamique de la croissance économique et des fluctuations économiques. Si on admet que l'objectif central de la théorie de la croissance économique consiste à l'étude de la nature et des causes de création de la richesse alors il faut mentioner deux approches méthodologiques différents. La première, qui fait de la théorie d'équilibre général la méta-théorie de l'économie et conduit à ramener les problèmes des changements à des problèmes d'affectation intertemporelle des ressources. La deuxième, qui constate le caractère irréductible de la production des richesses et applique une méthode d'analyse alternative qui considère ce qui arrive à chaque moment du temps, au lieu de vouloir analyser tout le processus dépuis le début jusqu'à la fin désignée. La théorie de la croissance économique ignore qu'ils puissent exister des problèmes de coordination et prend rarement en considération les phénomènes des changements structurels ou des

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[7] D'une part les économistes ignorent les questions méthodologiques auxquelles sont confrontés les statisticiens. D'autre part, les statisticiens ne repondent pas suffisement vite aux besoins des constructeurs des nouvels modèles de croissance.
[8] Cette notion a été développée dans l'ouvrage sous rédaction Ponsard C., [1990].

changements qualitatifs. On observe deux démarches qui sont en opposition. La première démarche maintient l'idée que l'économie de marché obéit à des lois générales qui la mettent systématiquement dans une position d'équilibre ou au voisinage de l'équilibre. Dès lors, les fluctuations ou les cycles ne peuvent venir que des perturbations de nature plus ou moins stochastiques occasionnées par des facteurs exogènes tels que la politique économique du gouvernement ou des chocs affectant la productivité ou les préférences. Les déviations par rapport à l'équilibre sont étudiées au moyen d'instruments stochastiques. La deuxième démarche s'inscrit en opposition avec cette vision de la théorie des cycles comme la théorie des chocs aléatoires. On essaye à reconnaitre les lois de fonctionnement de l'économie qui engendrent des cycles à la fois persistants et irréguliers [Gaffard 1994, 1995].

Le huitième dilemme est lié au caractère a-historique de la théorie de la croissance économique qui est identifiée avec les modèles mathématiques de la croissance économique. L'analyse dynamique en temps discret ou continu prend en compte seulement une certaine chronologie. En même temps on ignore le contexte historique des changements, qui se trouvent au centre d'analyse. Il s'agit du contexte, qui a principalement caractère qualitatif (non mesurable), et en tant que tel, n'est pas soumis aux modèles mathématiques de la croissance économique.

Le neuviéme et dernier dilemme qui nous allons evoquer dans cet article concerne la nature des mécanismes et des processus de la croissance économique. Est-ce qu'ils sont déterministes, stochastiques (aléatoires) ou bien imprécis (théorie des sous-ensembles flous) ?

2. La classification des théories de la croissance économique

Prenons en considération trois critères différents de classification des modèles mathématiques de croissance économique[9] :

- relations avec les grands courants de la pensée économique,

- manière de déterminer le taux de croissance économique à long terme[10],

- l'explication de la transition de l'ère de la stagnation malthusienne à la croissance économique soutenue moderne.

Conformement au premier critère de classification nous pouvons distinguer les théories de la croissance:

- Classiques: Smith [1776], Malthus [1803], Ricardo [1817], Marx [1867], etc.

- Post-keynésiennes: Harrod [1939], Domar [1946], etc.

- Néo-classiques: Ramsey [1928], Solow [1956], Swan [1956], Kaldor [1957], Uzawa [1965], Phelps [1966], Nelson & Phelps [1966], Diamond [1965], Cass [1965], Koopmans [1965], Romer [1986], Lucas [1988]. [1990] Rabelo [1991], Mankiw, Romer et Weil [1992], etc.

- Néo-schumpetériennes: Aghion et Howitt [1992], [2009], Burzyński et Malaga [2011], etc.

En raison du deuxième critère nous allons distinguer les théories de la croissance:

- Exogène[11]: Ramsey [1928], Solow [1956], Swan [1956], Uzawa [1965], Phelps [1966], Nelson & Phelps [1966], Diamond [1965] Cass [1965], Koopmans [1965], Mankiw et al. [1992], Hansen et Prescott [2002], etc.

- Endogène (Romer [1986], Lucas [1988], [1990] Rabelo [1991], Galor et Weil [2000], Aghion et Howitt [1998] [2009], etc.

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[9] Parmi le plus importantes sources concernant la théorie de la croissance économique contemporaine il faut mentionner les ouvrageses: Acemoglu [2009], Aghion & Durlauff [2005], Aghion et Howitt [1998], [2009], Barro et Sala-i-Marin [1995], [2003], De la Croix et Michel [2002], Lucas [2002].

[10] Si le taux la croissance économique à long terme est déterminé de manière exogène (endogène) par rapport au modèle de croissance, alors on parle respectivement d'un modèle de croissance exogène (endogène).

[11] Voir l'opinion très intéressante d'Edmond Malinvaud [1993] sur les modèles de croissance économique exogènes et endogènes.

- Hétérodoxes : Kaldor [1957], les modèles de croissance AK, les modèles de simulations de la croissance *: agent-based modeling* (ABM), *agent-based computational economics (*ACE), etc.

En ce qui concerne troisième critère nous pouvons distinguer :

- théories non-unifiées de la croissance économique – la majorité des théories existantes,

- théorie de la croissance unifiée - [Galor 2011, Pacho 2013 ...].

Avant de présenter la théorie de la croissance unifiée d'Oded Galor il vaut constater qu'elle appartient aux théories de la croissance néoclassique endogène et que, du point de vue de son ampleur, il n'y a pas des théories de croissance precedantes dans lesquelles on a autant insisté sur les relations rétrospectives entre la croissance et le développement économique de très long terme à l'echelle mondiale.

3. La théorie de la croissance unifiée d'Oded Galor

3.1. La description générale

La théorie de la croissance unifiée (TCU) a été développée par Oded Galor et d'autres économistes (Klein, Moav, Ozak, Quamrul, Vollrath, et. al) comme une réponse spécifique à l'incapacité de la théorie de croissance endogène[12] pour expliquer les régularités empiriques clés dans les processus de croissance et de développement économique des différents pays et régions du monde au cours des deux derniers millénaires[13]. Il s'agit d'un développement particulier de la théorie de croissance endogène, dont l'essence est sa compatibilité avec les processus du développement économique, traité d'une manière holistique et en particulier sa capacité à décrire la transition de l'époque de stagnation malthusienne vers l'époque moderne de croissance économique durable.

L'époque de stagnation malthusienne a été caractérisée par un lent progrès technologique et la croissance démographique relativement rapide, où les avantages du progrès technologiques ont été compensés par la croissance de population. En époque moderne de croissance économique durable, le progrès technologique n'est pas déjà propice à la croissance de population mais à l'accumulation du capital humain; qui à son tour est avantageuse du point de vue du progrès technologique.

Dans la TCU on prendre en compte les phases cruciales du développement économique: l'époque de stagnation malthusienne qui a existé pendant une grande partie de l'histoire humaine, la trappe malthusienne, l'émergence de la demande pour la formation du capital humain, le début des trois phases de la transition démographique, les sources de l'époque moderne de croissance économique durable mais aussi d'une grande diversification des revenus par habitant dans le monde.

TCU est utilisée pour: expliquer les différences de revenu par habitant dans le monde au cours des deux derniers siècles, identifier les facteurs qui ont conduit à la transition de la stagnation malthusienne vers la période de croissance durable et qui ont contribué à façonner les différences du développement économique observé dans le monde d'aujourd'hui, exposer l'impact durable des changements préhistorique et historique sur la formation du capital humain et le développement économique de chaque pays et révèler également les forces qui ont conduit à l'origine des «clubs de convergence».

Dans la TCU on distingue quatre éléments structurels fondamentaux: caractéristiques malthusiennes, progrès technologique, sources de formation du capital humain et des transformations démographiques.

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[12] Depuis la fin des années quatre-vingt du XXe siècle a prévalu le point de vue que les théories de la croissance endogène sont plus avancées que les théories de la croissance exogène.

[13] À la différence des travaux Hansen et Prescot [2002] dans la TCU on explique les mécanismes et processus de la transition de l'époque de stagnation malthusienne vers l'époque de croissance durable d'une manière endogène. Galor et Weil [2000], Galor et Moaw [2005].

Parmi les caractéristiques malthusiennes on tient compte des faits suivants : le processus de production est caractérisé par la baisse des revenus du travail en raison des ressources limitées de terre; les parents augmentent leur utilité de consommation en raison de la possession des enfants, mais leur formation nécessite beaucoup de temps; les ménages sont soumises au niveau critique de la consommation qui assure leur survie. Jusqu'au moment où les ménages sont limités par le niveau de la consommation qui assure leur survie, l'augmentation du revenu des parents est assurée grâce à l'augmentation du nombre d'enfants qu'ils détiennent. Le progrès technologique qui conduit à l'augmentation du revenu par habitant provoque l'augmentation de la population, ce qui compense l'augmentation du revenu par habitant en raison de la baise de productivité du travail.

En ce qui concerne les facteurs du progrès technologique, on conclut que l'accélération du progrès technologique dans le cadre de l'industrialisation a été un facteur majeur dans la transition de la stagnation vers la croissance économique soutenue. Cependant, si la taille de population a stimulé le progrès technologique, alors la création du capital humain est un facteur clé dans le progrès technologique au cours des stades plus avancés du développement. À l'époque malthusienne la frontière technologique correspond à l'environnement de travail des individus, et la plus grande partie de population est soumise au progrès technologique à travers son impact sur l'offre de nouvelles idées innovantes, la demande croissante pour l'innovation, le taux de diffusion de technologie, le degré de spécialisation et de l'intensité d'apprentissage par la pratique, l'augmentation de possibilités de l'échange, la diffusion par l'imitation, l'adaptation et la mise en œuvre la technologie.

Dans le cas des sources de la formation du capital humain on a considéré que la demande de capital humain rapporté par l'industrie, son impact sur la formation du capital humain et les transformations démographiques sont des éléments essentiels dans le processus de croissance économique et la transition vers régime de la croissance économique contemporaine.

Dans le cadre de la TCU on postule que changements dans l'environnement économique, qui sont le résultat du progrès technologique, ont conduit à la formation du capital humain, puisque les gens instruits obtient un avantage relatif de l'adaptation au nouvel environnement technologique. Ainsi, le röle de la technologie à long terme peut être exprimé d'une manière hétérogène à l'égard de personnes qualifiés ou non qualifiés, tandis qu'à court terme l'introduction de la technologie augmente la demande du capital humain.

À l'époque post-malthusienne les transformations démographiques ont abouti à la croissance démographique sans précédent. La diminution de la fertilité et de la croissance ont amélioré les conditions du processus de la croissance économique: le ralentissement de croissance de population a provoqué diminution de la dispersion du capital, de la terre et de l'infrastructure. La diminution de la fertilité a amélioré aussi la qualité de formation de capital humain en modifiant les règles d'allocation des ressources: de la quantité vers la qualité des enfants.

Le début de la transition démographique a entraîné la baisse de la fécondité, qui à son tour a provoqué une augmentation de la productivité du travail par habitant en affectant la répartition de population par âge et temporairement augmenté la part de population active dans population totale. La première et la deuxième phase de transition démographique a contribué à la création des conditions propices à l'accumulation du capital humain et de prendre en compte les avantages considérables résultant de l'accumulation de facteurs de progrès technologique dans le bien-être matériel de la population.

3.2. Les hypothèses de base de TCU

D'après Galor [2011] la TCU apport les prévisions vérifiables par rapport aux: principaux facteurs qui ont mené à l'époque de la stagnation malthusienne ; raisons de libération de la trappe malthusienne, ainsi que le saut du taux de croissance du revenu par habitant et de croissance de population dans l'époque post-malthusienne ; forces économiques qui ont conduit au début de l'accumulation du capital humain dans le processus de développement économique ; raisons principales de

l'initialisation de l'évolution démographique ; forces qui ont contribué à l'avènement contemporain de la croissance économique durable ; sources de divergence sur le revenu par habitant dans les différents pays.

Dans la TCU, au centre de considérations théoriques se trouve vérification empirique de sept hypothèses.

H1. Dans la phase initiale de l'époque malthusienne l'économie était dans le voisinage de l'état d'équilibre stable de type malthusien. Les ressources ont généré le progrès technologique et l'augmentation de la surface de terre, ce qui à long terme a entraîné la croissance de population et légère augmentation du revenu par habitant. Cette époque a été caractérisée par l'absence des changements importants par rapport au niveau de la technologie, de la disponibilité des terres agricoles, de la stabilité de population et la constance du revenu par habitant. Un petit progrès technologique, l'augmentation de l'accès aux terres agricoles et les conditions climatiques favorables, ont entraîné une augmentation temporaire du revenu par habitant. En résultat elle a été suivie par une augmentation de population, et par un changement de relation entre les ressources en terre, de population et du revenu par habitant à long terme. Les pays qui étaient leaders technologiques ont été caractérisés par plus grand densité de population, mais le niveau de vie dans ces pays n'a pas reflété leur niveau d'avancement technologique.

Dans la phase initiale de l'époque malthusienne, à croissance lente taux du progrès technologique (en raison du nombre limité de population) on avait une adaptation presque complète de population à l'augmentation des ressources. En conséquence, il y avait une augmentation proportionnelle de production et de population ce qui, à long terme, mènait à la persistance de production par tête inchangée. Dans les phases ultérieures de l'époque malthusienne, l'augmentation de rythme du progrès technologique était légèrement supérieure à la croissance de population, ce qui a entraîné une petite évolution positive de la production par habitant.

H2. Le renforcement de l'interaction entre la population et la technologie à l'époque malthusienne a contribué à la rapidité du progrès technologique et a marqué le début de transition vers l'époque post-malthusienne. À la suite de l'impact continu de mécanisme maltusien et de l'augmentation des ressources, qui a été la conséquence de croissance rapide du progrès technologique dans le cadre de l'industrialisation, on a pu finalement observer un saut du taux de PIB par habitant et une croissance démographique. Cependant, l'augmentation des ressources a été partiellement compensée par un nombre croissant de population, en raison de retards dans l'ajustement de population, résultant de croissance plus rapide du revenu par habitant.

H3. À la fin de l'époque post-malthusienne le taux de croissance du progrès technologique a augmenté la demande du capital humain. Par conséquent, on a commencé de plus en plus à investir dans le capital humain.

H4. Les interactions entre investissements dans le capital humain et le progrès technologique ont déclenché la spirale suivante: le capital humain a généré progrès technologique rapide, qui à son tour a augmenté la demande du capital humain, ce qui conduit à augmenter l'investissement dans la qualité des enfants, qui a finalement conduit à une baisse des taux de naissance et de la croissance démographique. L'augmentation de la demande de capital humain dans deuxième phase de l'industrialisation a provoqué la formation du capital humain, qui a un double impact sur la croissance de la population. D'une part, la croissance des revenus assouplit les contraintes budgétaires, permettant aux ménages de consacrer plus de ressources à l'éducation des enfants. D'autre part, elle a conduit à une réallocation des ressources vers l'amélioration de la qualité de l'éducation pour les enfants. Dans l'époque post-malthusienne on a observé la prédomination de l'effet du revenu en raison de faible demande pour le capital humain. L'augmentation du revenu réel a permis pour les ménages à augmenter à la fois la quantité et la qualité des leurs enfants. Enfin, la demande du capital humain a augmenté suffisamment pour provoquer une baisse du taux de natalité.

H5. Le début de la transition démographique et la baisse correspondante de la croissance de population ont réduit la dispersion des ressources en capital et des terres agricoles, ont augmenté les investissements dans le capital humain et ont

changé la structure par âge de population, ce qui a conduit finalement à l'augmentation de la productivité par habitant suite à l'augmentation temporaire de la part de population active dans la population totale. En conséquence, les transformations démographiques ont contribué à affecter une plus grande partie des bénéfices à l'accumulation des facteurs de production et du progrès technologique à la croissance du revenu par habitant, ouvrant la voie à une croissance économique durable.

H6a. Leaders technologiques ont connu des taux de croissance constants de croissance du revenu par habitant. Leur croissance, lente dans les premiers stades de développement, a fortement augmenté au cours de la phase initiale de l'époque post-malthusienne et continuait à augmenter, en se stabilisant à un niveau élevé.

H6b. Les adeptes technologiques (au cours de la transition vers la croissance durable) n'ont pas connu l'augmentation constante de leurs taux de croissance du revenu par habitant, qui étaient faibles au début de l'époque malthusienne suite à l'adoption de la frontière technologique existante. Après avoir atteint la frontière technologique ces économies ont atteint le taux de croissance des leaders technologiques.

H7. Le début de la transition de stagnation à une croissance soutenue a varié dan les différentes économies et a conduit aux différents niveaux du revenu par habitant entre les pays. Cela a conduit à la distinction entre les économies des trois clubs: un groupe des pays pauvres, qui se trouvent au voisinage de l'état d'équilibre malthusien, un groupe de pays riches, qui se trouvent près de l'état d'équilibre typique pour l'époque de la croissance économique durable et le groupe de pays dans la transition entre le premier et le deuxième club.

4. Le modèle de base de TCU

4.1. Les hypothèses de départ[14]

On admet que la vie de chaque l'individu appartenant à la période t à la génération des adultes est divisée en deux périodes: $t-1$ (enfance) et t (parentale). Chaque l'agent économique en période de parentalité peut être un employé[15]. Le stock des unités efficaces de travail dépend des décisions prises par les individus en ce qui concerne la participation au marché du travail, le nombre d'enfants et la qualité de leur capital humain. L'offre de terrains est exogène et constant dans le temps[16]. L'économie produit un bien final homogène et le volume de sa production à la période t est décrit par la fonction de production néoclassique[17]:

$$Y_t = H_t^{\alpha}\left(A_t X\right)^{1-\alpha}, \alpha \in \left(0, 1\right), \tag{1}$$

ou sous la forme intensive[18]:

$$y_t \equiv \frac{Y_t}{L_t} = h_t^{\alpha} x_t^{1-\alpha}. \tag{2}$$

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[14] Ce modèle a été présenté par Galor [2011], p.149-164, et dans les autres publications Galor et Weil [2000], Galor et Moaw [2005]. Il appartient à la famille des modèles aux générations imbriques (*overlapping generations models*), en temps discret et l'horizon du temps infini. Voir: De la Croix et Michel [2002], Galor [2007].

[15] L'hypothèse d'absence de chômage.

[16] Par simplicité on admet qu'on ne prend pas en compte les droits pour la terre utilisée dans la production.

[17] Avec : $t \in [0, +\infty)$ - temps comme variable discrète, Y_t - valeur de production à la période t, H_t - capital humain (valeur agrégée des unités efficaces du travail) à la période t, A_t - niveau de technologie à la période t, X - stock de la terre, constant dans le temps, $A_t X$ - stock des ressources efficaces, utilisées dans la production à la période t, L_t - population active à la période t, α - élasticité de production par rapport au capital humain, $1-\alpha$ - élasticité de production par rapport au ressources efficaces.

[18] Avec : $y_t \equiv \frac{Y_t}{L_t}$ - valeur de production par employé à la période t, $h_t = \frac{H_t}{L_t}$ nombre des unités efficaces par employé à la période t, $x_t \equiv \frac{A_t X}{L_t}$- stock des ressources efficaces employé à la période t.

On suppose que si l'employé travaille à plein temps, alors son revenu est égal à la production par travailleur $z_t \equiv y_t$.

4.2. Les préférences et les contraintes budgétaires

Dans chaque période t la population active L_t est constituée de membres de génération des adultes qui vivent au cours de deux périodes $t-1$ et t. À la période $t-1$, en tant que les enfants, ils absorbent une part de l'unité de temps appartenant à un parent qui, en raison de l'éducation, augmente avec la qualité des enfants. Au cours de la vie d'un adulte t chaque agent économique posséde son unité du temps, qui peut être partagées entre l'éducation de ses enfants et sa participation au marché du travail[19]. Les préférences des membres de génération d'adultes dans la période t sont décrits par fonction d'utilité $u_t : R^3_+ \to R^1$, définie pour la consommation[20] qui ne dépasse pas le niveau qui garantit la survie des adultes et nombre de ses enfants n_t de la qualité h_{t+1} :

$$u_t = (1-\gamma)\ln c_t + \gamma \ln(n_t h_{t+1}); \ \gamma \in (0;1). \tag{3}$$

On suppose qu'elle est croissante et strictement quasi-concave ce qui à un revenu suffisamment élevé assure l'existence d'une solution optimale du problème de maximisation d'utilité de consommation. D'autre part, si le revenu n'est pas assez élevé (le niveau minimum de consommation de l'employé est obligatoire), alors il existe une solution optimale à la frontière. Les adultes dans la période t choisissent nombre et qualité des enfants sous contrainte du temps limité qu'ils peuvent dépenser pour l'éducation des enfants ou le travail. Le coût exprimé en unités de temps occasionnés par l'adulte dans la période t pour élever un enfant avec le niveau d'éducation e_{t+1} est égale à:

$$k_t = \tau + e_{t+1}. \tag{4}$$

Le revenu potentiel d'un adulte à la période t est divisé entre la consommation et les dépenses sur l'éducation d'un enfant $z_t(\tau + e_{t+1})$, exprimés en unités de temps. Alors la contrainte budgétaire pour le représentant de la génération des adultes dans la période t prend la forme:

$$z_t n_t(\tau + e_{t+1}) + c_t \le z_t. \tag{5}$$

4.3. Formation du capital humain[21]

Le niveau du capital humain de l'agent économique dépend de la qualité de l'éducation et du niveau de technologie. Le progrès technologique réduit la capacité d'adapter le capital humain existant aux nouvelles technologies. L'éducation assure une réduction de l'impact négatif du progrès technologique sur l'utilisation efficace des ressources en capital humain. On suppose que le niveau du capital humain h_{t+1}, ce qui correspond à l'enfant d'un adulte dans la période t, est la fonction concave du temps investi dans l'éducation d'un enfant avec un niveau d'éducation e_{t+1}, et une fonction décroissante et strictement convexe du taux de croissance de technologie $g_{t+1} \equiv \dfrac{A_{t+1} - A_t}{A_t}$, d'où:

$$h_{t+1} = h(e_{t+1}, g_{t+1}) > 0. \tag{6}$$

---

[19] Les ménages sont homogènes.

[20] Avec : c_t- consommation d'un adulte à la période t, n_{t+1} - nombre des enfantes d'un adulte à la période t, h_{t+1}- niveau du capital humain d'un enfant à la période t+1 où il augment le nombre de la population active.

[21] Les modèles du capital humain et modèles de croissance avec le capital humain on été décrites dans les travaux Lucas [1998], [2002], Cichy et Malaga [2007], Cichy [2008].

Ceci signifie, que le capital humain d'un agent économique, qui entre dans la population active à la période $t+1$, est fonction de la qualité de l'éducation e_{t+1} et du taux de croissance de la technologie g_{t+1}. En absence d'investissement dans le capital humain et des changements dans la technologie, il est supposé que chaque agent économique a le stock du capital humain de base, dont le niveau et la qualité sont normalisés au niveau $h(0,0)=1$.

4.4. Maximisation d'utilité de consommation

Chaque représentant de génération d'adultes dans la période t détermine le nombre optimal et la qualité de ses enfants et son propre niveau de la consommation sous la contrainte de niveau minimal de consommation afin de maximiser l'utilité intertemporelle de la consommation[22]:

$$(n_t, e_{t+1}) = \arg\max\left\{(1-\gamma)\ln\left[z_t\left(1-n_t(\tau+e_{t+1})\right)\right] + \gamma\ln\left[n_t h(e_{t+1}, g_{t+1})\right]\right\}, \tag{7}$$

$$z_t\left(1-n_t(\tau+e_{t+1})\right) \geq \widetilde{c}, \tag{8}$$

$$(n_t, e_{t+1}) \geq 0. \tag{9}$$

Il est à noter que tant que le revenu potentiel d'un adulte à la période t est suffisamment élevé: $z_t > \widetilde{z} = \dfrac{\widetilde{c}}{1-\gamma}$ (alors $c_t > \widetilde{c}$), jusqu'à la partie du temps que l'adulte à la période t consacre à l'éducation des enfants est égal à γ, tandis que le reste du temps passé au travail est égale à $1 - \gamma$. Dans le cas contraire, lorsque $z_t \leq \widetilde{z}$ (revenu potentiel assure au plus le niveau minimal de consommation, ce qui garantit la survie individuelle), alors le temps nécessaire pour assurer un niveau minimum de consommation $\widetilde{c} > 0$ est supérieure à $1 - \gamma$, et une partie du temps consacré à l'éducation des enfants est inférieure à γ:

$$n_t(\tau + e_{t+1}) = \begin{cases} \gamma & \text{si} \quad z_t > \widetilde{z} \equiv \dfrac{\widetilde{c}}{1-\lambda}, \\[3mm] 1 - \left(\dfrac{\widetilde{c}}{z_t}\right) & \text{si} \quad z_t \leq \widetilde{z} \equiv \dfrac{\widetilde{c}}{1-\lambda}. \end{cases} \tag{10}$$

La maximisation d'utilité de la consommation par rapport à e_{t+1} fait que le niveau de l'éducation des enfants choisi par les adultes dans la période t est une fonction croissante du taux de croissance de technologie g_{t+1}. Cependant, il existe un niveau critique du taux de croissance de la technologie $\widetilde{g}$ de telle sorte que:

$$e_{t+1} \equiv e(g_{t+1}) = \begin{cases} 0 & \text{si} \quad g_{t+1} \leq \hat{g}, \\ >0 & \text{si} \quad g_{t+1} > \hat{g}, \end{cases} \tag{11}$$

et $\forall g_{t+1} > \hat{g} > 0 : e'(g_{t+1}) > 0; \ e''(g_{t+1}) < 0.$ \hfill (12)

Ce qui signifie que pour le taux de croissance du progrès technologique suffisamment élevé le niveau de l'éducation des enfants augmente moins que proportionnellement par rapport à l'augmentation du taux de croissance du progrès technologique.

---

[22] Avec : τ - partie de l'unité du temps d'un adulte à la période t qui est destinée à la formation d'un enfant indépendamment de la qualité de l'éducation, e_{t+1} - la partie de l'unité du temps d'un adulte à la période t qui est destinée à la formation d'un enfant avec la qualité de l'éducation déterminée.

Le niveau optimal d'investissement dans l'éducation des enfants et l'allocation optimale du stock du temps appartenant à des particuliers et entre la quantité et la qualité des enfants, dépendent du taux de croissance de technologie (en raison de son impact sur la demande de l'éducation) et ne dépendent pas du revenu des parents:

$$
n_t = \begin{cases} \dfrac{1 - \dfrac{\widetilde{c}}{z_t}}{\tau + e(g_{t+1})} \equiv n^a\big(g_{t+1}, z(e_t, g_t, x_t)\big) & \text{si} \quad z_t \leq \widetilde{z}, \\[4mm] \dfrac{\gamma}{\tau + e(g_{t+1})} \equiv n^b(g_{t+1}) & \text{si} \quad z_t > \widetilde{z}, \end{cases} \tag{13}
$$

où $\quad z_t = z(e_t, g_t, x_t).$

Dans le cas où le revenu potentiel d'un adulte dans la période t est suffisamment élevé: $z_t > \widetilde{z}$, alors l'augmentation du taux de croissance de technologie entraîne une diminution du nombre des enfants $\dfrac{\partial n_t}{\partial g_{t+1}} < 0$, et améliore la qualité de l'éducation des enfants $\dfrac{\partial e_{t+1}}{\partial g_{t+1}} > 0$. En revanche, la croissance des revenus potentiels n'affecte pas ni le nombre d'enfants, ni la qualité de leur éducation: $\dfrac{\partial n_t}{\partial z_t} = \dfrac{\partial e_{t+1}}{\partial z_t} = 0.$ Dans le cas contraire, lorsque le revenu potentiel des adultes dans la période t est relativement faible: $z_t < \widetilde{z}$, alors l'augmentation du revenu potentiel entraîne l'augmentation du nombre d'enfants $\dfrac{\partial n_t}{\partial z_t} > 0$ et la constance de la qualité de leur éducation $\dfrac{\partial e_{t+1}}{\partial z_t} = 0.$

4.5. Les progrès technologique

Le taux de croissance de technologie est fonction de la qualité de l'éducation e_{t+1} et d'une population suffisamment grande L_t: $g_{t+1} = g(e_t, L_t)$. Elle est la fonction croissante et strictement concave de population active et du niveau d'éducation des adultes dans la période t: $g'(e_t, L_t) > 0$; $g''(e_t, L_t) < 0$ et telle, que $g(0, L_t) > 0$. Ce qui signifie que pour le stock du capital humain égal à zéro le taux de croissance du progrès technologique est positif pour le nombre positif de population active dans la période t.

4.6. La population active

La taille de population active à la période $t + 1$ est définie comme:

$$
L_{t+1} = n_t L_t; \quad L_0 = \text{const.} > 0. \tag{14}
$$

Les changements du nombre de population active au temps sont définis en termes de revenu potentiel de l'individu:

$$
L_{t+1} = \begin{cases} n^a\big(g_{t+1}, z(e_t, g_t, x_t)\big) L_t & \text{gdy} \quad z_t \leq \widetilde{z}; \\ n^b(g_{t+1}) L_t & \text{gdy} \quad z_t > \widetilde{z}. \end{cases} \tag{15}
$$

4.7. Ressources efficaces

Les changements des ressources efficaces dépendent de l'évolution de population active, et de technologie:

$$
x_{t+1} \equiv \frac{A_{t+1} X}{L_{t+1}} = \frac{1 + g_{t+1}}{n_t} x_t, \tag{16}
$$

où: $x_0 = \dfrac{A_0 X}{L_0} = \text{const.} > 0$.

La taille des ressources efficaces dans la période $t+1$ dépend du revenu potentiel:

$$x_{t+1} = \begin{cases} \Phi^a(e_t, g_t, x_t, L_t) & \text{si} \quad z_t \leq \widetilde{z}, \\ \Phi^b(e_t, L_t) & \text{si} \quad z_t > \widetilde{z}, \end{cases} \tag{17}$$

où: $\Phi^a(.,.) = \dfrac{[1 + g(e_t, L_t)][\tau + e(g(e_t, L_t))]}{1 - \left[\dfrac{\widetilde{c}}{z(e_t, g_t, x_t)}\right]} x_t, \quad \Phi^b(.,.) = \dfrac{[1 + g(e_t, L_t)][\tau + e(g(e_t, L_t))]}{\gamma} x_t.$ (18)

4.8. La dynamique de l'économie

Les changements dans l'économie dans un horizon de temps infini $T = [0, +\infty)$ sont décrits par les sentiers de croissance:

$$\{e_t, g_t, x_t, L_t\}\Big|_{t=0}^{+\infty}, \tag{19}$$

avec les valeurs initiales : $e_0, g_0, x_0, L_0 = \text{const.} > 0$ (niveau de l'éducation, taux de croissance de la technologie, ressources effectives par salarié et nombre de la population active).

Selon le niveau de revenu potentiel d'un employé on fait la distinction en deux ordres. Premièrement, quand le revenu potentiel des agents économiques n'est pas assez élevé $z_t \leq \widetilde{z}$, la dynamique de l'économie est décrite par le système de quatre équations non-linéaires:

$$\begin{cases} x_{t+1} = \Phi^a(e_t, g_t, x_t, L_t), \\ e_{t+1} = e(g(e_t, L_t)), \\ g_{t+1} = g(e_t, L_t), \\ L_{t+1} = n^a(g(e_t, L_t), z(e_t, g_t, x_t))L_t. \end{cases} \tag{20}$$

Deuxièment, lorsque le revenu potentiel de l'employé est suffisamment élevé $z_t > \widetilde{z}$, la dynamique de l'économie est décrite par le système de trois équations non linéaires:

$$\begin{cases} x_{t+1} = \Phi^b(e_t, x_t, L_t), \\ e_{t+1} = e(g(e_t, L_t)), \\ L_{t+1} = n^b(g(e_t, L_t))L_t. \end{cases} \tag{21}$$

Pour ces deux ordres l'analyse de la dynamique de l'économie est fortement simplifiée, parce que, entre autres, les changements e_t et g_t ne dépendent pas de l'accomplissement des restrictions concernant le niveau minimal de la consommation. En outre, pour toute population active L_t les changements des e_t et g_t sont indépendants de x_t. Enfin, les changements dans la technologie et l'éducation peuvent être analysées indépendamment des ressources efficaces par travailleur[23].

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[23] Le modèle de base de la TCU a fait l'objet de nombreuses études empiriques, dont un exemple est l'analyse quantitative réalisée par Lagerlöf [2006]. En contrepartie de ses modèles de croissance on a appliqué les hypothèses analogues aux celles du modèle de base de TCU Galor et Weil [2000]. Pour calibration on a pris forme des fonctions analytiques sélectionnées décrivant respectivement l'accumulation du capital humain et le taux de croissance du progrès

Conclusions

La TCU d'Oded Galor identifie les principaux facteurs économiques qui ont conduit à la situation exceptionnelle dans les deux derniers millénaires, le passage de l'époque de stagnation économique à une croissance économique soutenue. Elle souligne leur rôle dans la compréhension des processus contemporains de croissance économique dans les pays développés et en voie de développement.

La définition des raisons préhistoriques et historiques, qui ont conduit à différentes distributions de revenu par habitant dans le monde, permet mieux comprendre l'interaction entre le développement économique et l'évolution de l'humanité.

Des considérations théoriques générales qui ont été approfondies par l'analyse empirique suite que la transition d'une période de stagnation, à la période de croissance soutenue était la conséquence inévitable du processus de développement économique.

De la TCU déculent directement les interactions entre le taux de croissance du progrès technologique ainsi que la taille et la structure de population qui à l'époque de stagnation malthusienne ont conduit à l'accélération du taux de croissance du progrès technologique et à l'augmentation significative du capital humain en fonction de l'évolution, toujours plus rapide, de l'environnement technologique. L'augmentation de la demande de capital humain et son impact sur l'accumulation de capital humain ont conduit à une réduction du taux de naissance et de la quantité de population, ce qui a constitué un nouvel élan pour le développement du progrès technologique. Les changements démographiques ont conduit à plus grande réaffectation d'une partie des bénéfices de l'accumulation des facteurs de production et du progrès technologique, de l'élargissement de la population vers la formation du capital humain et de l'augmentation du revenu par habitant, ce qui en conséquence a commencé l'époque moderne de croissance économique durable.

La TCU constitue aujourd'hui l'une des perspectives de recherche les plus attrayants sur la croissance économique, qui est étroitement liée au développement économique.

D'après les créateurs de TCU Galor [2011], les directions générales les plus prometteurs pour la poursuite de son développement sont: a) les études des facteurs préhistoriques et historiques qui ont conduit à l'inégalité économique et sociale contemporaine, existant dans le monde ; b) l'examen des relations entre les processus de l'évolution de l'humanité et du développement économique ; c) les résultats de ce type de recherche devraient changer la compréhension du développement économique et déterminer l'influence des facteurs spécifiques sur le capital humain et la gestion de performance économique dans le monde entier. Ils devraient également bien servir à la définition et à la mise en œuvre de politique économique pour promouvoir la croissance économique et la réduction de la pauvreté[24].

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technologique. La fonction décrivant formation du capital humain par un enfant de la génération des adultes dans la période t a pris la forme[23]: $h_{t+1} \equiv h(e_{t+1}, g_{t+1}) = \frac{e_{t+1}+\rho\tau}{e_{t+1}+\rho\tau+g_{t+1}}, si \rho \in (0,1)$. Tandis que la fonction qui a décrit le taux de croissance du progrès technologique a été définie: $g_{t+1} \equiv g(e_t, L_t) = \{(e_t + \rho\tau)\theta L_t$ pour $L_t < \frac{a^*}{\theta}$ ou bien $(e_t + \rho\tau)a^*$ pour $L_t \geq \frac{a^*}{\theta}\}$ où : $e_t + \rho\tau$ - stock du capital humain d'un adulte à la période t, $\frac{a^*}{\theta}$ - valeur maximale de l'impact de la population active L_t sur le progrès technologique. En supposant que: $g_{t+1} = g(0, L_t)$. Les résultats ont été obtenu par Lagerlöf (pour les valeurs des paramètres calibrés : $\alpha = 0,6$, $\tau = 0,28$, $\rho = 0,851$, $\gamma = 0,355$, $\theta = 1$, $\frac{a^*}{\theta} = 7,54$, $\tilde{c} = 1$, $X = 1$, $n_0 = 1$, $L_0 = 1$, $e_0 = 0$, $g_0 = 0,048$, $A_o = 0,951$) ont confirmé les chemins attendus des sentiers de population active, croissance démographique, revenu par habitant et capital humain qui ont décrit : a) l'époque malthusienne, b) transition endogène de la stagnation malthusienne qui est associée à l'accélération du progrès technologique et s'accompagne d'abord par la croissance rapide de population, c) l'augmentation de la demande de capital humain, qui sont une conséquence de transitions démographiques et la croissance économique durable. La différence primordiale entre le modèle de base de TCU est modèles du type Hansen et Prescot [2002] consiste à ce que les sentiers de croissance dans le modèle de base de la TCU décrites par les équations (20)-(21) sont déterminés d'une manière endogène.

[24] En conséquence on peut aussi attendre la définition du développement économique communément accepté.

Sans remettre en cause les attentes des auteurs de la TCU parmi les directions les plus souhaitables de son développement nous verrons la nécessité de la construction des modèles de croissance dans lesquels on prendrait en compte : a) l'hétérogénéité des ménages ; les relations mutuelles entre la sphère nominale et la sphère réelle de l'économie dans chaque pays dans le monde ; c) les conditions d'un développement harmonieux des sphères réelles et nominales de l'économie de chaque pays dans le monde ; d) les relations entre les fluctuations économiques et la croissance économique ; f) la nature aléatoire (non-déterministe) des mécanismes et processus de la croissance et du développement économique.

Il convient de souligner que la TCU, dans une plus large mesure que les théories traditionnelles est fortement liée avec la démographie, mais aussi avec la cliométrie. Ses relations étroites avec la démographie sont exprimées par le fait que l'un des tests de crédibilité de TCU consiste au fait qu'elle prend en compte la transition de l'ancien ordre démographique (taux de naissances et de décès relativement élevés) vers l'ordre moderne (taux de naissances et de décès relativement faible).

La confrontation de la TCU avec les neuf dilemmes que nous avons présenté en tant que le plus importants dans la la théorie contemporaine de la croissance économique nous permet de formuler la conclusion que la théorie de croissance unifiée d'Oded Galor ne fournit pas de nouveaux arguments en faveur d'un consensus satisfaisant sur la plupart de ces dilemmes. Ce qui signifie qu'il est possible de construire la théorie de croissance économique unifiée au sens étroit de ce terme et que l'attente formulé par Stephen W. Hawking dans le cas de la théorie de croissance économique n'a pas été encore réalisé.

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PERSONAL DETERMINANTS OF THE FAMILY BUSINESS CAPITAL STRUCTURE - CENTRAL AND EASTERN EUROPEAN ANALYSIS

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Abstract. The purpose of the article is to identify the specificity of the financing policy of family businesses in the context of direct management by family members. Particular attention was paid to the role of representatives in the management of the company. The essence of a family business means that it has a strongly focused shareholding. If the owners do not hold the board directly, this may exacerbate the conflict typical of the agency's problems. 845 listed family owned companies in selected Central and Eastern European countries were analyzed in period of 2006-2016. Within this group, family businesses were separated by directly managed by family members. Data was obtained from Amadeus database. The analysis was mainly focused on the problem of capital structure. To take into account the economic context of the researched entities, their profitability and liquidity were also analyzed. Beside the descriptive statistics the significance difference test were used. The research was conducted in a general and sectoral contexts. The results show that family businesses managed by family members compared to others apply conservative financing policies. They are less indebted and generally keep higher financial liquidity. It must be stressed, however, that the results obtained are not entirely clear. This may be caused both by the sectoral conditions of financing strategy and the differences in the family business development stage in particular country. The research results do not allow concluding about the role of profitability in the financial policy.

Key words: *family business, financing policy, Central and Eastern Europe, comparison, ownership*

JEL code: G32, G34

Introduction

Research on decisions regarding the financing structure has been conducted for many years. Despite many important findings, it has still not been possible to clearly identify all the premises of managerial behaviour. This is due, inter alia, to the occurrence of a human factor in the economic calculation, which makes precise quantification difficult. An example of this is the research on the behaviour of family businesses and their financing decisions. The family controlling shares often takes care of the security of owned property, which can sometimes be in contrast to the interests of the managed company. Maintaining the family character requires the control of capital ownership, therefore imposes the use of internal sources of capital. Borrowing involves capital donor control and risk of bankruptcy. In turn, financing with external equity creates a risk of taking control over the company by persons unrelated to the family. On the other hand, financing solely based on own sources of capital significantly limits the growth of the enterprise. Therefore, the managing family enterprises face an important dilemma between the need to maintain control and development of the family business.

The issue of financing family enterprises has been studied many times. M. Jensen and W. Meckling noticed that companies with strongly concentrated ownership structures avoid debt as a source of financing (Jensen M., Meckling W., 1976). This is caused by reluctance to monitor the company's activities by the lenders, which can lead to the loss of control on the enterprise. That is why in such companies the preferred one is usually more expensive equity for the security of maintaining full control over the company. The results of many studies show that family businesses adopt a very conservative financial strategy. They mainly use internal resources for financing operations. Family businesses generally

have a lower share of debt. They are characterized by a high concentration of capital in the hands of the family and a static structure of ownership that allows to maintain control over the enterprise (Gallo MA, Vilaseca A., 1996; McConaughy D., Phillips G., 1999; Poutziouris P., 2001, Ampenberger et al. 2013). Family enterprises, compared to their non-family counterparts, are more dependent on internally generated funds (Poutziouris P., 2001). They are often uninterested in entering the stock market due to the risk of losing control over the enterprise (Keasy K., et al., 2015). This may result in the choice of debt financing instead of raising equity.

A number of studies indicate that the financial decisions of family businesses are very well explained by the pecking order theory (Romano C.A., et al., 2001, Basly S., 2007, Koropp C., et al., 2013). This means that they first use internal capital and then debt. Finally, enterprises use external equity (Myers S.C., Majluf N.S., 1984). According to this theory, the factor determining the financing policy and the degree of indebtedness is therefore the stage of development at which the given company is. This would mean that there is no difference in the method of financing family businesses with others. However, studies of Japanese family and non-family enterprises have shown that family businesses are less indebted compared to non-family enterprises (Allouche J., et al., 2008). They are also more effective. Although studies by Spanish family companies show that they were more willing to use debt than non-family ones, this tendency was different depending on the size and maturity of the family business (Acedo-Ramírez M.A., et al., 2017). Larger and more mature companies were more indebted, which is partly confirmed by pecking order theory. In the case of smaller enterprises, no such relationship was observed.

Relatively few studies on the financing policy of family businesses were devoted to enterprises from Central and Eastern Europe. This region is characterized by a shorter functioning of family businesses in the free market. At the same time, strong integration with the European Union greatly accelerated the convergence processes, which probably influences the financial behaviour of entrepreneurs, making them similar to the European patterns. Thanks to this, it is possible to conduct research on Eastern European family businesses using theories developed for analogous companies from Western Europe and the USA. Research on the financing strategy of Polish family businesses has shown that most enterprises financed their activities only with their own resources, while others used a bank loan to a small extent (Winnicka-Popczyk A., 2008). The reluctance to use the credit of the respondents was motivated by high and unstable interest rates, fear of difficulties in repaying the loan. The low level of indebtedness of Polish family businesses several years later was also confirmed by the research on their corporate governance (Socha B., 2015; Socha B., 2017). Polish family businesses have appeared more profitable as well (Martyniuk, O., 2016). Similarly to Polish, Czech enterprises are characterized by a very cautious funding policy (Machek, O., Hnilica, J., 2015). They are more profitable than non-family enterprises, achieve higher margins, maintain higher liquidity with low level of indebtedness. In the case of Hungarian family enterprises, it has been observed that the main purpose of the business is often the need to provide employment for family members and to hold property control (Csákné F.J., Karmazin G., 2016). This leaves its mark on the financing strategy, which is more conservative not to expose family assets to impairment.

A relatively consistent picture of the financing policy of family businesses emerges from the review of previous studies. On the one hand, they try to limit the influence of external shareholders, which makes them indebted. On the other hand, they try to limit their debt so as not to expose their family assets to loss. However, the test results are more likely to indicate lower leverage. A relatively unknown part is the role of the family in the actual management, and in particular the effects of the direct impact of the family on the applied financial policy of the enterprise. The activity of family management can be very diverse as well as the nature of the family itself. The family can be involved in three areas: management, ownership and control (Villalonga B., Amit R., 2006). According to Fama and Jensen, family involvement in management results in lowering the efficiency of the decision-making process due to their risk aversion (Fama E., Jensen M., 1983). In addition, family goals are not always in line with the long-term interest of all investors,

especially if the family avoids risk too much (Bertrand M., Schoar A., 2006). A high level of risk aversion usually results in lowering the level of indebtedness in such companies. International surveys of family businesses confirm the negative relationship between the degree of indebtedness and family participation in the board (Friend I., Lang L., 1988). For this reason, companies managed by family members may have lower indebtedness compared to other family businesses.

On the other hand, family businesses are characterized by a specific type of shareholder control, which, moreover, are part of. It has been observed that the performance of managerial functions in a family business by a family member reduces the costs of the agency mainly due to the reduction of expenditure on management control (Ang J., et al., 2000). At the same time, family businesses are exposed to other types of agency costs related to shortcomings of altruistic behaviours and the will of taking over the management of the company (Schulze W., et al., 2002). In addition, it was observed that the "specific financial logic" of family businesses also stems from the preferences of managers who are family members in terms of the company's growth rate, risk, and maintaining control over the company (Gallo M.A., et al., 2004). Therefore, the long-term involvement of family members in management, in particular the personal management, may change their attitude towards incurring liabilities inducing debt. This is particularly important in the context of the degree of controlled shareholding. Research has shown a positive relationship between the degree of family ownership concentration and the level of indebtedness (Kim W., Sorensen E., 1986). The strategy of higher gearing can also be an effective strategy in the case of a lower share of the family in the shareholding structure. Higher debt may then discourage potential investors from expanding the circle of shareholders. Thanks to this, the chances of keeping the board in the hands of the family grow. Analysis of the decisions of German family businesses has shown that they are ready to incur higher financing costs if they remain free to make business decisions and remain financially independent (Peters B., Westerheide P., 2011).

The purpose of the article is to identify the specificity of the financing policy of family businesses in the context of direct management by family members. The research hypothesis assumes that personal management by family members will result in lower indebtedness compared to other family businesses but managed by external managers. The conducted literature review suggests that the fear of excessive financial risk will be the basic premise of family business manager decisions. This should be reflected in the applied conservative financial policy. Therefore, verification of the hypothesis carried out in the context of financial liquidity and profitability, in order to determine the nature of the financing policy of the surveyed family enterprises. The survey will be conducted on enterprises rarely analyzed in literature so far - from the countries of Central and Eastern Europe, also in the sectoral cross-section. Thanks to this article, it will contribute to the development of research not only on family entrepreneurship but also on emerging markets.

Research results and discussion

Sample description and methodology

In order to determine the nature of the impact of family members direct management on the applied financing policy, a statistical survey was conducted on a group of family enterprises listed on the stock exchange in the countries of Central and Eastern Europe. The sample comprised all companies registered in the Amadeus database, which were listed on the domestic stock exchange in the years 2006-2016 and made annual financial statements public for this period. A total of 845 family enterprises were selected for the study, out of which 125 were directly managed by family members. The criterion for a particular family business classification is based on its proprietary features given by Amadeus. An enterprise was considered a family company if the direct share of shares owned by a person or a family was more than 50%. In addition, the type of activity was also taken into account. Based on a basic description of the activities of NACE Rev. 2 four types of activity have been distinguished: Manufacturing (sections A-E), Construction and real estate (sections

F and L), Wholesale and retail trade (section G), and Services (sections H-J and M-S). Due to the specificity of the financial sector related to a different standard of financial reporting, it was excluded from the entire study.

The basic financial indicators related to the capital structure, financial liquidity and profitability were used to determine the nature of the financial policy pursued. The study was based on the analysis of the following variables: gearing – determining the capital structure [(noncurrent liabilities +loans)/shareholder funds]; interest cover – determining the risk associated with debt (operating profit/interest paid); current ratio – determining the level of general financial liquidity (current assets/current liabilities); liquidity ratio - determining the level of quick liquidity [(current assets – inventory)/current liabilities]; profit margin – determining the profitability of business operations (profit before tax/operating revenues); ROE – determining the return on equity (profit before tax/ shareholder funds) and ROA - specifying the total return on capital (profit before tax/total liabilities).

Mutual relations between the capital structure, liquidity and profitability help to determine the nature of the financial policy being pursued. A high share of debt in liabilities together with low liquidity will be indicative of aggressive, risky financing policy application. The conservative and safe strategy will be characterized by a low relation of debt to equity and high liquidity in conditions of high profitability. The level of profitability can be treated as a criterion for determining the classification of a specific financing strategy. Low profitability may limit the ability to indebt for formal reasons, independent of the managers of the financed enterprises. In turn, high liquidity in conditions of high profitability demonstrates the use of a conservative strategy. In this study, the financing strategy will be considered not only from the perspective of the level of indebtedness, but also the overall context of liquidity and profitability.

To assess differences between the applied financing policy of family businesses managed by family members and other managers we used statistical analysis and significance test for differences. We used the t-test for independent samples and Mann-Whitney's test. The t-test for independent samples was applied to assess the significance of differences between the expected value of quantitative variable in two independent samples. The null hypothesis is: H_0: $\mu_1 = \mu_2$ against the alternative hypothesis H_1: $\mu_1 \neq \mu_2$. The test is verified with the t-statistics of the following formula (Starzyńska W., 2007):

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{n_1 S_1^2 + n_2 S_2^2}{n_1 + n_2 - 2} \cdot \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}, \tag{1}$$

where: $\bar{x}_1$, $\bar{x}_2$- arithmetic mean of the dependent variable for the population of family-managed and other family companies, S_1^2, S_2^2 – variance of the dependent variable for the population of family-managed and other family companies. The statistics represents Student's t-test distribution with the following number of the degrees of freedom $df = n_1 + n_2 - 1$.

Where the assumption on the homogeneity of the variance was not satisfied, we used a stronger version of the t-test (resilient to non-homogenous variances), with the test statistic taking the form of (Ruszkiewicz M., 2011):

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{S_1^2}{n_1 - 1} + \frac{S_2^2}{n_2 - 1}}}, \tag{2}$$

The statistics is of Student's-t distribution with the number of the degrees of freedom:

$$df = \frac{\left(\frac{S_1^2}{n_1 - 1} + \frac{S_2^2}{n_2 - 1}\right)^2}{\frac{S_1^4}{(n_1 - 1)^3} + \frac{S_2^4}{(n_2 - 1)^3}}. \tag{3}$$

Differences between populations, i.e. between the expected values of the dependent variable in the compared samples were considered statistically significant if the probability in the t-test was lower than the significance level α. When the

assumption of normal distribution of the variable was not met, we used Man-Whitney's test as an alternative to the t-test of independent samples. The test requires at least orderly levels of measuring the dependent variable. The null hypothesis is: H$_0$: $F_1 = F_2$ against H$_1$: ~ H$_0$, where F_1 and F_2 are cumulative distribution functions for probability distributions of the dependent variable in compared populations. If there are no tied ranks in the sample, the test statistic is (Szymczak W., 2010):

$$Z = \frac{U - \frac{1}{2} \cdot n_1 \cdot n_2}{\sqrt{\frac{1}{12} \cdot n_1 \cdot n_2 \cdot (n_1 + n_2 + 1)}},$$ (4)

where: $U = n_1 \cdot n_2 + \frac{n_1 \cdot (n_1 + 1)}{2} - R_1$. If there are tied ranks in the sample, the test statistic is:

$$Z = \frac{U - \frac{1}{2} \cdot n_1 \cdot n_2}{\sqrt{\frac{n_1 \cdot n_2}{n \cdot (n-1)} \cdot \left[\frac{n^3 - n}{12} - \Sigma \frac{t_i^3 - t_i}{12} \right]}},$$ (5)

where: $n = n_1 + n_2$, t – the number of observations tied with a given rank.

In both cases the *Z* statistic is supposed to produce an approximately normal distribution with parameters 0 and 1. Since the null hypothesis states that two independent samples come from the population representing the same distribution, differences between populations are considered statistically significant if the probability in the Mann-Whitney's test is lower than the significance level α. For the study we assumed a standard level of significance α=0,05. Calculations were made in IBM SPSS Statistics 22.0.

Results

The research was carried out in two stages, which allowed to distinguish the specificity of financing of both surveyed groups of family enterprises in several dimensions. In the first stage, all enterprises were analyzed, irrespective of the country of operation or sectoral affiliation (Table 1). Basic descriptive statistics were used for comparing them between enterprises with direct and indirect control of the family members. All variables defined in the methodological part were used. The obtained results allow to formulate several general conclusions. First of all, it should be noted strong dispersion of the values of all the variables examined. Standard deviation is high and the arithmetic mean is significantly different from the median. This shows that the financial situation of enterprises and the financial strategies implemented by them vary widely. However, it should be remembered that the survey covered enterprises from various countries operating in various sectors, of various sizes and stages of development. This can significantly determine the level of diversity. Obtained results often indicate statistically significant differences in the level of the examined variables. The exceptions are ROE, ROA and current ratios where the probability of differences turned out to be insufficient. In most cases the differences between means in both groups are reflected in a similar relationship between medians. The exceptions are, however, ROE and ROA where an opposite relationship was observed. These exceptions may also be caused by a significant variation in the value of variables within the entire surveyed population.

Table 1

Debt, profitability and liquidity of family enterprises in Central and Eastern Europe - general results

Variable	Type of management	n	Mean	Median	Standard deviation	p
Gearing (in %)	Direct	114	53.684	19.156	96.954	<0.001*
	Indirect	584	61.881	19.499	87.349	
	Direct	109	14.141	3.848	52.736	<0.001*

Variable	Type of management	n	Mean	Median	Standard deviation	p
Interest cover (in %)	Indirect	531	11.174	2.032	61.967	
Profit margin (in %)	Direct	122	0.215	1.349	24.951	0.068**
	Indirect	695	0.302	1.905	17.943	
ROE (in %)	Direct	124	0.116	0.189	26.948	0.201
	Indirect	702	0.049	0.204	36.447	
ROA (in %)	Direct	124	0.098	0.109	19.274	0.318
	Indirect	702	0.063	0.113	13.776	
Current ratio	Direct	121	2.039	1.339	6.982	0.229
	Indirect	693	2.517	1.752	6.851	
Liquidity ratio	Direct	121	1.383	1.107	3.699	<0.001*
	Indirect	693	1.209	0.969	4.387	

The significance of differences was assed using Mann-Whitney's or t test.

* - statistically significant differences at α = 0,05; ** - statistically significant differences at α = 0,10

Source: author's calculations based on Amadeus.

Family businesses managed directly by family members are characterized by lower gearing than those that entrust management to people outside the family. However, the level of general indebtedness should be considered low, especially if the median value is taken into account. The value measured by the arithmetic mean is also not significant. Interest cover in family businesses managed directly by family members is higher than in the second surveyed group. Statistically significant differences allow to conclude about the conservative financing policy used by directly controlled family enterprises. However, it should be noted that the median value is significantly lower than the average, which may raise doubts regarding far-reaching statements. The basis for concern may also be the very high standard deviation value of both variables in each group. The analysis of profitability of both groups of family enterprises is also difficult. Companies managed directly by family members achieve lower profit margin than those managed by other people. In both groups the value of the margin is not high, however. A slightly more complex situation refers to ROE and ROA ratios. The average values of both indicators are higher for companies managed personally by family representatives, although the profitability achieved is very low, especially for companies managed by people from outside the family. In terms of median, the opposite relationship was observed. In both groups of variables, however, there is a strong variability of observations and there are no statistically significant differences. Therefore, it is difficult to conclude unambiguously about the role of profitability in the examined problem. One can only see the advantage of enterprises with low or very low profitability. This is evidenced by the higher median value than the observed arithmetic mean.

The financial liquidity test also does not allow to draw too categorical conclusions. Family businesses managed directly by family members are characterized by a lower level of general liquidity than those entrusted to management of non-family members. These values, however, suggest moderately high liquidity in both groups. The value of the arithmetic average exceeds the level of median which means the existence of a large group of enterprises with liquidity significantly exceeding the average values. However, the study does not allow to determine the impact of the type of control on the level of liquidity achieved. Differences between those two groups of enterprises are not statistically significant. At the level of quick liquidity, however, statistically significant differences are observed, although the levels in the entire population are not high and oscillate around values deemed desirable. This may be evidence of the influence of inventories on liquidity, and hence difficulties in sales. Enterprises managed directly by family members show a slightly

higher quick liquidity than those managed by foreign persons. Medians, however, are slightly lower than average, which indicates the occurrence of below-average cases. The value of standard deviation is low in comparison to other variables, which means that there are small differences in the quick liquidity between individual enterprises. Generally, it can be noted that in the case of statistically significant differences, companies with direct control of family members apply a more conservative financing policy than entities managed by people outside the family. They have smaller share of debt in liabilities, higher operating profit coverage of interest and higher financial quick liquidity. However, they obtain a lower operating margin.

In the second stage of the study, the profile of activity of the surveyed enterprises was taken into account in the context of their financial policy. The surveyed population was divided according to the criterion of impact on the management of the company and the basic sector of activity. Due to the insufficient number of enterprises from the Wholesale and retail trade section managed directly by family members, it was decided to omit this part of the analysis. Because of the scope of the study and the technical limitations of the article, it was decided to choose one variable specifying profitability (ROE) and liquidity (Current ratio) and both variables related to debt. Similarly to the previous study, a strong differentiation was observed within each group of companies (Table 2). Standard deviation is high and the median is significantly different from the arithmetic mean. Most of the differences tested are statistically significant. There are no significant differences in the value of variables between particular sectors. This means that the type of activity is not a significant determinant of tested family enterprises financing policy. The most indebted are companies from construction and real estate sector and the least in services. It is different in the case of liquidity. This means that entities apply a moderate financing policy. The low indebtedness is accompanied by low liquidity. As the debt increases, the company also increases the liquidity buffer. This proves rather a prudent and responsible financing policy. The more so because the activity of service companies is characterized by the highest profitability.

Table 2

Debt, profitability and liquidity of family enterprises in Central and Eastern Europe - general results in the division of economic activity

Country	Variable	Type of management	n	Mean	Median	Standard deviation	p
Manufacturing	Gearing (in %)	Direct	47	62.623	22.763	118.253	<0.001*
		Indirect	270	63.893	23.259	141.239	
	Interest cover (in %)	Direct	45	12.018	4.157	26.001	0.043*
		Indirect	261	9.799	3.998	36.149	
	ROE (in %)	Direct	47	0,956	1.691	43.054	<0.001*
		Indirect	269	-0.007	0.941	31.217	
	Current ratio	Direct	45	2.714	1.612	4.909	<0.001*
		Indirect	269	2.694	1.649	5.121	
Construction and real estate	Gearing (in %)	Direct	21	67.217	36.290	161.860	0.071**
		Indirect	120	65.128	32.471	179.002	
	Interest cover (in %)	Direct	19	7.012	3.146	31.197	0.140
		Indirect	118	7.189	3.368	46.102	
	ROE (in %)	Direct	21	1.296	1.061	32.447	0.347
		Indirect	120	2.036	1.954	51.437	

Country	Variable	Type of management	n	Mean	Median	Standard deviation	p
Services	Current ratio	Direct	21	2.887	2.009	11.105	0.006*
		Indirect	119	1.985	1.728	9.851	
	Gearing (in %)	Direct	41	55.147	19.585	112.591	0.028*
		Indirect	236	58.291	23.934	128.191	
	Interest cover (in %)	Direct	36	10.603	7.475	41.019	<0.001*
		Indirect	228	8.223	6.156	36.156	
	ROE (in %)	Direct	39	3.015	3.121	12.069	0.674
		Indirect	234	2.133	1.994	10.402	
	Current ratio	Direct	39	1.625	1.369	3.629	0.082**
		Indirect	234	1.491	1.267	9.325	

The significance of differences was assed using Mann-Whitney's or t test.

* - statistically significant differences at α = 0,05; ** - statistically significant differences at α = 0,10

Source: author's calculations based on Amadeus.

The study of differences in financial policy between enterprises directly managed by family members and other family businesses faces several difficulties in concluding. The indebtedness of companies managed by the family in the Manufacturing and Services groups is lower, both in terms of average and median. In companies from construction and real estate sector, there is an opposite relation to companies managed by external managers. All differences are statistically significant, although in the group of real estate companies this significance is the lowest. Enterprises from this industry are also significantly less numerous in the study. A similar situation occurs in the interest coverage ratio. Companies from the Manufacturing and Services sectors managed by families have higher coverage measured by the arithmetic mean and the median. However, the corresponding real estate companies show lower coverage, albeit slightly. It should be noted, that in the firstly mentioned two groups, the differences of companies managed by external managers are statistically significant, in the third group, not. In general, a lower level of indebtedness and exposure to financial risk of companies controlled by family members should be considered, although it is necessary to take into account different observations of real estate companies and a large variability of observations in all groups.

Companies directly managed by family members generally show higher profitability than those managed by others. Differences are statistically significant only in the Manufacturing sector. There is no statistical significance for servicing companies. Construction and real estate companies directly managed by family members show lower ROE than those managed by external managers. These differences are also not statistically significant. In most cases, the median exceeds the average value, which indicates numerous cases of low-level observations. What draws attention is the very high value of standard deviation against the median and mean in all subgroups, which suggests a strong variation in the observation and possible reason for the absence of statistically significant differences.

Much more information on differences in both groups is provided by the financial liquidity analysis. In general, liquidity should be considered high. In the vast majority of companies directly managed by family members show a higher level of liquidity. The exception is the relation of medians in the group of enterprises from the Manufacturing sector, although it must be emphasized that the opposite difference is very small. In other cases, the picture of liquidity differences is consistent. All examined groups showed a statistically significant difference. The companies have a slight excess of liquidity. The group of Manufacturing enterprises is particularly interesting because of relatively small variability.

Conclusions

Carried out literature and empirical studies point to the complex nature of the family businesses behaviour in their financial policy. Despite the differences observed, some regularities can be found. The general study showed that companies directly managed by family members have lower gearing and a higher interest cover in comparison to family businesses managed by outsiders. A similar relation was observed during the sector inquiry in a group of entities from the Manufacturing and Services sectors. It did not occur, however, in enterprises associated with the real estate market. This sector was the least represented in the study and the significance of the differences had the least statistical significance. The financial liquidity research, in turn, showed that companies directly managed by family members also maintain higher liquidity. This is confirmed by the results of the overall quick liquidity survey and sector liquidity studies. All observed differences are statistically significant. Denies this relationship a general study of the total liquidity, but the differences are not statistically significant. The profitability analysis of the family businesses is the most contradictory. In a general survey, the profitability of a company directly managed by family members is generally lower than in the second surveyed group of family enterprises. It should be noted, however, that these differences are statistically insignificant or the significance is on the verge of acceptability. A similar situation takes place in the sector inquiry, although it shows that Manufacturing companies, managed by the family, achieve statistically significant higher profitability compared to those that employ external managers.

Therefore, it can be considered that the surveyed family businesses directly managed by family members apply a more conservative financial policy in comparison to the second group of family enterprises. They are less indebted and maintain higher financial liquidity. However, it is impossible to determine in what profitability conditions such a policy is implemented, making the full assessment difficult. The conducted research confirms the hypothesis presented at the beginning of this paper. Direct involvement of family members in the process of managing a family business results in an increase in risk aversion, although this factor is difficult to consider as significantly affecting the general financial policy of family businesses. The non-financial goals related to the family business explain this behaviour. Direct involvement of family members means that the enterprise is not only a source of financial benefits, but also a place of employment or implementation of intergenerational ambitions. The reduction of financial risk favours the implementation of such goals. This may result in a deterioration of profitability, which is indirectly proved by the uncertainty of the profitability analysis.

The conducted research also confirms, though not to a fully satisfactory degree, the existence of the agency problem in practice. The greater indebtedness of companies managed by external managers forces them to control the risk necessary to generate surpluses servicing the debt. However, these surpluses are not high enough to increase liquidity. This significantly impedes management by managers. The level of liquidity, but mainly higher debt thus become a tool of control ownership. In the case of companies managed directly by family members, such control is not needed. Managers have full information about the level of economic risk and on this basis they shape the financing policy. The lack of unambiguous results describing differences in profitability does not allow to refer to the practical occurrence of pecking order theory. Lower debt and higher liquidity may suggest self-financing preferences. However, the tools used in the conducted study do not allow the explicit preference of financing in both groups of family enterprises.

Finally it is worth noting that the conclusions presented are subject to certain restrictions. The survey was conducted during a period of dynamic political and economic changes. The analyzed groups of enterprises, despite belonging to the same geographic zone, develop at different rates and have different experience in development. Some enterprises operate in the European Union, others operate according to different legal, political or competitive conditions. The state of development of the local capital market where they are listed can be also different. These, and many other factors, may

influence the financial decisions of enterprises and, hence, the results of research, especially in cases of statistically uncertainty. This applies to both the conclusions presented in the article and further research in this area.

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A FINANCIAL REPORTING REQUIREMENTS FOR MICRO ENTERPRISES IN POLAND, BELARUS, UKRAINE AND LITHUANIA - COMPARATIVE ANALYSIS

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Abstract. In Europe, the debate over the simplification or outright abolishment of reporting requirements for micro and small companies is receiving considerable attention with the implementation of the Directive 2013/34/EU. The government's rationale for simplification of financial reporting requirements is mainly based on reducing the administrative burden. The purpose of this paper is to carry out a comparative analysis of the reporting obligations of micro enterprises in selected Eastern-European countries (Poland, Belarus, Lithuania, Ukraine). These are countries with different levels of economic development, but with a common political-economic ground. As a research method, the authors have chosen desk research of national accounting regulations (laws and national standards) in terms of requirements to micro-entities. Literature studies and analysis of the national legal regulations show that the elements of financial statements of micro-entities are similar in four selected countries. The differences, however, concern the definitions of a micro-entity, the range of financial data presented in financial statements and the requirements of keeping accounting books. As a result, the scope of the financial information for decision-making and evaluation of the enterprises is not homogenous in the researched Eastern-European countries. Poland and Lithuania are the state members of European Union what affects on their accounting law and financial reporting requirements of micro enterprises. In the case of Ukraine, the financial reporting requirements are similar to the ones of European Union. Although, the definition of micro entity differs from the European one. Belarus is a country where the transformation has been limited. It has influenced not only by the structure of Belarus' enterprises but also on the national accounting law. In Belarus micro enterprises are not obligated to prepare any financial statements.

Key words: *financial reporting, Eastern Europe, micro enterprises, SME*

JEL code: M48, M41, O52, P20

Introduction

Micro-, small- and medium-sized enterprises (the SME sector) dominate quantitatively in most developed and developing world economies. In the European Union, over 22 million non-financial enterprises operate in the SME sector. They constitute 99.8% of all non-financial enterprises in the EU. In this group, micro-enterprises, which constitute 92.7% of the SME sector, are the majority. However, in Eastern Europe, there still exist countries in which the economy is not as much dominated by the SMEs (e.g.: Belarus, Russia).

The purpose of this paper is to carry out a comparative analysis of the financial reporting requirements of micro enterprises in selected Eastern-European countries (Poland, Belarus, Lithuania, Ukraine). These are transition countries

with different levels of economic development. Poland and Lithuania as the transitional strategy have chosen sustained shock – therapy strategy, whereas the gradual strategy was chosen by Ukraine. In Belarus, just limited reforms were conducted (Dana L.P., Ramadani V., 2015). As a result, at present Poland and Lithuania are the members of the European Union, Ukraine is a candidate country to the European Union. Ramadani, Dana (2013) state: "Transitional economies provide a particularly fascinating backdrop for the development of entrepreneurship". The economies experiencing such radical change shared a unique context. Due to specific historical circumstances, micro-entities in this region differ in some aspects such as age, size (in terms of assets, number of employees), involvement in international business operation, innovativeness from micro companies in other countries At the firm level, transformation has entailed shifting from public to private sector ownership either through direct privatisation of the state-owned enterprises or their bankruptcy, or the creation of entirely new enterprises. However, it should be noted that in many cases the creation of an enterprise during the first years of transformation was the necessity based entrepreneurial activity, in the contrast to mature market economies where creation of an enterprise is more opportunity-based entrepreneurial activity). The transformation processes have also influenced by the national accounting laws in Eastern European countries. Proposed comparative analysis of the national accounting laws will enable to assess how selected countries manage the problem of reducing the administrative burden in the context of development micro-entities. Such comparison can help optimise the national accounting law.

Moreover, an overview of the literature on the subject of financial reporting, made by Eirle and Schönefeldt (Eirle B., Schönefeldt A., 2010), indicates that there is a limited amount of research analysing micro entities specifically. These units usually tend to be subsumed within the term SME despite:

1. limited financial and personal resources,
2. specific users of financial reports.

This gap in literature demonstrates that it is an area ripe for further in-depth examination and research. Thus, this article may partly fill this research gap. The paper's objectives have been achieved through working in two modules:

– A desk research aimed at identifying and analysing the current literature on financial reporting of small and micro enterprises in Poland and in Eastern Europe;

– A desk research aimed at analysing the accounting law regulations in selected countries in order to identify the current financial reporting requirements of micro enterprises.

The paper is organised as follows: in the next section, we briefly review the empirical literature on financial reporting of micro enterprises; in the following section, we present a definition of micro – entities in each country regarding the accounting law. We then provide information about the limits of obligatory preparation of financial statements and the mandatory elements of them regarding micro companies. In the final section, we summarise our main conclusions.

1. Literature review

Review of the literature indicates that still, a few studies have focused on the financial statements of micro enterprises, although, as Eierle and Schönefeldt (Eirle B., Schönefeldt A., 2010) and Mkasiwa (Mkasiwa T.A., 2014) observed, the number of publications about SMEs' financial reporting has been increasing since 2006.

Most studies have been conducted in European countries, especially Great Britain (37), Germany (13), Belgium (8) and Italy (8). In the Eastern Europe, the most studies were conducted in Romania (3) (Eierle B., Schönefeldt A., 2010). The literature review carried out by Martyniuk and Kotowska (Martyniuk O., Kotowska B., 2016), regarding the financial reporting in Eastern Europe, shows that most of the available publications addressed the IFRS for SMEs, usually concerning one particular country e.g.: Romania (Neag R., 2010, Girbina K., Albu N., Albu C., 2011), Croatia (Baldarelli

M.G. et. al., 2012), Estonia (Alver L., Alver J., Talpas L., 2014), Poland (Grabinski K., Kedziora M., Krasodomska J., 2014), the Czech Republic (Mullerova L., Pasekova M., Hyblova E., 2010, Strouhal J., 2012), Russia (Morozova T.V., 2014) or a group of countries (Borker D.R., 2012, Strouhal J., Pasekova M., Mullerova L., 2010, Albu C.N. et. al, 2013, Albu N., Albu N.C., 2014, Strouhal et. al, 2011, Strouhal et. al, 2011a). Less publications describe the national financial reporting requirements for SMEs, e.g. in Romania (Sava R., Marza B., Esanu N., 2013, Nicolaescu 2011), the Czech Republic (Nerudova D., 2007), Slovakia (Stanley R., 2017), Croatia (Zager K., Decman N., 2016), Central and Eastern European countries (Bogdan V., Cristea S.M., 2010, Martyniuk O., Szramowski D., 2017). The introduction of the Directive 2013/34/EU on annual financial statements, consolidated financial statements and related reports of certain types of undertakings has had certainly influence on number of publication on this subject in national languages, but still, there is a need to conduct the international analysis. However, it should be stated that the research lack has been partially fulfilled by two studies carried out by the European Commission – one in 2011, a *Study on Accounting requirements for SMEs*: *Final Report* and in 2015, *Accounting Guide for SME. SME Accounting in Europe: insights provided by a desk research and survey.*

Nevertheless, it seems to be still the need to prepare publications concerning micro entities which are the most important part of the SME and differ especially from the medium and less from the small companies. Business of micro enterprises is specific for many reasons. On the one hand, business is simpler, there is much lower volume of transactions present, owners generally completely independently manage the company. Very often they have difficulties with accessing bank credit and almost no chance of financing through the capital market (Zager K., Decman N., 2016). Moreover, the business decision-making process in micro companies is specific. The main reason is the fact that the functions of management and ownership are often united in one person, the manager-owner. As a result, the manner of reporting and use of information in small entities will significantly differ from large enterprises. The accounting information represents the important base for making business decisions, but is not the sole factor influencing the final decision. This pose the question; what information do micro entities use for the purposes of business decision-making? (Sacer I.M., Decman N., Sever I., 2015).

2. Micro enterprises in Poland, Lithuania, Ukraine and Belarus – definition in accounting law

The role of micro business is recognized for its contribution to the economic and social development of a country. This contribution is judged from employing skilled and unskilled workers, enhancing national GDP, and providing support to other small and large businesses.

Table 1

Key statistics for micro – entities in selected countries

Country	Number of enterprises in %	Number of persons employed in %
Poland	95,3	36,8
Lithuania	92,6	29,0
Belarus	45,2	16,5
Ukraine	82,8	11,7

Source: Investing in SMes ..., 2017 – as at 15/12/2015; Official data of the Belarusian National Statistical Committee as at 31/12/2016, SME Performance Review - Poland, 2018 – as at 31/2016; SME Performance Review - Lithuania, 2018 – as at 31/2016

The Directive 2013/34/EC (Art.3.1) proposes a definition of micro enterprises, formulated as follows: micro enterprises are entities which on their balance sheet data do not exceed the limits of at least two of the three following criteria:

– the balance sheet total equal to 350 000 EUR;

– the net turnover equal to 700 000 EUR;

– an average number of employees during the financial year equal to 10.

There is no obligation on the EU member states to make use of these European thresholds. Every member state should assess the suitability of these criteria and the different company categories in their national context.

Implementation of the Directive 2013/34/EU has led to the introduction of the concept of a micro-entity into the legal regulations of many European Union countries, including Poland and Lithuania. Definitions of micro-entities, introduced in the accounting laws of Poland and Lithuania are presented in table 1.

Table 2

Definition of micro enterprises in accounting law of Poland and Lithuania

Enterprise	Employment	Net turnover	Total assets	Other
Lithuania				
Micro	< 10	< EUR 700 000	< EUR 350 000	-
Poland				
Micro	< 10	< EUR 720 000 (3 mln PLN*)	< EUR 350 000 (1,5 MLN PLN*)	Companies
		< EUR 2 mln		General partnerships, civil partnerships, natural persons

A micro-entity is a small undertaking which on the balance sheet data does not exceed at least two of the three limit values.

*Calculation using rate 4,2 PLN/ EUR

Source: Martyniuk O., Szramowski D., 2017.

In Ukraine, the accounting law does not define micro-entities. It is regulated by the *Commercial Code* (Commercial Code of Ukraine, Art. 55) using the employment and the net turnover criterion. According to this law, micro-companies are individuals registered as private entrepreneurs, legal entities of any legal form and ownership, if an average number of employees during the reporting period does not exceed 10 persons, an annual income from all types of business does not exceed the equivalent of 2 000 000 EUR. Belarus' *Law on Accounting and Reporting* define the enterprises according to size using just one threshold – employment. All companies employing less than 15 persons are classified as micro companies.

Analysing the size thresholds for selected countries, it can be stated that definition of micro enterprises is not similar. The differences appear even between both member states of the European Union (Poland and Lithuania). In each country, except Poland, the legal form does not affect the qualification of an enterprise in the group of micro-entities. In the Authors' view, the current Polish criteria discriminate the companies (eg.: limited partnerships) comparing to natural persons, general partnerships and civil partnerships. As such, it would be better to introduce a uniform definition of a micro-entity in Poland, regardless of legal form. Moreover, only in Poland, the national currency has been applied to the size thresholds, which also, in the Authors' opinion, ought to be changed. In the case of Ukraine, we propose to implement the size thresholds, which are in line with those contained in the Directive 2013/34/EU. The same recommendation applies to Belarus although this country is not at present interested in joining the EU. The unified definition will certainly enable comparative analysis between countries. At present different definitions of micro enterprises distort the statistical analysis.

3. Financial reporting requirements of micro enterprises in selected Eastern European countries

Appropriate accounting information is important for successful management of the business, whether it is a large or a small one. Accounting information presented in the financial statements, regardless of the size of the entity that makes it, in accordance with International Financial Reporting Standards, should meet a number of requirements. This is due to the need for financial statements to be prepared on a unified basis by all economic entities, which will allow the same interpretation of information provided by users. General requirements are as follow:

— When preparing financial statements, management shall make an assessment of an entity's ability to continue as a going concern.

— An entity shall prepare its financial statements, except for cash flow information, using the accrual basis of accounting.

— Each material class of similar items should be presented separately.

— An entity shall present separately items of a dissimilar nature or function unless they are immaterial.

— An entity shall not offset assets and liabilities or income and expenses, unless required or permitted by an IFRS.

— An entity shall present a complete set of financial statements (including comparative information) at least annually. When an entity changes the end of its reporting period and presents financial statements for a period longer or shorter than one year, an entity shall disclose, in addition to the period covered by the financial statements: the reason for using a longer or shorter period, and the fact that amounts presented in the financial statements are not entirely comparable. Except when IFRSs permit or require otherwise, an entity shall disclose comparative information in respect of the previous period for all amounts reported in the current period's financial statements.

— An entity shall include comparative information for narrative and descriptive information when it is relevant to an understanding of the current period's financial statements. An entity shall retain the presentation and classification of items in the financial statements from one period to the next unless: it is apparent, following a significant change in the nature of the entity's operations or a review of its financial statements, that another presentation or classification would be more appropriate having regard to the criteria for the selection and application of accounting policies in IAS 8; or an IFRS requires a change in presentation.

The complete set of financial statements comprises: a statement of financial position as at the end of the period; a statement of comprehensive income for the period; a statement of changes in equity for the period; a statement of cash flows for the period; notes, comprising a summary of significant accounting policies and other explanatory information; and a statement of financial position as at the beginning of the earliest comparative period when an entity applies an accounting policy retrospectively or makes a retrospective restatement of items in its financial statements, or when it reclassifies items in its financial statements.

Preparation of financial statements for SMEs is associated with significant compliance costs. Besides that, small and medium-sized businesses can not hire accountants and auditors that have special competencies and professional skills necessary to carry out complex calculations. Taking into account the specifics of the activity of small and medium enterprises, a separate standard has been developed, which determines the procedure for compilation of their financial statements, as well as minimum requirements for its content. It should be noted that the IFRS for SMEs Standard is currently under consideration in 11 jurisdictions, is required or permitted in 86 jurisdictions, is not used or under consideration in 69 jurisdictions. In Eastern Europe the application of IFRS for small and medium-sized businesses has not become widespread. One of the main reasons for that is a poor development of the SME sector. Most of the companies operating in selected countries of Eastern Europe applying IFRS are either large public companies for which the application of the standard is not allowed or enterprises with foreign capital for which reporting is needed in accordance

with all the requirements of IFRS. The introduction of IFRS for SMEs requires a significant modernization of the legislation at the state level, as well as additional costs for the training of the staff at the level of the smallest business entities.

The objective of the current developments regarding financial reporting by smaller companies is to reduce the administrative burden for these companies. A substantial part of financial reporting costs is fixed. As a result, they fall disproportional higher on small companies as compared with larger ones (Eierle B., Haller A., 2009). Additionally, small and micro companies often do not hold a qualified in-house accountant and therefore have to rely more on outside accounting expertise, resulting in higher fees. Moreover, it seems that consideration regarding the financial reporting simplification should start from the indication of the users of micro enterprises financial reports and their needs.

According to the findings of Ceustermans et al. (Ceustermans S. et al., 2011), micro-entities identify banks and tax authorities as the major users of the company's financial statements. This is due to the specific characteristics of these enterprises, which are related to the scale of their activity and their intuitive management style. Most owner-managers are already involved in the day-to-day operations of their businesses. Not only do they have regular access to the financial information, but they also consider certain financial information to be confidential. Moreover, introducing banks as the users is justifiable, because micro - entities do not have a market in which they can negotiate their shares, as opposed to the market-listed companies. After the credit institutions, the commercial partners – the clients and the suppliers - follow. In member states of the EU (as e.g.: Poland and Lithuania), the institutions awarding grants within European Union programmes are very significant users of the micro – entities' financial reports, as well.

According to the Directive 2013/34/EU, *"the annual financial statements shall constitute a composite whole and shall for all undertakings comprise, as a minimum, the balance sheet, the profit and loss account and the notes to the financial statements"* (Directive 2013/34/EU, Art 4.1.).

In Poland, the reporting obligations and principles for drawing up financial reports are specified in the Act of September 29, 1994 on Accounting (AA). Natural persons as well as general and civil partnerships are exempted from keeping accounting books if their net turnover in the previous year did not exceed a PLN equivalent of 2 000 000 EUR.

The Republic of Lithuania Accounting Act shall apply to all legal persons with limited and unlimited civil liability, the residents engaged in individual activities. However, financial statements of Lithuanian companies shall be drawn up by the accounting data, by the procedures laid down by the *Law on Financial Statements of Companies* (LFSC), the *Business Accounting Standards* (BAS) or the *International Accounting Standards* (IAS). The LFSC shall be applied to the undertakings that are:

– limited civil liability profit-seeking legal entities registered in the Republic of Lithuania by the procedure set forth by the laws;

– a general partnership, a limited partnership or a sole proprietorship, if they decide to draw up of financial statements at their discretion, (LFSC, Art 8.1-8.2).

All legal entities established according to the legislation of Ukraine, regardless of their organisational and legal form and form of ownership, as well as representative offices of foreign business entities are obligated to keep accounting books. The rules of accounting and financial reporting of micro and small enterprises in Ukraine are defined in Part 3 Art. 11 of The *Law of Ukraine of 16.07.1999 № 996-XIV on Accounting and Financial Reporting, Resolution of 28.02.2000 № 419 The procedure of Financial Reporting and The National Accounting Standard 25 "Financial statements of small business"* dated 25.02.2000.

In Poland, Lithuania and Ukraine, micro-undertakings may not prepare explanatory notes, while then their financial statements shall include:

- a short balance sheet;

- a short profit (loss) account.

Additionally, in Poland and Lithuania, if a micro undertaking decides not to prepare any explanatory notes to the financial statement, it shall present some information after the balance sheet preparation (Annex 4 to the Polish AA, LFSC- Lithuania, Art. 22). In Belarus micro enterprises which employ less than 15 persons and their net turnover don't exceed 410 000 BYN (215 800 $) can provide their accounting using only simplified taxation system. It means that micro enterprises in Belarus are not obligated to prepare any financial statements. A summary of the reporting obligations for micro-enterprises in Belarus, Lithuania, Poland, and Ukraine is presented in table 3.

Table 3

Mandatory elements of the financial statement of micro-entities in selected Eastern European countries

Element of the financial statement	Belarus	Lithuania	Poland	Ukraine
Balance Sheet	-	+	+	+
Profit and Loss Account	-	+	+	+
Notes to the Financial Statement	-	-	-	-
Cash Flow Statement	-	-	-	-
Statement of Stockholders' Equity	-	-	-	-

Source: Martyniuk O., Szramowski D., 2017 , The Act of the Republic of Belarus on accounting and reporting of 12.06.2013 № 57-3.

Summing up, it can be stated, that the mandatory set of the elements of financial reports of micro-entities is similar in 3 researched countries. In Poland accounting principles and the rules of preparing financial statements are regulated by one legal act. The templates of financial reports dedicated to micro-entities are included in a special annexe (Annex 4) to the Act of Accounting. More extensive regulations related to financial reporting can be found in Lithuania and Ukraine. They are described not only in the national law of accounting but also in the national accounting standards. It may reduce the transparency of these regulations and can constitute a certain administrative barrier for micro-entities. Belarus is the country where micro enterprises are not obligated to prepare any financial statements.

Conclusions

The basic source of information on the financial and the economic situation of enterprises are financial reports. The contents of them should be adapted to the information needs of their main users. Micro entities mainly operate locally, employing few employees, and management and ownership overlap in the same person. Therefore, it seems, that any changes in financial reporting should be introduced after these needs have been recognized. In Europe, the debate over the simplification or outright abolishment of reporting requirements for micro and small companies is receiving considerable attention with the implementation of the Directive 2013/34/EU. This paper presents a review of the financial reporting requirements of micro-entities in four Eastern European countries. The countries are characterized by a common political-economic ground, but different transitional strategy. At present two of selected countries (Poland and Lithuania) are the state members of European Union. It affects, inter alia, on their accounting law and financial reporting requirements of micro enterprises. However, some differences can be observed in the case of eg.: micro enterprises definition in accounting law, the limits of keeping accounting books. In the case of Ukraine, the financial reporting requirements are similar to the ones of European Union. Although, the definition of micro entity differs from the European one. Belarus is a country where the transformation has been limited. It has influenced not only by the structure of Belarus' enterprises but also on the national accounting law. In Belarus, opposite to other selected countries, micro enterprises constitute only 45,18% of all enterprises. They are not obligated to prepare any financial statements. On the one hand,

exemption from preparing financial reports is a great convenience for micro entrepreneurs and encourages them to conduct business activity; on the other, it can cause reduction of transparency in business and restriction of economic security.

Comparative analyses of the accounting law in different Eastern European countries can help prepare a list of "best practices" in financial reporting that would correspond to the economic condition in Eastern Europe. As such, the Authors of the article are planning to carry out research in other countries in this part of Europe. Although, certainly it is difficult to find an optimal solution in this area that would satisfy all market participants.

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DISTINCTIVE PERCEPTIONS OF LATVIA AS A DESTINATION IN GERMAN, AUSTRIAN AND SWISS TOURISM MARKETS

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Abstract. The aim of the research was to examine the image of Latvia as a tourism destination among potential travellers and to find out the differences in perceptions of Latvia as a tourism destination in Germany as a high priority and Switzerland and Austria as secondary target markets of Latvian tourism as well as to investigate whether the former and current Latvian tourism brands correspond with the associations of the people of these countries about Latvia as tourism destination. Two research questions that have been raised are: What is the level of recognition and awareness of Latvia as a tourism destination in Germany, Switzerland and Austria? What is the image of Latvia in terms of several attributes of a tourism destination?

The research involved data of surveys carried out in several cities and villages in Germany, Switzerland and Austria. During three surveys in 2015, 2016 and 2017 1094 valid questionnaires have been gathered. The questionnaire was made to determine the recognition and the image of Latvia as tourism destination. SPSS software tools were used for analysing the data: descriptive statistics, crosstabulation, data correlation.

Main results and findings are addressed towards Tourism Department of Investment and Development Agency of Latvia to improve marketing communication with countries mentioned above.

Key words: *destination perception, destination brand, destination image*

JEL code: M31, L83

Introduction

The promotion of destinations in the tourism market is one of the most researched topics in the scientific literature relating to tourism. One of the aspects that attracts researcher's attention is the image of tourism destination and the perceptions of potential tourists about destinations as well as their role in choosing their next travel destination. Destinations compete principally through their image in the global and increasingly competitive tourism markets. This is because a tourist image of a destination before visiting is believed to be a decisive factor in their purchase decision when prices are comparable (Buhalis, 2000). As indicated by many researchers, destination image should accordingly be seen as the construct consisting of two closely interrelated components – a cognitive domain that would include perceptual, mental representations of knowledge and an affective domain including evaluative, emotional perspective.

This aspect regarding Latvia as a tourist destination has so far been unexplored, apart from the previous study by the authors of this article devoted to the study of awareness and image of Latvia in Germany (Medne, Berzina, 2016).

The aim of current research was to examine the image of Latvia as a tourism destination among potential travellers and to find out the differences in perceptions of Latvia as a tourism destination in Germany as a high priority and Switzerland and Austria as secondary target markets of Latvian tourism as well as to investigate whether the current and potential Latvian tourism brands correspond with the associations of the people of these countries about Latvia as destination. Two research questions that have been raised are: What is the level of recognition and awareness of Latvia

as a tourism destination in Germany, Switzerland and Austria? What is the image of Latvia in terms of several attributes of a tourism destination?

To achieve the aim of the study, a survey of German, Swiss and Austrian residents was carried out. The face-to-face surveys were conducted in 2015, 2016 and 2017 among local population in Germany, Switzerland and Austria.

Research object setting

During the last year for the promotion of Latvia in foreign markets the slogan and graphic symbol 'Magnetic Latvia. Travel' has been used, whose ideological and visual concept differs significantly from the previously used brand 'Latvia. Best enjoyed slowly'.

Fig. 1 **Logos of destination Latvia 'Magnetic Latvia. Travel' and 'Latvia. Best enjoyed slowly'**
Source: Investment and Development Agency of Latvia (LIAA) Tourism Department.

Latvian tourism brand 'Latvia. Best enjoyed slowly', according to the brand concept, invites tourists to slow down their pace of life, to stop and enjoy a slow and detail-oriented recreation and think about the important issues of life. The core values of Latvian tourism brand are described by truthfulness, profoundness, lightness and self-respect lying in the nature, culture and people of Latvia. 'Latvia. Best enjoyed slowly' encourages staying longer and enjoying things that require time and peace, i.e., tea can be enjoyed only slowly and bird songs can be heard only in silence. (Latvian Tourism Development Agency, 2011) 'Magnetic Latvia. Travel' is the new communication platform for Investment and Development Agency of Latvia which is used to promote Latvia as a tourist destination in international markets. However, the concept for the new communication platform has not been created so far.

Germany has become one of the most important tourism markets since the independence of Latvia. Indications for the German market significance from the tourist amount standpoint can be stated by its fourth place in the flow of the overnight travellers (after our neighbouring countries Russia, Lithuania, Estonia) as well as the tendency of this phenomenon increase (+69.3%) during the last five years. (See Table 1). As determined in the Latvian tourism marketing strategy, Germany is one of the high priority tourism target markets of Latvia. Accordingly, the promotion package in the German market is wider, which means that Latvia's visibility should be better and perception more objective.

Switzerland and Austria are secondary target markets of Latvia as a tourism destination. Nevertheless, the number of overnight travellers from these European countries in the last five years has increased by 90.3% and 44.1% respectively.

Table 1

Number of German, Swiss and Austrian overnight travellers in Latvian tourist accommodations in 2013 – 2017

	2013	2014	2015	2016	2017	2017/ 2013
Germany	122 737	168 707	178 584	187 820	207835	169.3%
Switzerland	11 027	13 904	18 287	18 591	20 982	190.3%
Austria	11 251	15 747	13 528	14 017	16 212	144.1%

Source: author's calculations based on Database of Central Statistical Bureau of Latvia

The total spending of German and Swiss tourists in Latvia between 2013 and 2016 has grown by 21.7% and 20% respectively, while Austrian tourist spending has fallen after a significant increase in 2014 (See Table 2). The average daily expenditure of German tourists has fallen steadily over this period. The average daily spending of Swiss and Austrian tourists increased significantly in the middle of the period, but in 2016 they fell again. It can be positively estimated that the average length of stay in Latvia of tourists from all three countries has increased.

Table 2

Characteristics of German, Swiss and Austrian overnight travellers 2013 - 2016

Characteristics	Country	2013	2014	2015	2016	2016/ 2013
Expenditure in Latvia, total (mln. EUR)	Germany	43.8	49.4	53.1	53.3	121.7%
	Switzerland	4.5	10.7	7.1	5.4	120.0%
	Austria	3.1	6.6	5.6	2.9	93.5%
Average daily expenditure per traveller (EUR)	Germany	88.6	77	72.8	58.8	66.4%
	Switzerland	55.7	108.2	83.2	58	104.1%
	Austria	60	95.7	106.2	64.4	107.3%
Average length of trips, nights	Germany	4	3.8	4	4.7	117.5%
	Switzerland	5.8	4.3	4.1	6.7	115.5%
	Austria	4.6	4.2	3.4	4.8	104.3%

Source: author's calculations based on Database of Central Statistical Bureau of Latvia

In order to ensure the further successful attraction of tourists from these countries to Latvia as a tourist destination, it is necessary to understand what kind of message to address to these markets. It is therefore important to understand which of the elements of the tourist destination image are important for potential tourists.

Theoretical background

A tourism destination usually comprises a variety of natural and cultural resources upon which a myriad of stakeholder's work to co-create the final tourism offer coordinated by destination management that would be reflected in destination image (Séraphin, Ambaye, Gowreesunkar, Bonnardel, 2016, Michalkova, Furova, 2017).

The evaluation and analysis of destination image has been the subject of much attention in tourism research academic literature, however, despite this increasing interest in destination image, many researchers agree that the majority of studies carried out to date are insufficiently theory-based, resulting in a lack of framework or solid conceptualization (Beerli, Martín, 2004). Destination image and identity play a significant role for destination development success and especially in context of global competition when differentiating between objectively similar destinations as travel alternatives.

From overall perspective destination image can be seen as the sum of beliefs, ideas and impressions that people have of a place or a country (Kotler, Haider, Rein, 2002). Thus country image includes tangible and verifiable destination attributes as well as perceptions of more psychological nature and emotions regarding that destination (Stepchenkova, Li, 2014) and comprises many elements, such as national symbols, colours, clothing, typical buildings, objects, tunes, pieces of literature, specialties of the political system, customs, historical heritage, and many more (Medne, Berzina, 2016).

In the destination management process all actors and stakeholder groups even sometimes with their conflicting interests should be simultaneously involved in the strategic process of destination development and promotion and that they must reach a consensus (Michalkova, Furova, 2017) including in destination image development.

In order to become a successful destination, it must firstly achieve tourist awareness about it and secondly - a positive image (Milman, Pizam, 1995).

In many cases when describing destination image researchers (Papadopoulos, Heslop, Beracs, 1990; Parameswaran, Pisharodi, 1994; Beerli, Martín, 2004, Laroche, Papadopoulos, Heslop, Mourali, 2005; Roth, Diamantopoulos, 2009, Shakoori, Nazemi, Rahimnia, 2013) suggest that a country image should comprise three sets of components:

- a cognitive component which includes consumers' beliefs about a certain country,

- an affective component that describes the country's emotional value to the consumer, and

- a connotative component capturing consumers' behavioural intentions with regard to the sourcing country.

Destination image should accordingly be seen as constructs consisting of two closely interrelated components - a cognitive domain that would include perceptual, mental representations of knowledge; and an affective domain including evaluative, emotional perspective (Beerli, Martín, 2004, Andersen, Aas, 2017) and there is a certain consensus about the importance of the cognitive-perceptual component and the emotional-affective component (Beerli, Martín, 2004; Artigasa, Yrigoyenb, Moragac, Villalónc, 2017).

Cognitive component of destination image. In the marketing literature, cognitive perception is defined as a set of mental structures and processes that consumers develop and store after receiving a series of stimuli, and from which they carry out their purchasing decisions, including choice of a tourist destination (Artigas, Yrigoyen, Moraga, Villalón, 2017).

Studies have demonstrated that trust towards a tourist destination is the result of image, measured as cognitive awareness of tourist destination general attitudes towards a tourist destination (Artigas, Yrigoyen, Moraga, Villalón, 2017).

Perceptive or so called cognitive destination evaluations referrs to the individual's own knowledge and beliefs about the object (destination) evaluating perceived attributes of the object (Andersen, Aas, 2017).

Cognitive styles are tendencies displayed by individuals consistently to adopt a particular type of information processing strategy (Savolainen, 2015) as it is objective or 'rational' knowledge that tourists acquire about a place from the quality of the physical characteristics of its environment (Artigas, Yrigoyen, Moraga, Villalón, 2017). Customers' cognitive perception of a brand involves individual's memory, attention, and processing of information of the tourism brand (Ahn, Back, 2017).

When examining destination image, many studies focus on functional and psychological attributes such as landscape/surroundings, nature, cultural attractions, nightlife and entertainment, shopping facilities, residents' receptiveness, and safety that are more tangible or measurable characteristics (Souiden, Ladhari, Chiadmi, 2017.

From a theoretical point of view cognitive image has a stronger impact as compared to affective image on overall destination image (Hernández-Mogollón, Duarte, Folgado-Fernández, 2017) and there is general agreement that the cognitive component is an antecedent of the affective component (Andersen, Aas, 2017, Souiden, Ladhari, Chiadmi, 2017).

Affective component of destination image. Even though in the modelling of information behaviour researchers traditionally place the main emphasis on its cognitive dimensions (Savolainen, 2015), still the role of affective factors such as emotions and feelings may not be underestimated. Affective appraisals destination evaluations relate to an individual's feelings towards the object (destination) (Andersen, Aas, 2017).

Affective factors identify six major affective phenomena (Davidson, Scherer, Goldsmith, 2003, Savolainen, 2015):

- emotions that refer to a relatively brief episode of coordinated brain, autonomic and behavioural changes that facilitate a response to an external or internal event of significance for the organism;

- feelings that are a subjective representation of an emotion and can reflect any or all the components that constitute emotion;

- mood that typically refers to a diffuse affective state that is often of lower intensity than emotion but considerably longer in duration;

- attitudes are comprising relatively enduring, affectively coloured beliefs, preferences and predispositions toward objects and persons;

- affective style refers to relatively stable dispositions that bias an individual toward perceiving and responding to people and objects with a particular emotional quality, emotional dimension or mood;

- temperament refers to particular affective styles.

The interaction of both cognitive and affective aspects shapes a unique overall image through a comprehensive assessment of each destination, which includes tourists' overall positive or negative evaluations of the place (Beerli, Martin, 2004; Hernández-Mogollón, Duarte, Folgado-Fernández, 2017) It is important to analyse carefully as to what extent cognitive or thinking process and affective as feelings dimensions contribute to the image that dominates within various tourist segments, and to find explanations for variance between the segments in these respects (Andersen, Aas, 2017) Recent studies, however, argue that a better understanding of the destination image ensues when simultaneously considering cognitive and affective aspects (Souiden, Ladhari, Chiadmi, 2017).

Methodology

To achieve the aim of the study, a survey of German, Swiss and Austrian residents was carried out. The face-to-face survey was conducted among local population in 2015 in Germany, in 2016 in Switzerland, in 2017 in Austria using random sampling for data collection resulting in gathering of 1094 valid questionnaires.

The demographic profile of the realized sample indicates that the sample is representative of the active consumer population of Germany, Switzerland and Austria; in other words, the respondents tend to be younger in age, better educated, and with higher incomes than the respective overall population norms. (See Table 3) The sample comprises respondents who are likely to reflect the views of consumers knowledgeable about and with interest in travel.

Table 3

Sample characteristics (n=1094)

		Germany n=358	Switzerland n=461	Austria n=275
Gender	male	46.9%	44.0%	40.2%
	female	53.1%	56.0%	59.8%
Age	18 - 24	42.4%	5.,3%	60.5%
	25 - 44	37.6%	42.4%	31.0%
	45 - 64	15.7%	5.5%	6.6%
	65+	4.2%	0.9%	1.8%
Marital status	single	44.8%	62.7%	65.3%
	in relationship with husband/ wife/ partner	36.1%	27.7%	26.4%
	family with children	19.2%	9.6%	8.3%
Education	professional	12.7%	26.7%	11.8%
	high school	26.0%	24.9%	26.0%
	university/ high school degree	53.5%	42.1%	52.8%
	other	7.8%	6.4%	9.5%
Income level compared to an average income in the country	below average	18.3%	30.5%	36.3%
	average	51.6%	48.5%	48.0%
	above average	25.5%	18.5%	14.1%
	high	4.7%	2.5%	1.6%

Source: author's calculations based on survey data

Analysis and findings

To determine the recognition, awareness and attitude toward Latvia as a tourism destination, two questions were asked to the respondents: "How well do you know Latvia?" and "What is your opinion about Latvia as a travel destination as a whole?".

The results of the survey show that the knowledge about Latvia in Germany, Switzerland and Austria is very poor: among the German respondents the average recognition assessment is 2.12 points (in a seven-point scale from 1 – "not at all" to 7 – "very good"), Swiss respondents – 1.75 points, Austrian respondents – 1.93 points. (See Table 4)

Despite this, the opinion about Latvia as a travel destination is rather positive: among German respondents, the average assessment of attitude towards Latvia is 4.83 points (in a seven-point scale from 1 – "very negative" to 7 – "very positive"), Swiss respondents – 4.54, Austrian respondents – 4.5 points.

For each travel destination not only the opinion of potential visitors is important, but also their intentions to visit the particular destination. The results of the survey show that, among all the respondents, the average assessment of willingness to visit Latvia (in a seven-point scale from 1 – "definitely no" to 7 – "definitely yes") among German respondents is 3.60 points, among Swiss and Austrian respondents – 3.15 points, which shows a tendency to a rather negative answer.

Table 4

Respondents' knowledge and opinion about Latvia and their intentions to travel to Latvia

	Germany n=358	Switzerland n=461	Austria n=275
How well do you know Latvia? (in a seven-point scale from 1 – "not at all" to 7 – "very good")	2.12	1.75	1.93
What is your opinion about Latvia as a travel destination as a whole? (in a seven-point scale from 1 – "very negative" to 7 – "very positive")	4.83	4.54	4.50
How likely are you to travel to Latvia within the next three years? (in a seven-point scale from 1 – "definitely no" to 7 – "definitely yes")	3.60	3.15	3.15

Source: author's calculations based on survey data

To find out the relevance between recognition, awareness and opinion about Latvia from one side and the intentions to travel to Latvia from another side, a correlation of those indicators using Pearson bivariate correlation was carried out.

The results of the correlation analysis show a moderate positive relationship between the opinions about Latvia as the tourism destination and the intentions to visit Latvia among German ($r=0.514$), Swiss ($r=0.391$) and Austrian respondents (0.458). (See table 5)

A weak positive relationship is seen also between the knowledge about Latvia and the willingness to visit it within the next three years: among German respondents $r=0.324$, among Swiss respondents $r=0.141$, among Austrian respondents $r=0.192$.

These results show that the desire of potential visitors to visit Latvia is significantly influenced not by knowledge of this destination but by subjective opinion.

Table 5

Correlation between respondents' knowledge and opinion about Latvia and their intentions to travel to Latvia

	Country	How well do you know Latvia?	What is your opinion about Latvia as a travel destination as a whole?
		Pearson Correlation	
How likely are you to travel to Latvia within the next three years?	Germany	0.324**	0.514**
	Switzerland	0.141**	0.391**
	Austria	0.192**	0.458**

** Correlation is significant at the 0.01 level (2-tailed)
Source: author's calculations based on survey data

To measure the awareness of image of Latvia in terms of several attributes of tourism destination, a seven-point Likert scale ranging from 1 – "strongly disagree" to 7 – "strongly agree" was used to answer the question "Please give your opinion about Latvia from a tourist point of view". All attributes of tourism destination to be analysed has been divided into two dimensions:

- cognitive image: natural and cultural resources, quality, prices, and
- affective image: atmosphere, friendliness, safety.

Cognitive image: from the point of view of German respondents, Latvia as the tourism destination is richer with natural resources ('Green country with untouched nature' – 5.62; 'Long sea coast, beautiful beaches' – 4.92), from the point of view of Swiss and Austrian respondents – the destination with rich cultural heritage (5.24; 5.27) and interesting cultural (5.31; 5.20) and historical attractions (5.40; 5.17). (See table 6) According to the opinion of the Swiss and Austrian people in Latvia there are high quality tourism infrastructure and services.

Table 6

Image of Latvia as a tourism destination from respondents' point of view

	Germany n=358	Switzerland n=461	Austria n=275
Cognitive image: natural and cultural resources			
Green country with untouched nature	**5.62**	5.29	5.37
Long sea coast, beautiful beaches	**4.92**	4.74	4.57
Country with rich cultural heritage	5.00	5.24	**5.27**
Interesting cultural attractions	4.96	**5.31**	5.20
Interesting historical attractions	5.08	**5.40**	5.17
Cognitive image: quality			
High quality of tourism accommodation	4.45	**4.86**	4.78
High quality of the infrastructure	4.28	4.65	**4.72**
High quality of services	4.79	**5.08**	4.84
Cognitive image: prices			
Good value for money	5.15	**5.41**	5.10
Low prices of tourism services	4.89	**5.21**	4.99
Expensive country	3.47	3.54	4.08
Affective image: atmosphere, friendliness, safety			
Relaxing atmosphere	**5.30**	**5.45**	**5.53**
Exciting atmosphere	4.32	4.94	4.40

Friendly, hospitable people	**5.45**	**5.72**	**5.42**
High personal safety	4.72	5.08	**5.26**

Source: author's calculations based on survey data

The affective image: from the point of view of respondents from all three countries, Latvia is a destination with a relaxing atmosphere (5.30 – 5.53 points in a 7-point scale). This opinion is fully in line with the concept of the former Latvian tourism brand 'Latvia. Best enjoyed slowly'. Respondents from all three countries perceive Latvia as a destination, with friendly and hospitable people (5.42 – 5.72 points in a 7-point scale). Swiss and Austrian respondents perceive Latvia as a safe and secure destination (5.08 – 5.26 points in a 7-point scale) which today is a very important aspect.

Conclusions and suggestions

Destinations compete principally through their image in the global and increasingly competitive tourism markets. This is because a tourist image of a destination before visiting is believed to be a decisive factor in their purchase decision.

As shown in the present research, the creation of identity of Latvia as the tourism destination is currently at a crossroads that does not contribute to the development of a clear tourism destination image in the target markets.

The findings of this study indicate that:

- the knowledge about Latvia in Germany, Switzerland and Austria is very poor,
- the opinion about Latvia as a travel destination is rather positive,
- the correlation analysis shows a moderate positive relationship between the opinions about Latvia as the tourism destination and the intentions to visit Latvia,
- in target market of Germany, Latvia is primarily associated with natural resources, while the people of Switzerland and Austria have association with cultural and historical resources,
- the inhabitants of Switzerland and Austria consider Latvia as a destination with a high quality of tourism infrastructure and services, a good price and quality of service ratio more than that of the German population,
- from the point of view of respondents from all three countries, Latvia is a destination with a relaxing atmosphere.

Based on these conclusions, it can be recommended:

To the Investment and Development Agency of Latvia:

1. It would be important to keep the basic idea of the previous tourism brand 'Latvia. Best enjoyed slowly' to promote Latvia as a travel destination in the German, Swiss and Austrian markets, as it is in line with the current perception of these countries about Latvia.

2. It is necessary to carefully consider which of the brands is more appropriate for the promotion of Latvia as a travel destination in foreign markets, as well as to create a manual for the Latvian brand 'Magnetic Latvia. Travel'. The idea of combining the values of both brands should be considered: the magnetic attraction force of the current brand and the emphasis of the previous brand on the rest in a natural environment using the colour concept of former brand "Latvia. Best enjoyed slowly".

For further research:

1. Future research should therefore focus on the perception of the word 'magnetic' and its related associations in the context of tourism among the population of target markets.

2. It would be necessary to continue research on the perception of Latvia as a travel destination also in other target markets to understand which of the destination values are important for tourists from these markets.

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A COMPARATIVE ANALYSIS OF THE LATVIAN AND MALTESE REGULATORY AND PROFESSIONAL REQUIREMENTS FOR ACCOUNTANTS

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Abstract. The accountant is one of the leading pillars of successful business activity. Countries within the EU offer different routes to becoming a qualified professional accountant, and the regulations and standards sometimes differ. Contrary to the situation in Malta, where accountants are required to follow a standard content (syllabus) of formal education with approved education bodies and need to have about three years' experience in accountancy, usually with approved accountancy firms, in Latvia an accountant is able to practice without a mandatory accountancy qualification and it is enough for him/her to have only an economic-related academic or professional certificate, diploma or degree or experience or an accountant leading to a certificate of competency.

This study aims to compare requirements and routes to becoming an Accountant in Latvia and Malta and through such comparison and using the historical institutionalism approach as the theoretical framework for the development of the accountancy profession in Malta, to determine whether there is a need for improvements and reform to the requirements for practising as a professional accountant in Latvia. The case of Malta was chosen for comparison purposively since although bigger, in the EU Latvia is still a small state like Malta.

To address this objective, the authors used the comparative approach, which involved a comparative study of the models, qualifications, regulations, standards and methods in each country. The theoretical and methodological grounds of the paper are the normative acts, works produced by scientists and Internet sources.

The study shows that the accountancy profession in Malta is mature and very well developed and established within the EU and therefore, Latvia may build its accountancy profession by reference to the Maltese Model.

The article looks at both theory and practice, and attempts to determine and understand problematic issues about the regulatory and professional requirements, in a drive to provide recommendations for improvement.

Keywords: *Accountant Profession, Accountant Regulation, Accountant Certification, Accountant Education.*

JEL code: M48, A29

Introduction

Any company and even an individual, who carries out an economic activity, must keep an accounting. "Accounting is a system of measurement ('to count') and reporting ('to account for') of economic events for the purpose of decision making." (Stolowy H. &, Ding Y., 2017) It is a vital necessity for every business because by using the information provided by the accounting function, a company can evaluate its own performance and make decisions for its further development. Professional accounting is undertaken by a qualified professional accountant. In order to study and compare the statutory requirements regulating the profession of an accountant in both Latvia and Malta, one must find out who is a qualified professional accountant. The term '*professional accountant*' is defined by the International Federation of Accountants which is the leading international accountancy body in the world. "The IFAC is comprised of over 175 members and associates in more than 130 countries and jurisdictions, representing almost 3 million accountants in public

practice, education, government service, industry, and commerce." (IFAC, 2018) As indicated in the Handbook of International Education Pronouncements published by the IFAC, "Professional accountant is an individual, who achieves, demonstrates, and further develops professional competence to perform a role in the accountancy profession and who is required to comply with a code of ethics as directed by a professional accountancy organization or a licensing authority", but "Professional accounting education is education and training that build on general education, and imparts:

(a) Professional knowledge,

(b) Professional skills,

(c) Professional values, ethics, and attitudes" (IFAC, 2017).

At the international level, competences and skills required for an accountant are defined by Framework for International Education Standards for Professional Accountants and Aspiring Professional Accountants (2015), which establishes the concepts and principles for education of accountancy profession. The mentioned framework defines requirements such for accountancy profession: preparing, analysing and reporting relevant and faithfully represented financial and nonfinancial information; partnering in decision-making and in formulating and implementing organizational strategies; preparing and analysing relevant tax information (Bruna I.et.al., 2017).

A European Union Directive 2005/36/ EC of the European Parliament and of the Council of 7 September 2005 "On the recognition of professional qualifications" states that: "a Member State, which makes access to or pursuit of a regulated profession in its territory contingent upon possession of specific professional qualifications, shall recognise professional qualifications obtained in one or more other Member States and which allow the holder of the said qualifications to pursue the same profession there, for access to and pursuit of that profession." (European Parliament and Council, 2005) In many EU Member States and also in the EEA countries like Austria, Belgium, Bulgaria, Cyprus, Germany, Hungary, Iceland, Ireland, Malta, the Netherlands, Norway, Portugal, Romania and the United Kingdom, the accountancy profession is regulated (European Commission Regulated Professions database, 2018) and recognized under the aforementioned Directive. In several countries mentioned above, there are identified several regulated professions of an accountant. For example, there are four regulated professions of accountants in the United Kingdom: Chartered Public Finance Accountant, Chartered Accountant, Chartered Management Accountant, and Chartered Certified Accountant. (European Parliament and Council, 2005)

The accounting profession will face significant changes in the next three decades, and professional organizations, their members, and educational institutions should respond. The three changes—evolving smart and digital technology, continued globalization of reporting/disclosure standards, and new forms of regulation—are also major challenges for the profession (Islam, 2017).

With respect to the two countries being compared in this article, there are differences relating to the regulation of the profession in the two countries. In fact, the Maltese profession is regulated while Latvian one is not, and therefore, their respective regulatory frameworks differ considerably.

This article adopts the historical institutionalism approach as the theoretical framework with respect to the development of the accountancy profession in Malta, and tries to establish whether the need arises for reform in the requirements for practising as an accountant in Latvia. For the latter objective, the comparative approach is adopted, which involves a comparative study of the models, qualifications, regulations, standards and procedures in each country. The theoretical and methodological grounds of the paper are the respective laws and regulations and related published and on-line sources relating to the profession in each country.

1. Regulation of Accountant Profession in Latvia

In the Republic of Latvia, "the Ministry of Finance shall develop and implement the State policy in respect of accounting issues" (Latvian Parliament, the *Saeima*, 1992). The current basic law On Accounting in force in the Republic of Latvia, imposes an obligation to keep accounting records, defines who can perform that, as well as the definition of an accountant and an outsourced accountant. The Law On Accounting stipulates, "A person competent in the matters of accounting keeps the accounting of a company that is an accountant or an outsourced accountant, with whom a manager of a company has entered into a relevant written agreement specifying the duties, rights, and responsibilities of that person in matters of accounting". Moreover, the Law continues to defines that "*an accountant* is an individual, whose qualification corresponds to the fourth or third level qualification of an accountant determined by the Cabinet of Ministers and whose expertise is attested by a relevant educational document (diploma or certificate) as well as such an individual, whose expertise in relevant accounting issues is certified by the experience or an appropriate certificate and which carries out the duties of an accountant. In his turn, "*an outsourced accountant* is an individual, who undertakes to provide or provides a customer with an accounting service which meets the … requirements of an accountant based on a written agreement with a company (other than an employment contract)" (Saeima, 1992).

From the above, the authors note that an accountant in Latvia does not have any compulsory requirements regarding education. The description implies that the expertise of an accountant can also be attested by experience (without specifying its duration) or an appropriate certificate instead of a document evidencing education. It is enough to have a level three or four accontancy qualification as established by the Cabinet of Ministers. The Law on Vocational Education defines the qualification levels in Latvia stipulating that "the level of professional qualification is theoretical and practical training enabling a person to carry out the work corresponding to a certain degree of complexity and responsibility" and providing that "vocational secondary education ... enables the acquisition of a third level professional qualification", which can be obtained by completing a vocational secondary school or a technical school, but "the first level professional higher education (college education) shall mean the higher professional education that gives the opportunity to obtain the fourth level of professional qualification".

However, the Law sets forth that "the second level professional higher education is the higher professional education giving the opportunity to get the fifth level of professional qualification" (Saeima, 1999). Therefore, we can conclude that there is no need to obtain higher professional education (i.e. Level 5) to be considered an accountant.

Cabinet Regulation No. 74 of 18 February 1997 "Regulations on the Higher Professional Qualification" determines that higher professional qualification may be attested by the documents confirming higher education, indicating 17 professional qualifications with the qualification of an economist being one of them (Cabinet of Ministers, 1997). This list, however does not include the qualification of an accountant, which means that obtaining the fifth level of professional qualification of an accountant is impossible in the Republic of Latvia. Therefore, in the Republic of Latvia, when graduating from the second level professional higher education programs aimed at the training of professional accountants, for example, professional higher education bachelor study program "Accounting, Analysis, and Audit" at the University of Latvia, the qualification of an economist is conferred instead of that of an accountant. This explains the fact, to a certain extent why the definition of an accountant does not include the fifth level qualification, but brings to mind the question of whether there is the need for higher professional education to carry out the duties of an accountant.

Article 40 of the Labour Law (Saeima, 2001), when recruiting employees, states that only those positions that are specified in Cabinet Regulation No. 264 "Regulations on Occupational Classification, Basic Tasks, and Key Qualification Requirements", must be used in an employment contract. These rules include several positions of an accountant (Cabinet of Ministers, 2017): Chief Accountant, Deputy Chief Accountant, Senior Accountant, Accounting Expert, Accountant

(the fourth level qualification), Currency Transaction Accountant, Securities Accountant, Currency Transaction Accountant, Consulting Accountant, Stock Taking Accountant, Accountant Assistant, Accountant (the third level qualification), and Salary Accountant. There are also other professions whose agents carry out accounting duties, such as a bookkeeper and an accounting clerk.

Having explored the professions of accountants mentioned in Cabinet Regulations No. 264 of the Republic of Latvia, the authors indicate that there are both the profession of accountants of the fourth and third level qualification and 11 other professions of accountants, as well as the profession of a bookkeeper and an accounting clerk. The authors conclude that the titles of accounting positions in Latvia include specific duties of employees and therefore, detailed job responsibilities could be indicated in their job descriptions. Moreover, the authors recommend maintaining only 6 professions of accountants in the Occupational Classification: Chief Accountant, Deputy Chief Accountant, Senior Accountant, Accounting Expert, Accountant (the fourth level qualification), and Accountant (the third level qualification).

Following Cabinet Regulation No. 264, the primary tasks of the third-level qualification accountant include less responsible record keeping and accounting functions, mainly such as making entries in record keeping and accounting documents, making necessary calculations, carry out stocktaking of materials, raw materials, tools, coveralls, and other goods, as well as similar activities. In turn, the primary tasks of the fourth-level qualification accountant include, for instance, providing financial information collection and processing, calculating financial indicators, analysing financial performance of the company, drafting financial statements and tax declarations, etc., but it is still stipulated that these specialists can "carry out the complete accounting of the company's financial operations" only "under the leadership of accounting experts" (Cabinet of Ministers, 2017). This suggests, that there is still a need for higher-level accountants under the guidance of whom the fourth-level qualification accountants could carry out their duties.

The following positions indicated in the Occupational Classification that could be indicated as higher-ranking accountant professions are: Chief Accountant, Deputy Chief Accountant, Senior Accountant, and Accounting Expert. Basically, these positions could correspond to the fifth level qualification. However, currently the regulatory framework of the Republic of Latvia does not provide for that, because as it was previously mentioned, Cabinet Regulation No. 74 "Regulations on the Higher Professional Qualification" does not provide the higher professional qualification of 'an accountant', instead of which the professional qualification of 'an economist' is conferred. It must be noted that the primary tasks of an economist and of an accountant differ, because an economist must, for example, "study various economic problems, macroeconomic processes, currency flow, modes of production and marketing, trends of national and international trade, monetary financial policy and pricing policy, employment, labour productivity and remuneration, production costs, etc." (Cabinet of Ministers, 2017), which are not activities usually carried out by accountant.

Occupational standards are also applied in Latvia. Cabinet Regulation No. 633 "Procedure for Developing Professional Standards, Professional Qualification Requirements (if professional standard is not approved for a specific profession) and Structure of Sectoral Qualifications" is currently a requirement in Latvia. This "establishes the procedure for developing professional standards, professional qualification requirements (if professional standard is not approved for a specific profession), and structure of sectoral qualifications as well as the structure of bodies that develop and update the structure of sectoral qualifications (Cabinet of Ministers, 2016). That body is the National Centre for Education. The above-mentioned Cabinet Regulation stipulates that the National Centre for Education shall publish professional standards and professional qualification requirements on its website. Having visited the website of the National Centre for Education, the authors found that only 28 professional standards, valid since 2017, are presented there, at the time of the study (National Centre for Education of the Republic of Latvia, 2018), and only the standard of the accounting profession is displayed among them. The latter, refers to the third level of professional qualifications only and which is

not the professional standard of the fourth-level professional qualification of an accountant and definitely is not the standard for the fifth level professional qualification of an accountant either. The standard for the fourth level professional qualification of an accountant was developed in 2011 and has not been updated since. When comparing the basic tasks of the profession of an accountant (the third level qualification) provided for in Cabinet Regulation No. 264 and the professional standard for the third level professional qualification of an accountant, the researchers found significant differences, because Cabinet Regulation No. 264 states that accountants (the third level qualification) "assist in bookkeeping and accounting operations", while the professional standard of an accountant (the third level professional qualification) says, "performs the basic tasks of accounting in accordance with the current regulatory framework independently or under the supervision of a leading accounting specialist" (National Centre for Education of the Republic of Latvia, 2018). Furthermore, the professional standard of an accountant sets forth that the duties and tasks of a third-level professional qualification accountant include also "drafting a financial statement of a company, which consists of at least the balance sheet, profit or loss account, and Annexes to the financial statement" (National Centre for Education of the Republic of Latvia, 2018). This differs from the wording of Cabinet Regulation No. 264, for the fourth level qualification accountant, because the Cabinet Regulation envisages "drafting financial statements".

In the Republic of Latvia, the Law On Regulated Professions and Recognition of Professional Qualifications stipulates "regulated professions as well as basic requirements to be observed in recognition of qualifications acquired in the Republic of Latvia and abroad in these professions" (Saeima, 2001 - Regarding regulated professions and recognition of professional qualifications). The aforementioned Law states that "to start a job, to work independently in a profession or to work as a self-employed person, the Law or the Cabinet Regulation may impose ... additional requirements for certain regulated professions", including "regular, repeated professional certification (re-certification) or attestation after a certain interval". The list of regulated professions in Latvia includes the profession of a 'certified auditor'. As the Law on Audit Services defines, "an individual acquires the status of a certified auditor after having passed the qualification examinations of certified auditors in accordance with the procedures specified in this Law, having received a certificate of certified auditor issued by the Latvian Association of Certified Auditors, and having been entered in the Register of Certified Auditors (Saeima, 2001 – Law on Audit Services). The Latvian Association of Certified Auditors carries out certification of certified auditors.

Since the profession of an accountant is not a regulated profession in the Republic of Latvia, the education of accountants is not regulated either and there are no requirements set for the documents certifying professional qualification. To work as an accountant in Latvia, it is not necessary to have a certificate approving professional qualification of accountants. However, certification and re-certification of accountants are carried out in Latvia. The Association of Accountants of the Republic of Latvia has been involved in the accreditation of accountants for more than 15 years, and more than 500 individuals have received certificates of professional accountant during that period. The Association of Accountants of the Republic of Latvia is the first organisation of accountants in the Baltic States, which joined the International Federation of Accountants (IFAC) and the Accountancy Europe (Association of Accountants of the Republic of Latvia, 2018). Commercial companies such as the Certification Centre for Accountants also provide certification of accountants in Latvia, but it must be highlighted, once again, that no law or regulation of the Republic of Latvia imposes mandatory certification of accountants and it is therefore voluntary. Of course, an employer knowledgeable in recruitment may prefer a certified accountant, whose qualification requirements are approved by a professional certifying body.

2.   Regulation of Accountant Profession in Malta

The word 'Accountant' is interpreted as 'Certified Public Accountant' wherever the Law on Accountancy Profession, Chapter 281 - Malta (from now on referred to as 'the Law') refers to it. However, the word is not a protected one and to ensure one is referring to a certified accountant, one needs to use the law-protected phrase 'Certified Public Accountant'. Accountancy Firm is also protected as stated in Article 10 (11) of the Law. The profession has been regulated since 1979 by the Accountancy Board set up as an autonomous body under Section 6(4) of the Law.

To become a Certified Public Accountant the level of qualification and experience are required.

The level of qualification required to become a Certified Public Accountant in Malta is Level 7, which includes a Master in Accountancy from the University of Malta (referred to in the Law) or its equivalent - to date such equivalence being interpreted as being exclusively for the following:

- ACCA Maltese Version,
- ICAEW with examinations in Maltese law and taxation,
- CIMA plus examinations in Maltese regulation and taxation,
- Any similar qualification for a warrant in the European Union plus examinations in Maltese law and accountancy.

The persons who do not continue the whole course (one can stop at any stage but typically in the third year of the five-year course Law equivalent to First-degree Level 6) are mostly employed as assistant accountants.

At least three years accounting experience, of which at least one year should be gained after obtaining the academic qualification is necessary for becoming a Certified Public Accountant. The warrant is issued by the Minister of Finance on the recommendation of the Accountancy Board. Once the CPA is obtained, one may wish to proceed to receive a Practising Certificate.

In Malta, the University and others mentioned earlier run professional qualifications at Level 7 (e.g. Master in Accountancy, ACCA). One must obtain the academic qualification to become an accountant and must add the necessary experience to become a recognised professional accountant by warrant (CPA) .

The Department of Accountancy in the Faculty of Economics, Management, and Accountancy at the University of Malta is the most substantial educational supplier of new graduate accountants and the largest Department in the Faculty. The Department also provides Higher Diploma in Public Accounting and Finance (soon to be turned into a first degree) and conducts accredited Continuing Professional Education programmes for Maltese Certified Public Accountants (University of Malta, 2018).

There are two primary Accountancy institutions in Malta: The Accountancy Board and The Malta Institute of Accountants.

The Accountancy Board is appointed by Government but includes non-practitioner representatives of the University of Malta and the Malta Institute of Accountants. The Accountancy Board regulates, oversees, and if necessary investigates and disciplines warranted accountants and auditors and also inspects auditors regularly through its Quality Assurance Unit.

Its role involves:

- The issue of accountants' warrants and auditors' practising certificates after making their recommendations to the Minister for Finance;
- The registration of firms of accountants and auditors;
- Keeping a register of the above;
- The operation of an appropriate system of quality assurance;
- Dealing with cases leading to the suspension or withdrawal of warrants or practising certificates;

• Advising or making recommendations and expressing its views to the Minister; and

• Such other functions arising from any law or as may be delegated to it by the Minister under the Accountancy Profession Law (Accountancy Board, 2018).

The core values of The Malta Institute of Accountants are: responsibility (the best interests of members and the general public); accountability (responsibility for actions); integrity (the code of ethics, work in the public interest, treating people fairly and honestly); innovation (developing creative solutions and putting them into action); excellence (deliver what we promise and add value that goes beyond what is expected) and teamwork (The Malta Institute of Accountants, 2016).

The vision of the Malta Institute of Accountants is to lead, train, support, and promote its members, having regard to professional and ethical standards for the benefit of the accountancy profession and the general public.

Its mission is to:

• Ensure that the highest technical, professional, and ethical standards are maintained by its members.

• Provide its members with the resources, information, and leadership to benefit their employers and clients and the general public.

• Attract talented individuals to the profession.

• Create effective partnerships with other private and public organisations to ensure that its members are represented both locally and internationally.

• Promote a proper understanding of the role and the value of the accountancy profession to the public.

(The Malta Institute of Accountants, 2016)

Notably, Maltese accountants may choose to become members of the one recognised accountancy body in Malta, the Malta Institute of Accountants, though they are free not to join. Both the Malta Institute of Accountants and the Accountancy Board, liaison together particularly on areas concerning not only the regular auditing and accounting standards, but also ethical standards.

Many also go further to attain the audit-practising certificate (PCA), by also achieving the required auditing experience. Therefore, both educational institutions award the degree or equivalent qualification and the regulator grants the warrant and practising certificate after the postgraduate accounting/auditing experience. Eligibility to practice as an auditor is governed by the Law, Cap 281 (3) (2). This includes, apart from the requirement of proper conduct and moral character; and full legal capacity, the attainment of the necessary academic qualifications and practical experience in the field of accountancy or auditing.

In a nutshell, to become a Certified Public Accountant in Malta the level of qualification and experience are required. The Accountancy Board and The Malta Institute of Accountants are professional organisations. Maltese accountants may choose to become members of the one recognised accountancy body in Malta. All requirements are gathered in one regulation the Accountancy Profession Law, Ch 281 – Malta.

3. Comparison of Accountancy Regulation in Latvia and Malta

Based on the previous research and situation description in the earlier sections of the article, the authors show the correlation of the most critical statutory requirements of the accounting profession in Latvia and Malta in Table 1.

Table 1

Comparison of Accountancy Regulation in Latvia and Malta

No.	Indicator	Republic of Latvia	Republic of Malta
1.	Responsible for accounting	Ministry of Finance	Accountancy Board
2.	Accounting is determined by	Republic of Latvia law "On Accounting."	Republic of Malta law "Accountancy Profession Law."
3.	The accountant's profession is/ is not regulated	Not regulated profession	Is regulated profession
4.	Accounting professions have specific educational requirements	There are no compulsory education requirements	For Certified Public Accountant - Master in Accountancy from the University of Malta or: • ACCA Maltese Version, • ICAEW with examinations in Maltese law and taxation, • CIMA plus examinations in Maltese regulation and taxation, • Any similar qualification for a warrant in the European Union plus, examinations in Maltese law and accountancy.
5.	Mandatory certification requirements	Not determined	For Certified Public Accountant - is determined

When comparing the statutory requirements for the profession of an accountant in the Republic of Latvia and in the Republic of Malta, the most obvious significant difference noted is the fact that in Malta the profession of an accountant is a regulated, while the profession of an accountant is not included in the list of regulated professions in Latvia. This significant difference also affects the requirements for education and certification. In Malta, the Accountancy Board confers a title of Certified Public Accountant if an individual holds a Masters degree in Accountancy from the University of Malta and relevant certified experience or other equivalent education and experience provided by the regulation, while in Latvia there are no clear mandatory requirements regarding education of an accountant and there is no defined duration of work experience and no certificate is required to work in any position of an accountant. Having compared the requirements, the authors propose that the Republic of Latvia follow Malta's framework and define the profession of an accountant as a regulated profession, and similarly identify prescriptive and relevant courses and experience necessary. However, although we believe that the Malta experience is ideal to set standards, policies and procedures, as already discussed above, the question remains whether the profession needs to be classified at a level 7. Moreover, in Malta the profession of the Certified Public Accountant is the only business qualification considered for a warrant issued by the Minister of Finance, to be able to sign-off a company's annual financial statements. All other business qualifications which are not in the list of recognised qualification for becoming a Certified Public Accountant, even at level 7 and 8, may not be considered for a warrant. Therefore, because of this, in Malta, more students prefer to read for courses leading to a Certified Public Accountant rather than other business qualifications for example an economist, since the recognition

and employability is much higher, with much higher salaries, even though the other courses may provide stronger academic and business knowledge. What Malta could learn from Latvia, is that there are other important business professions, which need to be given similar professional recognition by the Minister of Finance, for example, the Risk Manager, the Internal Auditor and the Compliance Officer. These today are authorised to work as such only for the company they have been authorised in, by the Malta Financial Services authority and in a very subjective manner. The authorisation methodology is unclear and far from being transparent.

Conclusions, Proposals, and Recommendations

Summarising the previous study, the authors conclude that the Republic of Malta complies with Directive 2005/36 / EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications and the profession of an accountant is defined as a regulated profession. In its turn in Latvia, unlike Malta, the profession of an accountant is not a regulating profession. The authors also found some other problems in the accountancy regulation in Latvia:

- There are no mandatory requirements regarding education for a practising accountant.

- It has been established that the qualification of an accountant must conform to the fourth or third level qualification of an accountant determined by the Cabinet of Ministers without providing the fifth level that is the highest qualification.

- Having obtained the second level professional higher education, which is the higher vocational education, the graduates of accounting study programs are awarded the fifth-level qualification of an economist instead of the qualification of an accountant because the statutory framework does not envisage such higher professional qualification.

- There are too many professions of accountants set in the Occupational Classification, namely, 13 professions of accountants.

- The standard of the fourth level professional qualification of an accountant has not been updated, and there are different primary tasks of an accountant (the third level qualification) defined in the Cabinet Regulation and the professional standard of the third level professional qualification of an accountant.

In conclusion the authors propose that authorities within the Republic of Latvia should look at the accountancy profession in a deeper manner to determine the level of qualification and experience required to determine and ensure that skilled accountants manage a company's financial statements. It is however, not to be taken as definite that Malta's Framework may be the best solution, but definitely the definition of the profession of the accountant should be clear and transparent and a regulated profession with specific requirements regarding education and work experience. The Occupational Classification list, in Latvia needs to be organised in a better manner, reducing the list to maybe 6 job titles as recommended above (Chief Accountant, Deputy Chief Accountant, Senior Accountant, Accounting Expert, Accountant (the fourth level qualification), and Accountant (the third level qualification)), specifying the exact terms of business for each profession. Moreover, we recommend the introduction of a 5th level qualification for accountancy.

On the other hand, Malta's Minister of Finance needs to officially recognise other important business professions and provide them with similar warrants, and clear and transparent guidelines for achieving this professional warrant.

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DISREGARDING HISTORY AND CONTEXT: INNOVATION POLICY IN LATVIA POST 1990

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Abstract. Latvia has undergone a significant transformation in the last 25 years since re-gaining its independence, as did the other post-Soviet states. The changes have been all-pervading and have also significantly affected science. While during the Soviet times Latvia was one of the more advanced Soviet republics in terms of quality of academic research, especially in pharmaceuticals, radio-electronics and physics, science had been weakened during the transition period not only due to constant lack of funding, but also lack of continuity in funding that was available. Also, while during the Soviet times a significant part of academic research performed in Latvia was linked to the industry, it had to shift its efforts towards different objectives in the independent Latvia, as links with enterprises were cut. Project-based funding with specific criteria, such as quality of academic output had been driving scientific activity towards basic science and away from cooperation with enterprises. However, when Latvia joined the European Union (EU), the policy mix was devised to target indicators like research and development (R&D) expenditures, number of patents, as well as cooperation between science and industry, while not taking into account the context in which this policy mix was supposed to be implemented. In this paper we discuss how this policy mix came into being and what are the results so far. Desk research, statistical data and interviews with technology transfer specialists and other relevant staff members show that the policy mix focuses on supporting formal ways of technology transfer, rather treats innovation as a linear process and fails to address the persistent weaknesses of the innovation system in Latvia.

Key words: *research and industrial policy, innovation absorption, policy transfer, policy failure*.

Introduction

The importance of improving the innovation performance of EU has gained prominence in policy planning documents since the late 1990s, and policy makers of the EU member states with weaker performance have been struggling to keep up in the race and become assets in the EU innovation system (Radošević, 2005). To improve the performance and understand their position, policy makers of these countries have been largely relying on experience of the more developed countries (e.g. Germany, Denmark or Sweden) and also using benchmarking tools, such as the European Innovation Scoreboard (EUS) to benchmark their countries against the innovation frontrunners, trying to understand the bottlenecks and how their performance could be improved.

However, while engaging in this kind of policy learning and transfer, what was often disregarded were the historical legacies and policy context in the Central and Eastern Europe (CEE) countries, such as Latvia. Therefore, policy mixes adopted and implemented with the aim to support innovation without adaptation to local conditions, often missed the target (Varblane et al., 2007a; 2007b). As Izsak et al. (2015) point out, some of the reports or scoreboards (including EIS) have been constructed in the past decade and include various input and output indicators which, while important, should be evaluated carefully before being used as evidence for developing policies. One of the most recent developments in innovation policy strongly supported by the EU - the Research and Innovation Strategy for Smart Specialisation (RIS3)

- aims at tackling these deficiencies, explicitly aiming at amplifying the already existing strengths and developing new ones.

This article aims to explore the changes in Latvia's innovation and research policy along with changes in the economy after the collapse of the Soviet Union (SU) and discuss the approach that has been used to improve the country's performance. We first discuss research system that existed in Latvia during the Soviet period. We then focus on the turbulent years of transition, arguing that the peculiarities of the Soviet approach to research, innovation and production, as well as the effects of rapid transition had a profound effect on the development of research and innovation system in Latvia. The repercussions of these effects can still be observed in reports like EIS, which indicate that despite the efforts applied over the last two decades, Latvia is still one of the weakest EU member states in terms of both innovation and economic performance.

2. Theoretical framework and methodology

Although policy transfer through different means has affected almost all domains of policy making in the CEE EU member states, the domain of innovation policy is perhaps exemplary in the breadth and depth of external influence. Therefore, looking at the developments in innovation policy through the lens of policy transfer and policy learning literature can provide valuable insights into the evolution of the domain.

There is a number of lenses through which one can look at policy change under external influence: Europeanisation literature focuses on the influence of the EU on the domestic policy making and includes the entire spectrum of mechanisms of policy change; policy learning literature looks at policy change as a rational process based on evaluation and lesson-drawing; policy transfer literature includes a wide spectrum of mechanisms, from coercive (e.g. adoption of the Acquis Communautaire) to voluntary transfer (e.g. lesson drawing or imitation). It is important to note that for policy learning or lesson-drawing to occur, the experience of policy failure doesn't necessarily need to be direct (May 1992; Rose, 1991; 1993). In Latvia, the semi-permanent state of flux, which persisted over more than two decades since re-independence, provided ample space and opportunity structures for policy transfer (Evans and Davies, 1999). In the domain of innovation policy, policy transfer was largely voluntary and took place through imitation and different benchmarking exercises (e.g. IUS), as well as policy transfer through expert advice and consultancy. There was, however, still some element of coercion, as most of the innovation policy instruments were supported by the EU Structural and Investment Funds (ESIFs). Furthermore, the implementation of the RIS3 strategy was a precondition for all funding focused on supporting R&D and innovation in the latest planning perspective (2014-2020).

Policy transfer and policy learning can be an effective mean for updating innovation policy mixes in order to address certain deficiencies. However, in order for it to be effective, certain preconditions need to be fulfilled. First, a certain level of policy capacity needs to be in place in order to ensure that thorough analysis is undertaken throughout the policy implementation cycle, sufficient organisation capacity exists to support policy design and implementation, but also strong political capacity exists, which is a precondition for effective priority-setting and resource allocation (Wu et al., 2018). Second, transferred policy ideas need to fit within the existing policy environment, ideology and the existing policy routines. As we argue below, policy transfer often led to adoption of policy instruments that were following either policy fads of the time or best practices from countries with well-functioning innovation systems (e.g. Denmark or Sweden), while largely disregarding local context. Hence, instead of tackling the existing deficiencies in the innovation system, policy instruments were searching for problems, which at a particular time were largely irrelevant in the specific context (see Béland and Howlett (2016) on policies looking for problems).

The main purpose of this paper is to trace the development of innovation policy over the last twenty-five years in Latvia, and provide tentative explanations for the existing innovation policy mix and the relatively weak effectiveness of innovation policy in the country. In order to do this, we rely on qualitative case study research methodology. The aim is not to establish causal relationships between different factors and outcomes that can be observed, but rather to trace the processes through time, looking at specific institutional arrangements framing the implementation of innovation policy in Latvia. Qualitative case studies complemented by elements of process tracing are particularly useful when the objective is to study the evolution of a policy mix in a specific context, taking into account the roles different actors play in the process and the resulting outcomes. This way, case studies can be utilised for theory building (Bennett, 2004). For the purposes of constructing this case study we rely on a wide range of sources, including, national and international statistics, official reports, evaluations and policy documents, as well as semi-structured interviews. Interviewees were selected using purposive sampling (Jupp, 2006). The interviews were conducted with technology transfer specialists and administrative staff (sources are anonymous) from the relevant institutions to understand the impact on beneficiaries. Altogether 5 interviews were conducted.

3. Overview of developments in innovation policy post USSR

3.1. Restoration of independence and its impact on the innovation system

During the Soviet era, research system in Latvia was a part of the massive SU research system, which largely focused on R&D for the needs of the aerospace and defence industries. The research system was divided into three distinct domains with limited interaction between those: Academy of Sciences doing basic research; universities, mainly tasked with teaching; R&D institutes performing applied research. Applied research was directly linked to the dominant industrial branches that existed in Latvia, such as mechanical engineering and machinery, wood processing and wood chemistry, as well as pharmaceuticals and foods, while basic research served the needs of the entire SU.

As it as was with other parts of the SU, Latvia was both highly dependent on raw materials and energy from external suppliers and at the same time produced goods for the use elsewhere in the Union (Kristapsons et al., 2003). The situation drastically changed after the collapse of the SU as the best performing fields diminished and existing markets were lost.

The independence and transition period brought many changes in how research was administered and conducted and one of the challenges was finding a balance between the needs of the country and the capacity of the research institutions located in it research in Latvia became research in a small country (The Danish Research Councils, 1992). The whole economy had to be restructured to match the needs of a small state – previously different parts of value-chain were scattered across the territory of the USSR and therefore access to some was now limited or non-existent.

The Soviet research funding system was not based on competition and competitive research funding was introduced during the transition period when the whole system had to be transformed into market economy. Other challenges included not only revising the number and size of institutes but also supporting their activities to allow further development of the top ones e.g. facilitate networking with foreign research institutes and experience exchange. Integrating R&D and industry was necessary as well, however distribution of funds had to be carefully planned to ensure that not only applied, but also fundamental research receives the necessary funding.

The changes in the research system started with restructuring its management. Latvian Academy of Sciences gradually lost its status of the management institution and became an autonomous community of scientists. Latvian Council of Science was established in 1991 to advice the government about plans and budget for research activities, coordination of research policy, distribution of grants, setting the criteria and procedures for competition (Egle et al., 2002; Arnold et al.,

2014). A law regulating research activities was adopted in 1992. Although consolidation of research institutions began in the early years of independence, the pace of it was slow and therefore the process continued until the latest round in 2015.

Changes in the structure of the research and innovation system continued throughout the first decade of transition, as international cooperation had to be established and developed and changes in funding mechanisms occurred. After the collapse of the SU it was important to develop a strategy on how to adjust the research system and evaluate which institutes are the most important and capable ones and continue supporting them. Because of a decrease in public research funding, only the most experienced research groups survived, however, due to limited resources, they were not able to attract young researchers. Furthermore, the comparatively low pay in the research institutes lead to rapid emigration of researchers or shift into other activities not connected to research. Eventually, the number of researchers employed by the research institutions declined by some 80 per cent, leading to overall ageing of the research staff. (Bobeva, 1997; Egle et al., 2002; Siliņš, 1994 in Rambaka, 2012; Siliņš, 1998).

After the first years of transition it was important to maintain the system as such and keep it functioning, while later another important issue arose - it was necessary to reshape research towards European and national priorities in the context of Latvia joining the EU. Shaping the priorities started in 1997 when the Cabinet of Ministers (further – Cabinet) set priority research fields with the aim of establishing National Research Centers within these fields and later in 1998 the National Concept of the Republic of Latvia on Research and Development was developed. In 2000 national research priorities for basic and applied research (for the period 2002-2005) were set by the Cabinet with the aim to steer the work of research groups in the direction of solving current industrial, economic etc. problems (Egle et al., 2002).

To sum up, during the first ten years after the changes in science and research system were initiated, a number of significant and necessary decisions were made, triggering processes that proved to be damaging. After Latvia inherited the massive research infrastructure that was out of balance with its needs and that it couldn't simply afford due to its size and budgetary constraints, consolidation of research activities was initiated.

As discussed above, the whole economy experienced massive structural changes that resulted in unemployment, emigration of skilled work-force etc. Therefore, research and innovation were far from being top priorities of governments at the time. As in other policy areas, the approach to research policy was liberal – no effective mechanisms for planning or strategic prioritization of research funding were in place. Research funding system was constructed in an open and inclusive way so that representatives of any research branch were eligible for funding. The fragmented research system eventually led to a situation where Latvia was unable focus on specific research areas due to limited availability of both human and financial resources to make significant impact and had as well lost the priority status that it had during the Soviet times.

3.2. Current R&D and innovation environment

Today, more than two decades after the transition started, and 14 years after EU accession, important changes have been implemented in the area of science and research, however, the outputs of the system are far from sufficient and policy makers still struggle to propose a suitable strategy that would address the needs of the country the goals set within EU level strategies within the scope of available financial resources and taking into account the country's small size. The current research system is plagued by critical lack of financial resources that has caused dependence on EU funding via research project grants and the situation is further exacerbated because of insufficient cooperation with the industrial sector and fragmentation in a number of areas, among other issues. Latvia's accession in the EU opened many opportunities while also triggering a number of negative side effects.

3.2.1. Funding for research and development

During the years before the recession expenditure on R&D increased significantly - in 2004 it was 0.42% of GDP and already 0.7% of GDP in 2006, as shown in Figure 1.
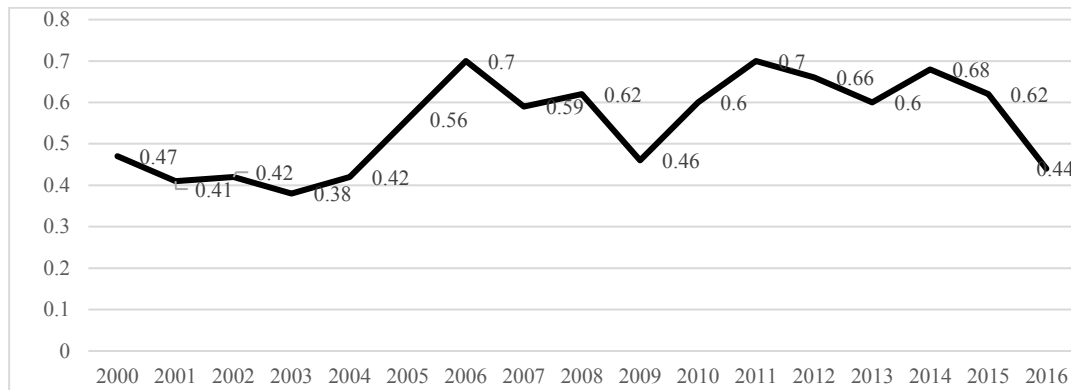
Source: author's construction based on Central Statistical Bureau of Latvia (CSB, 2018)

Fig. 1. **R&D expenditure in Latvia 2000 – 2016, % of GDP**

The impact of economic recession on R&D expenditure can be clearly seen starting from 2007 when it started to drop. In 2009 it reached the lowest point since 2004 with R&D expenditure being 0.46% of GDP before increasing and declining again during the next years. But the decline in absolute numbers was even more significant, given that Latvia lost close to 20 percent of GDP between 2009 and 2011. The drop in R&D expenditure shows the continuous low priority status of the sector and is in contrast with what a catching-up country should be doing (Veugelers, 2016).

The main elements of research funding system in Latvia are 'basic' funding and grants from the Latvian Council of Science and state research programmes. Before the accession to the EU financial instruments for candidate countries or potential candidate countries were available and later European funding in the form of ESIFs and the Framework Programme.

'Basic' research funding was introduced in 2005 and was initially distributed using a formula based on a number of output indicators - scientific publications, patents, PhD graduates produced. Important changes in how the funding is distributed were implemented after research system's review by Arnold et. al (2014) - research organisations (or units) that received an evaluation of 4 or 5 (out of 5) are eligible for additional 10 percent, while those with evaluation 1 or 2 do not receive any basic funding. More changes were introduced in 2015 and basic funding allocated to state founded institutions of higher education to partially fund their academic personnel doing research work (Cabinet of Ministers, 2013). According to the data of Ministry of Education and Science, the amount of basic funding has been stable during the last few years, however, the number of eligible public research organisations has decreased due to the aforementioned changes - 18m EUR in 2015 (distributed among 29 public research organisations), 20m EUR in 2016 (21), 23m EUR in 2017 (22) and 25m EUR n 2018 (22). These changes were important to further integrate teaching and research as well as promote research excellence (MoES, 2018).

Meanwhile, Funding from the Latvian Council of Science (about 4.3m EUR per year (Latvian Council of Science, 2015)) and funding for applied research from state research programmes is distributed via competitive calls in priority directions approved by the Cabinet according to the Law on Scientific Activity.

As the majority of research funding comes from short-term grants, the basic funding only covers the absolutely necessary minimum and is also allocated on a yearly basis, with very limited long term planning. Veugelers (2016, p. 5) argues that "a country's optimal innovation policy mix will depend on its level of innovation capacity and should dynamically evolve along with, and drive, its development path". However, the rather rigid framework of ESIFs, requiring

significant lead times for policy planning, and allowing a limited scope for adjustments of policy instruments during the period, constrains the possibilities for such dynamic evolution. Another constraint is related to limited availability of resources and, hence, the need of prioritisation. As Pavitt (1998, p. 567) argued, it is difficult for policy makers to make accurate long-term predictions of potential major technological breakthroughs, and for governments to have influence over the rate and direction of technical change substantial R&D funding needs to be allocated to certain priority domains. Although all countries face fiscal constraints, those are particularly hard in small states.

In 2005 when a new Law on Scientific Activity was approved, it envisaged an annual increase of financing for scientific activity of at least 0.15 per cent of GDP until the State-allocated financing for scientific activity reaches at least one per cent of GDP. However, the Cabinet has so far failed to act on this objective and R&D expenditure has again returned to a downward trend. Given the political insignificance of science and research, public R&D funding is often among the very first positions to suffer cuts when budget consolidation is necessary. An optimistic perspective is set in the National Development Plan (NDP) of Latvia for 2014–2020, which is the highest level medium-term planning document in Latvia. It envisions an increase in expenditure on R&D to 0.8% of GDP in 2014, 1.2% in 2017, 1.5% in 2020 and possibly 3% in 2030 (Cross-sectoral Coordination Centre, 2012). However, the latest statistics suggest that overall R&D spending still remains at a critically low level.

3.2.2. Management of research system

In addition to changes in distribution of funds, there were some institutional changes affecting research and innovation policy. The Law on Scientific Activity stipulates that the Cabinet sets the policy for science and technology, however, this area has had a low priority status, in contrast to other EU countries. Latvian Council of Science which had a more significant role in the early transition years, has now become more of a funding agency under the Ministry of Education and Science (MoES), the Academy of Sciences lost its position as a policy making body as MoES gained a more prominent role and is currently responsible for research policy and its coordination (Rambaka, 2012).

Similarly, as Council of Science serves the role of research funding agency to MoES, Investment and Development Agency of Latvia (LIDA) serves as one for Ministry of Economics when it comes to funding innovation. Neither Latvian Council of Science nor LIDA were established to fulfil these roles, but rather have gradually evolved to perform these functions (Arnold et al., 2014). Another State agency under supervision of MoES - the State Education Development Agency - was responsible for supervising the funds allocated to fundamental and applied research via ESIFs 2007 – 2013, while a number of smaller organisations have been managing Seed funding and other similar incentives. Having different government institutions that manage research and innovation have resulted in different paths for them in terms of setting priorities (*ibid.*). For example, a number of policy instruments were introduced to promote R&D cooperation and joint product development between research institutions and enterprises, most of those implemented by different agencies leading to coordination challenges.

The organisational fragmentation also causes the fragmentation of funding as the available funds are scattered across different agencies, different branches of science and divided into different programmes. The fragmentation of the research system can also be seen when looking at subordination of universities - while MoES is supervising the overall education policy and most of the state universities, Ministry of Agriculture is supervising Latvia University of Life Sciences and Technology, Ministry of Health is supervising Riga Stradins University.

Accession to the EU has substantially increased the amount of available funding, however it has also imposed constraints that have negative effect on research and innovation activities. One of such constraints (however, the same rules apply for state funding as well) are the procurement procedures prescribed by the Law on Public Procurement and related regulations, which are meant to ensure transparency and accountability, but lead to adverse outcomes (in terms of

quality of procured equipment as well as delays in research work) due to both unnecessary complexity as well as lack of administrative staff within research organisations (Interviews - 1, 2, 4). Rules applicable to publicly funded research projects create additional obstacles to commercialization. While the EU regulations as such do not prohibit commercialization of research or use of public research infrastructure for commercial purposes, lack of experience and legal expertise results in often incorrect and overly rigid interpretation (Interviews - 1, 2, 3, 4). Given that public research institutions often lack independent private funding that can be used to co-finance research projects, these projects are often co-funded with highest possible rate of public financing (mostly European Regional Development Fund (ERDF)). This, in turn, challenges commercialisation of research outputs. As a result, a significant number of research results are left unexploited.

Although implementing EU funded projects is difficult and time and resource consuming, because of the lack of other sources of funding, EU grants have tended to replace state funding - the majority of research funding tends to come from ESIFs or Framework programme projects (Fig. 2).
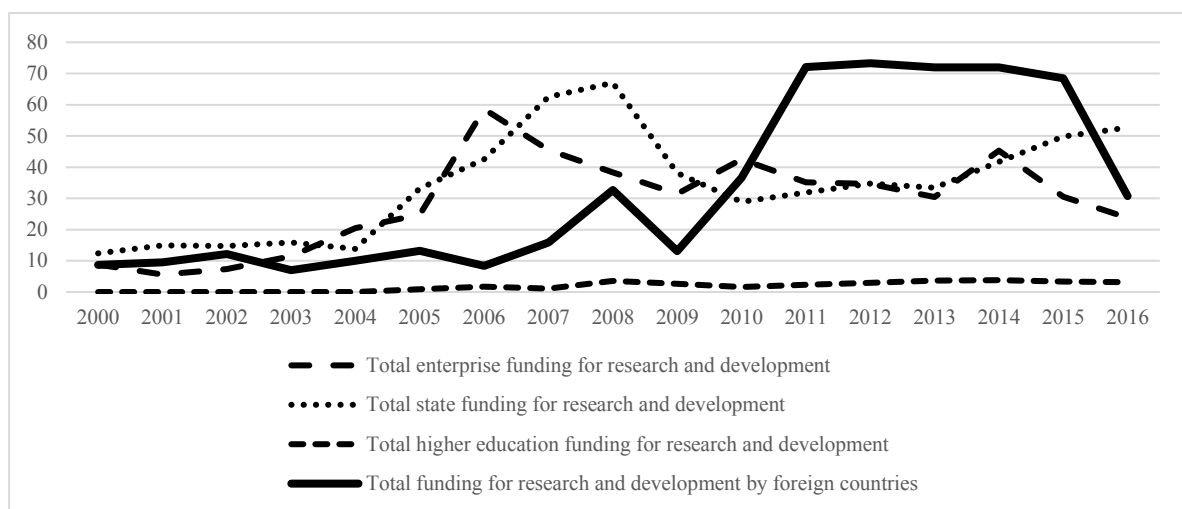
Source: author's construction based on Central Statistical Bureau of Latvia (CSB, 2018)

Fig. 2. **R&D Expenditure in Latvia by sector, 2000-2016, mln euro**

The transitional nature of ESIFs further complicates the current approach - the funding gap at the end and beginning of every new planning period means that many research institutions that were relying on them need to find other sources of funding in order to close the funding gap (i.e. research contracts with industry or national public funds). However, the absorptive capacity of the private sector in Latvia – with some notable exceptions – is still far from sufficient in order to utilize research outputs of local research institutes and therefore also to serve as a sustainable and reliable source of funding. Project-based and relatively short-term funding is not conducive to long-term strategic planning and establishment of long term strategic partnerships between research institutions and enterprises.

3.2.3. Science-industry linkages

Cooperation between research institutions and industry is insufficient and although business enterprises' R&D expenditure in the higher education sector has been improving, it is low in comparison to the proportion that is funded by the ESIFs. However, it differs greatly among institutions as those engaged in applied research tend to have more intensive collaboration.

A lot of attention is currently directed towards the number of patent applications from public research organisations, which remains relatively low. Universities in Latvia are often compared with the leading universities in Europe and U.S.A. in order to stress the weak performance. To manage intellectual property issues, an incentive for establishing technology transfer offices was launched by LIDA and such units were developed within universities. The incentive was important

to improve the administrative capacity regarding IPR management and explore commercialisation opportunities and, as Osenga (2006) points out, it is in fact necessary for a university to enter the patent arena. However, it was not possible to exploit the programme entirely due to insufficient experience, absorption capacity of the private sector as well as the uncertainty of the interpretation of regulations.

In recent years, the number of patent applications has been stimulated by various financial incentives, however, some negative side effects have emerged. While universities have recently been increasing their patenting ability, in many cases patenting has been done with no critical assessment of the commercial potential or the industry's absorptive capacity, which is far from what is needed to utilize the knowledge generated due to insufficient financial and human resources. Furthermore, patents were sometimes acquired in order to satisfy the requirements of funding instruments, without necessarily having commercial value. While statistics show that increased patenting has led to innovation, to reap the benefits of patenting activities, a strategy and skills to understand the market and technology are necessary (Osenga, 2006).

So far the economic development has been based on low labour costs and low tech industries indicating low innovation performance (MoES, 2013, Klāsons and Spuriņš, 2015). The private sector's capacity to absorb innovation has been affected in a negative way by the small numbers of PhD graduates and insufficient, outdated research infrastructure both in universities and in the private sector. This is, however, being tackled by diverting significant amount of ESIFs funding to this area. Still, companies also often lack skilled personnel that knows how to operate modern research equipment. However, despite the challenges, the number of companies that perform R&D activities has fluctuated, and between 2010 and 2014 it increased from 267 to 411. R&D personnel has also increased from 632 to 776, suggesting that the private sector is increasing R&D activities (CSB, 2016). The average number of R&D personnel in companies suggests that the size of the companies is very small, possibly technology intensive start-ups and in that case there is a potential for growth if the correct funding instruments are implemented – such companies are a critical resource of innovation (Audretsch et al., 2002). Besides, most of the companies operating in low and mid-tech industries (e.g. machinery) rely on the kind of innovation that Jensen et al (2007) termed DUI (doing, using, interacting), which often requires collaboration with clients and some engineering effort, but not traditional R&D.

A factor that has significantly influenced the overall development and coordination of research and innovation policy has been the decrease in capacity of the relevant institutions since the economic recession. Cuts in budget have resulted in cuts of personnel and increased turnover of human resources, which negatively affected the capacity of public institutions to design and implement effective policy instruments.

Three of the most relevant indicators identified by Pavitt (1998) as crucial for innovation and technical change, are still at relatively low levels in Latvia: 1) rate of investment in infrastructure; 2) level of education of human resources; 3) R&D expenditure 'and other change-generating activities like design, production engineering and systems engineering'. Although the policy mixes used to support innovation and research so far did target these specific factors (e.g. National Significance Research Centers for equipment, inter-sector competence raising programme and PhD scholarships for skilled human resources and funding for basic, applied research and experimental development to increase expenditure on research activities), the amount of funding was insufficient, policy instruments often uncoordinated and funding dispersed, thus not allowing for a focused support to a limited range of priority areas, and therefore having limited effect on innovation performance of industries so far. All factors mentioned above are amplified by a mismatch between the needs of dominant industries and capabilities of research institutes.

4. Recent developments and RIS3 as a new approach to innovation policy

Currently support for R&D and innovation in Latvia is discussed in a number of policy planning documents, such as the long term Sustainable Development Strategy of Latvia until 2030 (adopted in 2010) and the related National Development Plan 2014-2020 (highest level medium-term planning document) that sets various targets such as increase in private sector investments in R&D among others.

According to the Science, Technology Development and Innovation Guidelines 2014-2020 (MoES, 2013), to improve Latvia's innovation performance, a priority status has been given to improving conditions for technology transfer, enhancing science-industry linkages to increase commercialisation of R&D, supporting the expansion of innovative and technology-oriented companies as well as improving the availability of financing (e.g. seed and venture capital).

As the new EU programming period has recently started, new funding incentives have been introduced, however, a significant focus is still on increasing R&D expenditure. While it is important to increase R&D expenditure it is also very important to look in which areas or innovation capacity components the available R&D funds are invested (Veugelers, 2016) to have the most significant impact. A notable change, however, is that project evaluation based on milestone achievements (as in EC Framework programmes) has been introduced and provides more latitude on both the policy makers', funding administrators' and beneficiaries' part.

Most of funding incentives in Latvia are focused on collaborative R&D, especially on co-operation between R&D in universities and public research organizations and R&D in businesses similarly as in Germany, Finland, Sweden and Switzerland (Izsak et al., 2015). These incentives are key to improve overall science-industry collaboration but it is important to decrease bureaucratic procedures and allow flexibility for the private sector to be interested. An obstacle is that the areas of investment are too advanced for the majority of SMEs in Latvia and this surplus in the research outputs is left unexploited. Also, as Audretsch et al. (2002) point out, applied R&D is primarily funded by the private sector and is also performed there, while basic research is primarily funded by public funds and generally performed in universities and colleges. That is important for developing new instruments and deciding who is going to be the primary beneficiary and how the implementation is going to take place. In Latvia, similarly as in other countries catching-up to innovation leaders, majority of funding programmes are based on competitive-funding (Veugelers, 2016), however, it needs to be considered that this kind of approach is too bureaucratic for the private sector and slow for their fast growth.

While problems still persist, a number of important incentives were introduced to tackle the issues discussed in the previous section and a needed experimentation with funding and flexibility can be observed. To promote science-industry collaboration performance-based funding as part of the "basic" funding was allocated on the basis of how well an organisation has performed not only academically but also in terms of collaboration with the private sector. These additional funds are used to fund internal innovation support programmes that previously were lacking. This approach allows flexibility for research organisations to develop support programmes tailored to their needs. Especially organisations of higher education have been actively implementing various incentives that integrate students early on to engage in innovative activities.

Also, in 2016 LIDA established a joint National Technology Transfer Centre (funded by the ERDF) with the aim to centralize and improve science-industry technology transfer. The Centre implements a variety of activities ranging from provision of commercialization grants and innovation vouchers to technology scouts – staff that spends a significant time at research organisations to gather information about their competences, equipment and intellectual property portfolios, as well as consults companies on these topics. The incentive aims to not only increase the capacity of research organisations in exploiting R&D outputs but also stimulate creation of spin-offs, provide support for start-ups and also build the skills and knowledge among policy makers and implementers so that strong support can be provided to the

beneficiaries. To further increase market uptake of state-of-the-art technology, three acceleration programmes have been launched in 2017 and will provide support for start-ups, especially deep-tech ones.

The most recent development in research and innovation policy was the introduction of research and innovation strategies for smart specialisation (RIS3) as an overall framework for a more focused approach to research and innovation policy in the EU. RIS3 was a precondition for implementation of funding instruments supported by ESIFs in the domains of research and innovation policy. What makes this approach different from earlier approaches is that it aims at establishing certain priority areas for targeted investment. These priorities are to be identified through a process of entrepreneurial discovery – a bottom-up process involving stakeholders from both public and private sectors, which aims at utilising existing regional advantages to diversify the local economy into industries with higher value added (Landabaso, 2014; Coffano & Foray, 2014). RIS3, as a concept, addresses some of the deficiencies of innovation policy in Latvia, which has historically been horizontal and laissez faire, without any attempts to set priorities, justified by the standard government failure line of argument. However, the pace of its implementation (RIS3 had to be implemented in a matter of months due to the conditionalities attached) disregarded the existing policy environment and institutional setting, as well as lack of policy capacity in Latvia (see Karo, Kattel and Cepilovs, 2017). The concept of entrepreneurial discovery, which requires strong culture of dialogue and coordination between the public and private sector, as well as strong policy capacity within the public sector, did not find a fertile soil in Latvia, where there is only formal dialogue between the public and the private sector, while no effective mechanisms for coordination have been developed so far (see Estensoro and Larrea, 2016 on how to overcomes some of the challenges related to RIS3 and entrepreneurial discovery). RIS3 and entrepreneurial discovery, if those will be maintained and further developed as the overarching principles of innovation policy, can potentially strengthen the institutional arrangement essential for effective coordination between the stakeholders, and therefore for effective design and implementation of innovation policy.

Conclusions, proposals, recommendations

1. Generally, lack of public interest in science, research and innovation makes the issues of science less politically profitable. As a result, research funding is often among the first positions on the list of proposed budget cuts. Short term thinking of politicians and lack of public interest undermines sustainability of science in the long term. Possibly, without a number of success stories – the proverbial Latvian Nokia – the society just doesn't seem to acknowledge the connection between research, innovation and economic growth.

2. Funding programmes are strongly aimed at improving different indicators such as commercialisation of publicly funded research outputs measured by patents, R&D expenditure, cooperation and joint projects between companies and PROs, however, there is a certain disconnect between the indicators pursued and the effect of the policy instruments on innovativeness of enterprises as the ultimate goal. Hence, policy instruments often fail to address the persisting weaknesses of the Latvian innovation system.

3. Instead of focusing on the abstract notion of R&D spending, a stronger emphasis should be put on firm investments in R&D to stimulate innovation. While there are initiatives for development of new technology intensive companies like business incubators and acceleration programmes more funds should be aimed towards this kind of instruments instead of focusing on increasing R&D expenditure in research organizations and formal ways of technology transfer such as licensing. It is also important to raise awareness among companies that innovation and cooperation is necessary to improve their competitive advantage and develop funding programmes in a way that does not promote a subsidy-seeking attitude from companies (Pavitt, 1998).

4. Although the approach has shifted, currently available funding sources like ESIFs still allow little flexibility and experimentation. More instruments, e.g. performance-based funding additional to basic funding that allow creation of institutional funding schemes should be developed in order to provide a tailored approach based on specific needs of relevant organisations instead of applying a uniform approach.

5. The new approaches, such as RIS3, or challenge or mission-oriented R&D and innovation policies (see e.g. Mowery et al., 2010; Mazzucato, 2017), can potentially result in better outcomes in terms of effectiveness of policy instruments. However, those new approaches to innovation policy will require development of different capabilities in the public sector, in particular in regards to proactive steering and cross-sectoral coordination, which have so far not been developed (e.g. Karo and Kattel, 2018). Particularly acute this challenge will be in the smaller EU member-states, such as the Baltic countries, which alone lack the critical mass necessary for substantial impact.

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Annex 1

Interviews

No	Interviewee	Position	Organisation type	Date	Place
1	Anonymous	Administrative, Technology transfer	Public research organisation	10 Nov 2017	Riga
2	Anonymous	Research	Public research organisation	8 Nov 2017	Riga
3	Anonymous	Administrative, Technology transfer	Public research organisation	13 Dec 2017	Riga
4	Anonymous	Administrative, project management	Public research organisation	10 Nov 2017	Riga
5	Anonymous	Administrative, Technology transfer	Public research organisation	28 Dec 2017	Riga

THE PROPORTION OF GREEN PUBLIC PROCUREMENT IN LATVIA DURING THE PERIOD OF 2015-2017: FACTORS THAT INFLUENCE DEVELOPMENT OF GREEN PUBLIC PROCUREMENT

Inese Pelsa

Abstract. Green public procurement (GPP) is a mean of saving up finances for public institutions, especially taking into consideration not only procurement price but also total expenses of the contract lifecycle. On 17 February, 2015 the Cabinet of Ministers approved the Green Public Procurement Support Plan 2015-2017 which determined that in 2015 the amount of procurements planned from the state budget and to which green procurement requirements should be applied must be at least 15% of the financial means of the total state and municipal institution procurement volume, in 2016 it must be 20%, and in 2017 – 30%.

The aim of the paper is to explore the proportion of applied GPP of total procurement in Latvia in the period from 2015 to 2017, and to analyze how the aims of the proportion of the GPP are achieved. The paper includes data collected in a survey of municipalities of the Republic of Latvia aiming to identify the main factors that promote GPP development and the ones that are obstacles of implementing GPP. It is concluded that the main factors that influence development of GPP are state resolutions and development of legal acts, as well as provided European Union (EU) financing that includes GPP requirements.

In order to develop GPP successfully it is necessary to form a technical support group, or "a helpdesk", that would provide information about implementation of GPP to municipal procurement providers on a daily basis.

Theoretical, empirical, statistical research methods as well as other qualitative and quantitative research methods have been used in this research.

Introduction

In the last hundred years, the shift of an increasing number of countries from low to high levels of human development has brought an unprecedented increase in natural resource use (Reichel, 2016). Global economic output is projected to treble between 2010 and 2050 and resource use may double by 2030 (Reichel, 2016) while the most recent United Nations forecast suggests that world population reached 7.3 billion as of mid-2015 and the global population is likely to exceed 11 billion by the end of the 21st century (UN DESA, 2015). The planet is already struggling to meet humanity's demands for land, food and other natural resources, and to absorb its wastes (Reichel, 2016). While resource use in Europe has become more efficient in recent years, resulting in absolute reductions in emissions of greenhouse gases and pollutants, the continent's burden on global ecosystems remains considerable, particularly if pressures in the countries of origin of imported products and materials are taken fully into account (EEA, 2015).

Over the last decade growing attention has been paid world-wide to the new concept and development of Circular Economy (CE), with the aim to provide a better alternative to the dominant economic development model, so called "take, make and dispose" (Ness, 2008) economy. CE represents a fundamental alternative to the linear take-make consume-dispose economic model that currently predominates. Linear model is based on the assumption that natural resources are

available, abundant, easy to source and cheap to dispose of, but it is not sustainable, as the world is moving towards, and is in some cases exceeding, planetary boundaries (Steffen et al., 2015).

In December 2015 the European Commission (EC) published "Closing the loop — An EU Action Plan for the Circular Economy". It is a new strategy that aims to support the transition to CE in the EU (Reichel, 2016). The Action Plan has established a concrete and ambitious programme of action which will help to 'close the loop' of product lifecycles. In the Plan CE is defined as "where the value of products, materials and resources are maintained in the economy for as long as possible, and the generation of waste minimised, is an essential contribution to the EU's efforts to develop a sustainable, low carbon, resource efficient and competitive economy" (EC, 2015). It proposes actions to keep resources in the economy and retain the value of these resources, which will contribute towards delivery of a sustainable, low carbon, resource efficient and competitive economy (EU, 2015).

CE promotes a more appropriate and environmentally sound use of resources aimed at the implementation of a greener economy, characterized by a new business model and innovative employment opportunities (Stahel, 2014). GPP represents an increasing trend on sustainable lifestyles of green consumption, which is committed to addressing environmental problems by consumers' co-responsibility (Oosterhuis, Rubik, Scholl, 1996), and promoting sustainable consumption, eco-production and all together sustainable development by the enormous purchasing power (Gilg, Barr, Ford, 2005).

Topicality of the research: On 17 February, 2015 the Cabinet of Ministers approved the Green Public Procurement Support Plan 2015-2017 which determined that in 2015 the amount of procurements planned from the state budget and to which green procurement requirements should be applied must be at least 15% of the financial means of the total state and municipal institution procurement volume, in 2016 it must be 20%, and in 2017 – 30%. In the paper the proportion of the GPP is analyzed, as well as the proportion of GPP in projects of the EU Structural and investment funds[1] (ESI) and the proportion of GPP in Latvian regions are evaluated that have not been done before.

The object of the research: the proportion of green public procurement in Latvia from 2015 to 2017.

The aim of the paper is to explore the proportion of applied GPP of total procurement in Latvia in the period from 2015 to 2017, and to analyze how the aims of the proportion of the GPP are achieved.

In order to evaluate the proportion of GPP and the factors that affect the development of GPP, the author has proposed **two hypotheses**:

1. A great contribution into development of GPP is ensured by municipal procurement;
2. The development of GPP is significantly influenced by the use of GPP requirements in projects of the EU structural and investment funds.

The method of the research are: Analytical, graphic, statistical research methods as well as other qualitative and quantitative research methods have been used in this research. The survey data was analyzed within the research.

Information sources: For analyzing the proportion of GPP the data of the Procurement Monitoring Bureau (PMB) and the State Regional Development Agency (SRDA) about public procurement performed in Latvia from 2015 to 2017. The strategical documents on GPP of the EU and Latvia were analyzed. Data from PMB about public procurement in the period from 2015 to 2017 was analyzed. The survey about the municipalities of Latvia that participate in the implementation of GPP was performed.

The articles were analysed in the following journals: Journal of Public Procurement, Research Policy, R&D Management, Natural resources forum, Futures, etc.

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[1] Cohesion fund, European Regional Development Fun, European Social fund, European Agricultural fund fo rural development and European Maritime and Fisheries fund.

The paper is structured as follows: firstly, there is provided an overview of GPP, its legal framework and uptake in the EU. The following section shows the main findings emerging from the literature related to the proposition of the study. Subsequently, there are described the data set and the estimation methodology. After discussion and the results, in the final section of the paper conclusions, proposals and recommendations were included.

Conceptual framework

The green economy became a pillar of major European and international strategies: most notably in the Europe 2020 strategy adopted in 2010 by the EU to drive sustainable growth, and in the Rio+20 outcome. The incentive to use GPP is based on the fact that in many countries public sector spending amounts to a significant part of the economy, and that this purchasing power can be used to influence production and consumption to achieve desired reductions on environmental impact (Lundberg, Marklund, Strömbäck …, 2015). When public authorities go green, they make an invaluable contribution to environmental protection and sustainable development, setting a trend that often convinces other to follow suit (Day, 2005). The practice amounts to significant expenditure, excluding utilities and defence, across Europe, comprising 13% of European GDP in 2015 (EC, 2016). In the last decade, the use of environmental criteria in public tenders has been increasing defusing (Testa, 2016). The implementation of GPP is covering new sector in recent ywars, identifying new practices (Cheng, Apolloni, D'Amato …, 2018).

GPP is defined in the EC's Communication as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared that would otherwise be procured" (EC (2008) 400, p.4). The basic concept of GPP relies on integrating environmental criteria for public products and services procurements (Evans et al. 2010). Testa et al. (2011) found that effectiveness of GPP is strongly related to the investments in technological innovations and reputation. In addition to assessing environmental policy instruments in terms of objective effectiveness, the instruments are also assessed based on cost- effectiveness (Cheng, Apolloni, D'Amato …, 2018). Public procurement can therefore play a key role in the CE, and the EC will encourage this role through its actions on GPP (EC, 2015). The EC will take to facilitate the integration of CE principles in GPP criteria (EC, 2017). The most recent literature (Ahsan and Rahman, 2017) identifies healthcare as one of the new most important sectors for its GPP implementation. Neto and Gama Caldas (2017) demonstrate how to include a green criteria in the provision of food productions and catering services. The diffusion of green technologies is evidenced by Aldenius and Khan (2017), focusing on way which Swedish transport authorities promote the introduction on renewable fuels in their public bus services. Moreover, among the EU countries, public procurement is implemented as the way to achieve both stimulating economic growth and solving social problems simultaneously (OECD, 2015; McCrudden, 2004).

On 26 February, 2014 the Council of the European Union and the European Parliament adopted two directives (Directive 2014/24/EU and Directive 2014/25/EU) aimed at simplifying public procurement procedures and making them more flexible. The requirements of the directives are defined that the provided options are balanced with the necessity to follow the general principles as stated in Paragraph 3 of the Community Foundation Agreement about openness, equal approach, proportionality of the requirements and free flow of goods and services (competition) (EU, 2012). The environmental benefits spurred on by the public sector have been quantitatively assessed on energy use and CO_2 emissions reduction in the supply chains of public entities (Cheng, Apolloni, D'Amato …, 2018).

Background of GPP in Latvia

The background for this study was a change in the Latvian normative – in 2015 Green Procurement support plan for 2015-2017 was approved and in 2017 Regulations No 353 "Requirements and Application of the Green Public Procurement" was approved. The objective was to reveal the proportion of GPP in Latvia from 2015 to 2017. Local

government procurement in Europe generally represents approximately half of all governmental spending (Clement et al. 2003). In practice, GPP requires the use of environmental criteria, which include eco-labels and standards for energy efficiency, emissions intensity, or noise thresholds, and environmental management system certification. Development and application of these criteria makes standardization an area of critical importance to the success of GPP (Rainville, 2017).

In 2008 a work group coordinated by the Ministry of Environment developed an "Informative Notice about Recommendations on Promotion of Green Public Procurement in Municipal and State Institutions and Recommendations on Promoting Environment-friendly Constructions". In 2010, "green" catalogues were included into Electronic Procurement System (EPS) under supervision of SRDA. The topic of implementing GPP in Latvia was actualized in 2014 in the National Plan which defined that one of the Government's tasks is to develop and implement "green procurement" principle for state and municipal procurement enhancing increase of proportion of healthy food and local materials (including wood) (CoM, 2015). In 2014, the Cabinet's Regulations No 673 were accepted about the applying of environment criteria for food and catering services procurement. The Regulations had a great influence on increasing proportion of GPP as it enhanced applying of environmental requirements. The next step of GPP development was when the Ministry of Environmental Protection and Regional Development (MoEPRD) in cooperation with stakeholders elaborated the Green Procurement support plan for 2015-2017. The plan was approved by the Cabinet of Ministers in February, 2015 where the following aims were determined: GPP in 2015 must reach 15%, in 2016 – 20%, and in 2017 – 30% from the amount of public procurement performed (CoM, 2015). Although the terms used by countries are different, the central idea existing emphasized in definitions is that of a demand- oriented policy tool to achieve desirable environmental outputs and to promote green services and products by using public procurement (Cheng, Apolloni, D'Amato …, 2018).

Directive 2014/24/ES and Directive 2014/25/ES were implemented into Latvian legislation on 15 December, 2016 by accepting Public Procurement Law (in force since 15 April, 2017) and on 2 February, 2017 by accepting Public Services Provider Procurement Law (in force since 1 April, 2017). The green criteria can be mandatory or recommended. Mandatory requirements on the application of environmental standards need future assessment (Wong et al., 2016). If procurers, as suggested by the EU, adopt the most economically advantageous award tender selection, the appropriate awarding method is instead crucial to ensure the effectiveness of GPP (Cheng, Apolloni, D'Amato …, 2018). On 20 June, 2017 the Cabinet of Ministers approved the Regulations No 353, which determine the process of application of GPP, its implementation, supervision, evaluation, as well as control and mandatory groups of goods and services which GPP is applied to. According to the Regulations No 353, seven groups of goods and services to which GPP applied obligatory are: office paper, printing devices, computer hardware and infrastructure of information and communication technologies, food and catering services, cleaning products and services, internal lighting, street lighting and traffic lights (CoM, 2017).

MoEPRD develops an informative notice annually before 1 May about the implementation of the Green Procurement Enhancement Plan 2015-2017. The informative notice for 2016 indicates that GPP proportion in 2015 was 19% (355 million EUR) and in 2016 – 14.4% (364 million EUR) out of total public procurement contract price. As one of the possible reasons for decrease of GPP proportion implementation of the EU funds is indicated (MoEPRD, 2017).

After the administrative territorial reform of local municipalities that ended with the municipal elections on 6 June , 2009 in Latvia there are one-level municipalities – 110 counties and 9 republic cities (Riga, Jurmala, Liepaja, Ventspils, Daugavpils, Rezekne, Jekabpils, Valmiera and Jelgava). Population ranging from about 1300 inhabitants to more than 500 000. Given large differences in size it is reasonable to assume that at least some of smaller municipalities lack sufficient resources and expertise on environmental topics as well as on purchasing (legislation). The territory of Latvia is divided into five regions that consist of counties and cities. Latvia has the following regions: Riga region, Kurzeme

region, Vidzeme region, Zemgale region and Latgale region. In the evaluation of the proportion of GPP the following institutions were included: county municipalities, city municipalities, education institutions.

Methodology

The scope of the systematic review is to provide a highly structured process of reviewing the existing evidence, where all of main decisions are transparent and the mechanism itself is replicable (Rousseau et al., 2008). The data collection was done in two stages. First, the proportion of GPP the data arrays of the PMB and SRDA about public procurement performed in Latvia from 2015 to 2017 was analyzed. In order to evaluate the proportion of GPP in public procurement the author summarized information about public procurement that was performed according to the Public Procurement Law (PPL), the Public Services Provider Procurement Law (PSPPL) and procurement that performed using the Electronic procurement system (EPS). According to the requirements of PPL and PSPPL, purchases made in compliance with the requirements of these laws, annually submitted by 1 April, the statistical reports to the PMB indicating procurements that have been subject to environmental requirements. However, the PMB collects only those purchases of state and municipalities that require a procurement procedure.

Taking into consideration that according to PPL requirements the procurement is performed by municipal, state institutions as well as merchants if according to legislation requirements PPL must be applied. According to the Cabinet's Regulations No 353, this is applied to state and municipal institutions, and to merchants these requirements are not applied as the Cabinet's Regulations No 353 are issued based on PPL and PSPPL (according to Paragraph 19 of PPL and Paragraph 28 of PSPPL). In this part, the total proportion of GPP performed by applying PPL is evaluated, as well as that proportion of GPP is evaluated to which requirements of the Cabinet's Regulations No 353 apply, respectively, volume of procurement performed by municipal and state institutions. Holding consultations with PMB it was found out that the data does not correspond to MoEPRD as in the informative notice by MoEPRD about GPP the data about procurement additional subject CPV codes is included with CPV[2] codes. In cases when a definite CPV code is indicated as additional subject CPV the total contract amount is taken into consideration (as in the publication the contract amount is not indicated for each CPV code separately). This means that contract amount can be duplicated. In order to show the proportion of GPP more precisely, the author does not include procurement with additional subject CPV codes in her research in calculation of the proportion of GPP. The main motivation for those data analyse was to get an understanding about GPP proportion on PPL, PSPPL and EPS municipalities and counties in Latvia and GPP proportion on ESI funds projects. The proportion of GPP in the regions of Latvia has not been evaluated yet, and the proportion of GPP in the ESI funds has not been determined.

Secondly, there was constructed a questionnaire, which was sent to all municipalities in Latvia – in total 119. The survey was web based. All municipalities received an email from the author explaining the background of the study as well as collaboration with the author of this paper. The web page was active in the period from 28 March to 13 April, 2018. During this period 55 responses were received (a response rate on 46.2%). The questionnaire included questions about municipalities' practice and experiences on GPP, what kind of goods and services groups have been purchased, and what kind of obstacles have occurred in the procurement process and whether GPP is included in purchases of ESI fund projects (total 7 questions). The results of the survey showed what kind of needs should be improved in the development of GPP. The questionnaire included also some general questions like about the size of the municipality and the number of procurement specialists in the municipality.

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[2]CPV (Common Procurement Vocabulary) is a main classification defined by Commision Regulation (EC) No 213/2008 (November 28th, 2007) which amends Regulation of the European Parliament and Council (EC) No 2195/2002 about common public procurement vocabulary (CPV) and Directive of the European Parliament and Council 2004/17/EC and Directive 2004/18/EC about public procurement procedures related to review of CPV. CPV classification is applied to public procurement in order to standardize directions which are used by the contract institutions when indicating the subject of the procurement.

Research results and discussion

1.   GPP proportion in public procurement in Latvia in 2015-2017

During the period from 2015 to 2017 there were carried out 42 669 purchases (15 162 in 2015; 15 215 in 2016; 12 292 in 2017) in the framework of PPL, of which 2593 purchases (841 in 2015; 885 in 2016; 867 in 2017) were GPP. The proportion of GPP in the number of purchases made during PPL from 2015 to 2017 is only 6.08%. From 2015 to 2017 there were 368 purchases (136 in 2015; 115 in 2016; 117 in 2017) which were made during PSPPL, of which 26 purchases (9 in 2015; 9 in 2016; 8 in 2017) were GPP. The proportion of GPP in the number of purchases made during PSPPL from 2015 to 2017 is only 7.07%.
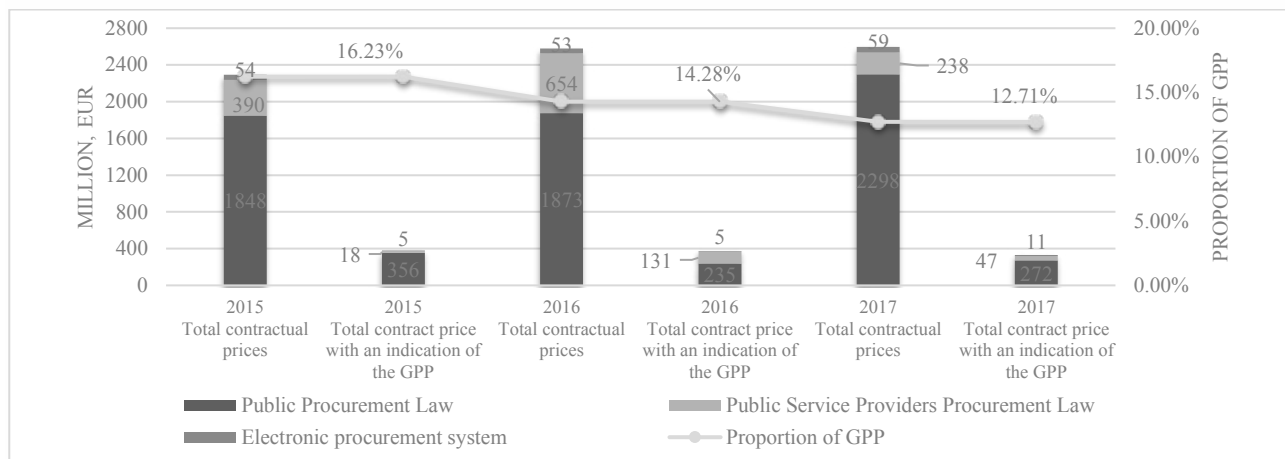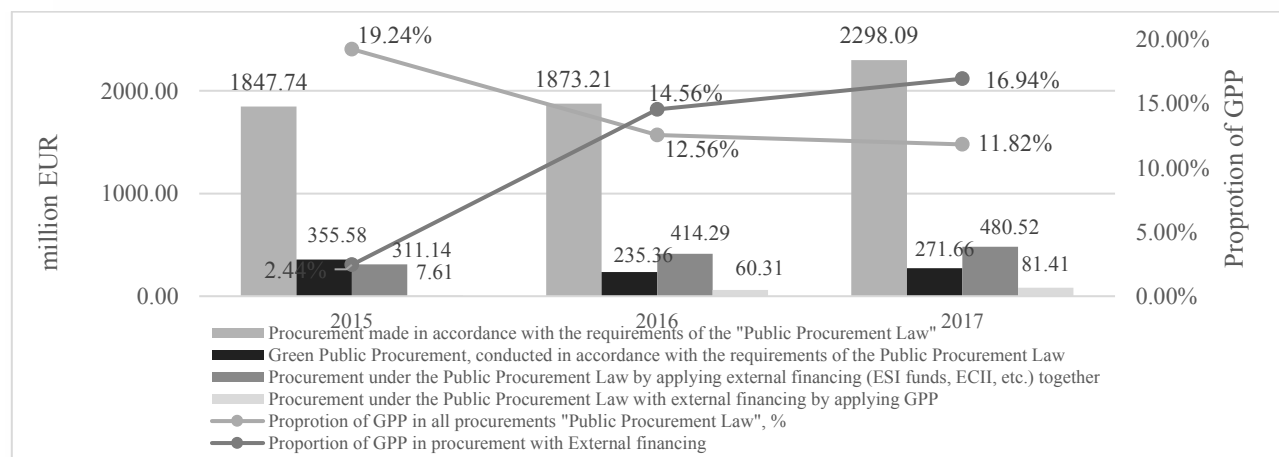

Source: author's construction based on data from PMB and SRDA

Fig.1 **Proportion of GPP in procurement performed by PPL, PSPPL and EPS in 2015-2017**

From 2015 to 2017 the total amount of public procurement (PPL, PSPPL, EPS) has increased from 2310 million EUR in 2015 up to 2595 million EUR in 2017. Despite the fact that total amount of procurement in financial expression increased during this period, total GPP amount in financial expression decreased from 375 million EUR in 2015 to 330 million EUR in 2017. Total GPP proportion from 2015 to 2017 had a downside - 16.23% in 2015, 14.28% in 2016 and the lowest point – 12.71% in 2017. GPP proportion in procurement made within EPS in 2015 was 9%, in 2016 - 8%, but in 2017 - 19.10%. The base growth rate of the GPP, which was made in 2016 in the PPL, PSPPL and EPS (-2.11%) and in 2017 (-49.00%), the growth rate of the chain in 2017 is (-41.00%).

### a.   Proportion of GPP in PPL Procurement and Application of GPP to EU Fund Procurement

Source: author's construction based on CPB data.

Fig. 2. **Overview of GPP and GPP in which external financing was used according to PPL requirements**

While evaluating procurement that performed according to the Public Procurement Law and taking into consideration procurement of food delivery to which exception of Part 15 of Paragraph 8.2 of PPL is applied, the proportion of GPP in 2015 was 19.24%, in 2016 - 12.56% and in 2017 - 11.82%. The aim of GPP enhancement plan 2015-2017 states that green procurement and GPP requirements are applied and integrated into implementation process of EU structural funds and Cohesion fund" (CoM, 2015). By fulfilling EU financed projects one of the horizontal principles is "long-term development" – one of the programme implementation supervision criteria is GPP that is, respectively, included into several specific selection criteria of supporting aims (Central Finance and Contracting…, w.y.). In the data analysis, beside the EU funds also other external financing is taken into consideration, for example, FEAD, ES, Twinning, and IAEQ. Analyzing the structure of external finances to which GPP was applied one must conclude that 80% of them has been EU fund financing. The base growth rate of GPP, which was made in 2016 in PPL (-33.98%) and in 2017 (-23.60%), the growth rate of the chain in 2017 was 15.74%. A positive tendency is the extent to which the proportion of GPP within the ESI funds is prevented. Accordingly, the base growth rate in 2016 was 692.51% and in 2017 (- 969.78%), while the growth rate of the chain in 2017 was 34.99%.

b. GPP proportion in PSPPL procurement and GPP implementation to EU fund procurement
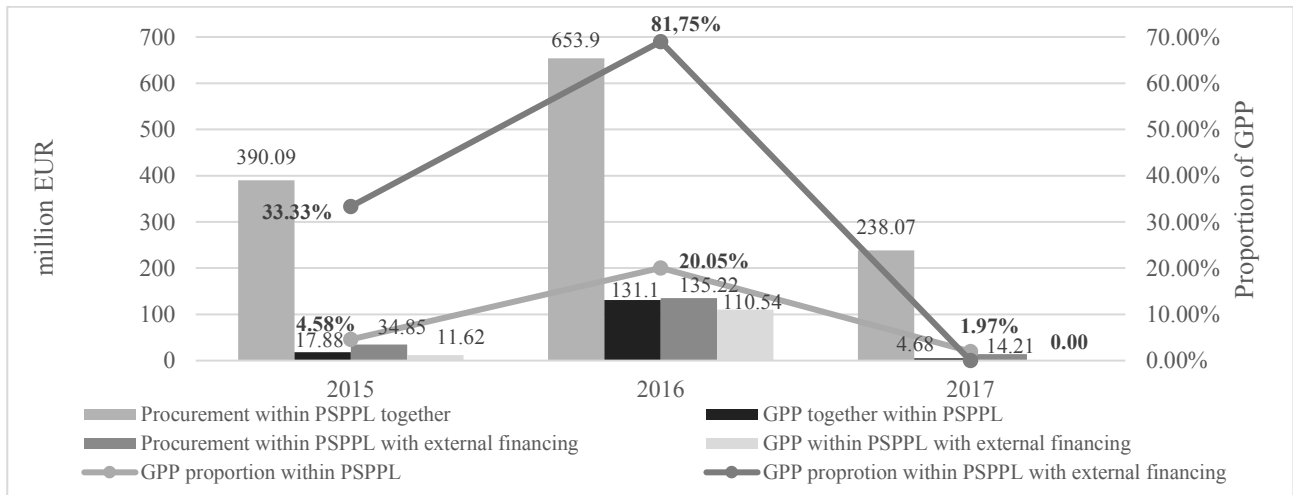
Source: author's construction based on PMB data.

Fig. 3. **Review of GPP and GPP with external financing according to PSPPL, 2015-2017**

In procurement performed according to PSPPL the proportion of GPP in 2015-2017 is very various – 4.58% in 2015, increasing to 20.05% in 2016 and dramatically decreasing to 1.97% in 2017. The base growth rate of GPP, which was made in 2016 in PSPPL 656.25% and in 2017 (-73.83%), the growth rate of the chain in 2017 was (-96.54%). A positive tendency is the extent to which the proportion of GPP within the ESI funds is prevented. Accordingly, the base growth rate in 2016 was 851.29% and in 2017 it was (-100%), the growth rate of the chain in 2017 was (-100%).

In 2015 there were 9 GPPs performed within the terms of PSPPL of which 7 were vehicle purchase and rent and 2 GPPs were within the terms of fishery projects. In 2015 there were only 2 GPPs within the terms of EU fund projects, both water supply projects. Amazingly, in 2016 GPP proportion was 20.05% of total procurement within the terms of PSPPL. There were total of 9 purchases applying GPP of which 5 were vehicle purchases, 1 computer purchase and 3 purchases for electric supply line construction. GPP which was performed within EU fund projects was 84.31% of total GPP. So it can be concluded that EU fund procurement to which GPP requirements are applied has great impact on development of total GPP. By analyzing in detail procurement in 2016, it can be concluded that only 1 procurement was performed within EU fund projects to which environment requirements were applied, it was procurement by "Connecting

Europe Facility" for reconstruction of 110 kV electric supply line Kurzemes line 110 million EUR worth. In 2017 the proportion of GPP to total procurement within the terms of PSPPL decreased down to 1.97% and there was no procurement with the EU fund projects to which environment requirements had been applied. In 2017, there were 8 purchases to which GPP requirements had been applied –of which 7 were vehicle purchases. In 2017 the amount of procurement of the EU decreased significantly from 135 million EUR in 2016 to 14.2 million EUR in 2017.

2. The Distribution of the Proportion of GPP among Regions of Latvia

Scientific literature describes some success criteria for implementation of GPP. Clement et al. (2003) find that the development and implementation of GPP to a large depends on initiatives from enthusiasts. D'Amato (2007) identifies collaboration between the environmental and purchasing units in the municipalities as an important factor. An organisation also needs certain minimum level of knowledge on both purchasing and environmental issues (Michelsen, Boer, 2009). When environmental issues are taken in procurement, the most common way to be clear in mandating specific technical requirements (e.g. Melissen and Reinders, 2012) or eco – label criteria for the product or service. Local governments more than national authorities have a possibility to have an explorative behaviour and to be early movers, also regarding procurement (Clement et al., 2003). On the other side, municipalities are not able to take the full benefit from all possibilities in GPP. Most of the municipalities are, on their own, are too small to trigger innovation and development of new products (Brander et al., 2003). In the implementation of GPP, supplier selection is a core procurement activity to evaluate whether bidders have capacity and ablity to perform the environmental requirements in the contract. Empirical studies show that the two classical criteria of the price and quality are the most frequent award criteria (Cheng, Apolloni, D'Amato …, 2018).

Environmental criteria seems to have little influence on final decisions in a selection of a supplier (Igarashi et al., 2015). The authorities' lack of knowledge and competence to add environmental consideration into the selection procedures (Cheng, Apolloni, D'Amato …, 2018). The effectiveness of GPP as an environmental policy tool to reduce environmental impact and achieve environmental objectives is challenged by Lundberg et al. (2015a).

Procurement in Latvia performed by municipal institutions to total PPL procurement in 2017 was 27.19%, which is 623.7 million EUR. It is significant that out of the total GPP amount performed within the terms of PPL the GPP performed by municipal institutions is 53.2%, which is 141.8 million EUR that is a significant impact of the development of GPP. Taking into consideration this great proportion in GPP the procurement performed by municipal institutions and its distribution in the regions of Latvia will be further analyzed.

Table 1

Municipal GPP performed with PLL and its proportion

	Total procurement, EUR	Total performed GPP, EUR	GPP proportion to Total procurement	External financing, EUR	GPP within projects of external financing, total, EUR	GPP / EU funds	GPP funds/ Total GPP
Riga region	273633275	77349726	28.27%	36208380	7905828	21.83%	77.24%
Vidzemes region	56988546	3804272	6.68%	8531987	231863	2.72%	6.09%
Kurzemes region	92235817	14215444	15.41%	15681010	3400934	21.69%	23.92%
Zemgales region	86591241	7803914	9.01%	16852369	505928	3.00%	6.48%
Latgales region	114244665	38661756	33.84%	37703167	25864483	68.60%	66.90%
TOTAL Municipal procurement	623693544	141835112	**22.74%**	114976913	37909036	32.97%	

Source: author's calculations based on CPB data

As it is seen in the Table 1, in 2017 municipal procurement to total procurement performed within the terms of PPL was 27.14% of the financial expression, but the amount of municipal GPP was 52.2% to total GPP performed within PPL.

If one should analyze the information for regions, total proportion of GPP of total municipal procurement performed within PPL was 22.74%. Total municipal GPP performed within the EU funds was 46.57% of total GPP proportion of the EU fund procurement within PPL in financial expression. The greatest proportion of GPP was in Latgale region – 33.84% out of total procurement within the terms of PPL in the region. GPP requirements are applied to 68.60% of the total EU fund project procurement in Latgale region which is several times greater than in other regions of Latvia. If one should analyze the proportion of the EU fund GPP to total proportion of GPP in Latgale region, the parameter is also the second highest – 66.90%. Latgale region is a good example for applying GPP requirements to the EU fund projects can significantly increase the total proportion of GPP in the region as EU fund projects are financially capacious.

The second GPP implementation region is Riga region with proportion of GPP 28.27%. GPP in the EU fund procurement is 21.83% to total amount of the EU fund procurement in financial expression. GPP in the EU fund procurement to total GPP in Riga region is 77.24% which proves how significant is the implementation of GPP in the EU fund projects. The proportion of GPP in Kurzeme region is 15.41% to total procurement. The proportion of GPP within the EU funds in Kurzeme region is 21.69%. A great surprise is GPP proportion in Zemgale region which is 9.01% and in Vidzeme region where GPP proportion is 6.68% to total procurement in financial expression. As it is proven with the summarized information in Table 1 the amount of GPP in Vidzeme region and Zemgale region is very low in the EU fund project procurement, respectively, 2.72% and 3.00%, which influences GPP in the EU fund procurement to total GPP – 6.09% and 6.48%, respectively.

3. The factors that influence development of GPP

The role of knowledge and information is seen as an important factor affecting the outcome of GPP (Testa et al., 2016). In order to evaluate the factors that influence development of GPP the survey was conducted in municipalities of Latvia. 55 municipalities were surveyed in total, and the following answers about the factors that influence GPP were received. 26% of the respondents indicated that GPP is performed within food and catering services and 14% - office paper, which can explained by the fact that GPP in food product field is regulated by the Cabinet's Regulations No 673. The third GPP implementation field with 13% is printing devices and computer hardware. Answering the question of why the GPP was chosen, 42% of the answers indicated that the procurement must be performed by applying the Cabinet's Regulations No 673, No 353 and other legal acts, being on the second place 21% buy more environmentally friendly products or services.

It is significant, that 40% of the respondents answered that GPP requirements are applied in the EU fund projects and 55% indicated as the main factor why GPP is applied to the EU fund projects that one can get more points resulting in a higher position in rating. The answer to the question about the factors that may have discouraged to apply GPP to the EU fund projects in 30% was that in the case of not-fulfilling GPP financial corrections would be applied, and 28% indicated that there was not enough knowledge about GPP implementation. In the question about the obstacles within the GPP procedure 34% noted a limited budget to fulfil the procurement which was the reason not to choose GPP. The way in which environmental criteria are embedded into the GPP process strongly depends on the features of adopted standards (e.g. Parikka- Alhola, 2008). 26% lacked support instruments in applying GPP (lifecycle cost methodology and ready-to-use procurement documentation samples, consultation spot (expert consults) for implementation of GPP) and 21% of respondents indicated insufficient provision of procurement specialists. In the question about what kind of amendments should be made in the process of the implementation of GPP, 33% indicated that the support instruments of GPP must be improved – lifecycle cost methodology and ready-to-use procurement documentation samples. 23% of the respondents indicated that a consult spot (helpdesk) must be created ensuring consults on implementation of GPP and 23% replied

that need practical workshops with experts from various fields on green procurement. One of the respondent mentioned that should increase the number of procurement specialists in the municipality.

Conclusions, proposals, recommendations

1. A serious obstacle to GPP promotion is the lack of a uniform and a well-founded monitoring and reporting system (monitoring). In the EPS system, products are considered environmentally friendly if purchased from green directories. The POIs list the purchases for which the customer has indicated (ticked) the documentation that the environmental criteria have been used as environmentally friendly. In neither case nor in the other, it is not analyzed whether the environmental conditions used were sufficient to result in the actual purchase of the environmentally friendly product from the proposed ones.

2. Taking into consideration the aim set by Green procurement enhancement plan 2015-2017, GPP proportion was achieved in 2015, but since 2016 the proportion of GPP is lower by 5.72% in 2016 and by 17.39% out of planned. The proportion of GPP was evaluated separately within PPL, PSPPL and EPS.

3. Municipal procurement to total PPL procurement in 2017 was 27.14%, which is 623.7 million EUR. Total GPP proportion in regions to total municipal procurement within PLL is 22.74%. It is significant that of total GPP volume within PPL terms GPP performed by municipalities is 53.2%, which is 141.8 million EUR that is a significant impact on the development of GPP.

4. Latgale region is leading among others with GPP proportion of 33.84% to total procurement in the region within PPL. To 68.60% of total EU fund projects procurement performed in Latgale region GPP requirements are applied which is much higher indicator than in other regions of Latvia. Latgale region is a good example how to apply the GPP requirements in the EU fund projects can significantly increase total GPP proportion in the region as the EU fund projects are financially capacious.

5. The least GPP proportion is in Zemgale region 9.01% and Vidzeme region 6.68% to total procurement volume in financial expression. In Zemgale region and Vidzeme region the GPP proportion in the EU fund project procurement is very low, respectively, 2.72% and 3.00%, which influence GPP in the EU fund procurement to total GPP – 6.09% and 6.48%, respectively.

6. The author confirms the proposed hypotheses - a great contribution in the development of GPP is ensured by municipal procurement, and the development of GPP is significantly influenced by the use of the requirements of GPP in the European structural and investment funds projects.

7. The answer to the question about the factors that may have discouraged to apply GPP in the EU fund projects in 30% was that in the case of not-fulfilling GPP financial corrections would be applied, and 28% indicated that there was not enough knowledge about the implementation of GPP. In the question about the obstacles within the GPP procedure, 34% noted a limited budget to fulfil the procurement which was the reason not to choose GPP. 26% lacked support instruments in applying GPP (lifecycle cost methodology and ready-to-use procurement documentation samples, consultation spot (expert consults) for the implementation of GPP) and 21% of respondents indicated insufficient provision of procurement specialists.

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BLOCKCHAIN TECHNOLOGY – A BANK LENDING (R)EVOLUTION: THE CASE OF SYNDICATED LOANS

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Abstract. Blockchain is one of the most widely discussed innovative technologies that is expected to lead to revolutionary changes in the financial sector. At the heart of most discussions is the question of whether blockchain is a threat to the existence of traditional banking or whether it will transform the latter, causing a strong impetus in its evolution? Syndicated loans are one of the areas of traditional banking in which the upcoming application of blockchain based on Distributed Ledger Technology (DLT) is undoubted. This argument is supported by the steadily growing number of leading banks in syndicated lending which are actively experimenting pilot DLT platforms for a syndicated lending community. The results of the comparative analysis of the currently used technologies and blockchain based on DLT and smart contracts show that their implementation will lead to significant positive changes in database security, transaction and settlement speed, service automation, acceleration of the credit process and ultimately to a significant reduction in operating costs. Some objective DLT restrictions are also correctly analyzed. In conclusion, we can summarize that, at this stage, the expectations that blockchain technology shall disrupt the traditional bank lending seem to be exaggerated. It is argued that blockchain should be viewed not as a threat, but as a real prerequisite for banking in general, and syndicated lending in particular, to accelerate to a new evolutionary stage of their development.

Key words: *blockchain, distributed ledger, banking, syndicated loans, smart contract*

JEL code: G21, G15, D80

Introduction

Blockchain is a technology that was initially meant for the Bitcoin cryptocurrency. The possibilities for the application of this technology, however, far exceed the realm of cryptocurrencies. More and more banks, in consortiums with high-tech companies make significant investments in developing innovative service platforms, based on Blockchain technology (BT). Cumulative investment in blockchain startups surpassed $1.5 billion in 2017, while forecasts claim blockchain's business value-add will grow to $176 billion by 2025. (Growth of Blockchain Technology…, 2018). Experts expect BT to reform the financial services industry and to revolutionize banking, much like the Internet and social networks have changed communications over the last two decades (Perez Y., 2015; Swan M., 2015). These predictions are justified by the enhanced effectiveness, transparency and security of BT. The essence of BT is described as a decentralized distributed ledger[1], which contains details of every single transaction that was ever carried out (Petrasic K. & Bomfreund M., 2016). The effectiveness of blockchain as a global distributed ledger is unquestionable, given that the technology "facilitates the movement of assets across the world in seconds, with only a minimal transaction fee" (Blockchain: Powering the Internet of Value, 2016). Apart from the fact that it enables peer-to-peer transfer of value, blockchain eliminates the need for third party intermediaries, reconciliations or central authorities (Woods P. et al., 2017). As any new and fairly unfamiliar technology, blockchain evokes "mixed feelings", and occasionally even diametrically opposed opinions in the banking community. Some bankers believe that the technology could facilitate a wave of transformations and innovations

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[1] Blockchain is a technology whose functionality is described by the term "distributed ledger" (DL or DLT). As both terms are used in the specialized literature, the following study will treat them as equal.

beneficial to both financial institutions themselves and their clients (Collomb A. & Sok K., 2016). Others are more skeptical, while still others perceive the new technology as a hazard for banking. Thus, for instance, according to UBS Wealth Management blockchain could add as much as $400 billion of annual global economic value by 2027. Unlike them, bankers from the German bank Berenberg are considerably more cautious in their judgment. In their opinion blockchain was an "overhyped technology" that faced important challenges, pointing out that there had so far been very few success stories (Kelly J., 2017).

The analysis in this paper focuses on the specificities of distributed ledger technology (DLT) and the possibilities for its application in the area of syndicated lending. The main objective of this research is, on the basis of an analysis of key components of BT, to test the effect of its application by establishing the direction and evaluating the intensity of the impact on the development of syndicated loans. The key questions to which the analysis should provide answers are as follows: What changes are expected to result from the application of the new technology in terms of certain procedural phases of syndicated loans, such as formation of the bank syndicate, pricing, bookrunning, trading and servicing, evaluated in terms of the following components: security, validity, traceability, immutability, and effectiveness? The research methodology is based on literature review and secondary data which present the foundation for a comparative analysis between the present status quo and the future results expected from the implementation of BT. The results of the analysis outline the nature of the anticipated changes, summarize the extent of their impact and serve as a basis for drawing up conclusions and recommendations regarding the activities of the major participants and the future development of the syndicated loans market.

1. Syndicated loans as a field of application of blockchain technology

Over the last two decades syndicated loans have turned into one of the most dynamically developing segments of the global debt market. Annual volume of syndicated loans for the last five years has been stable at over 4 trillion USD reaching 4.6 trillion USD in 2017 (Thomson Reuters, 2017a). Globally syndicated loans have won the position of one of the most important sources of financing large scale debt issuers, becoming an instrument that allows a relatively quick and flexible access to funds, thus replacing or adding to traditional sources of capital – issuing stocks and bonds (Coffey M., 2000; Dennis S. & Mullineaux D., 2000). Unlike traditional bank loans, a syndicated loan is granted by a group of lenders, united in a so called *bank syndicate* and is managed by one or several lead banks in the syndicate. With the loan being spread among the members of the syndicate, the aim is to share investment and liquidity risk among the participating banks. A large part of syndicated loans are essentially cross-border and the partner banks within the syndicate are usually a mix of international and local banks. The technology of providing a syndicated loan contains important information regarding not only the lender - borrower relationship, but also specific details concerning the relationships between the participants within the bank syndicate (Esty B. & Megginson W., 2003). The banks that make up the syndicate occupy different levels in the syndicate hierarchy and play their own specific roles. The Lead Arrangers banks are the ones that lead negotiations and sign contracts with the borrower, while Agent banks manage the loan. The remaining banks that take part in financing maintain "an arm's-length" relationship with the borrower and their activities are represented by the arrangers or the agent bank (Sufi A., 2007).

A number of studies seem to share the belief that BT will find favourable conditions for application in syndicated loans (Rutenberg S. & Wenner R., 2017; Turner E., 2016; Anupam M. et al., 2016; Padmanabhan G. & Komma K., 2016). Expectations of a BT breakthrough on the syndicated loans market are based on the availability of factors that have adverse influence on the effectiveness of this market and namely, the low degree of transparency in the processes associated with the formation of the syndicate and loan pricing, the much too slow settlement and the high costs of administering and servicing of syndicated loans (Anupam M. et al., 2016). The main costs of servicing syndicated loans

at present are being borne by agent banks, which take care of loan administration and cash flow distribution. Although general contract conditions are negotiated, bank syndicate participants maintain their own packages of documentation and usually keep their own transaction registries, which in turn burdens them with an additional administrative workload. BT can *facilitate the administration process* by supporting a shared data base in a single registry that functions as a single source of truth. Unlike the current central registries, a distributed ledger (DL) that is blockchain- based provides the same benefits, but without the need for this activity to be administered by a specialized institutional intermediary. With the shared storage model, that is DLT based each bank exchanges information with a unified data base within a peer-to-peer network. Thus, each participant can make use of the same copy of data stored in their computer, and, simultaneously in all the remaining computers, (referred to as *nodes*), that are connected in a joint network. The data base in the said network is simultaneously synchronized, so changes carried out in one node will immediately be reflected in exactly the same way in all the remaining nodes.

2. Expected benefits for banks

For the banks participating in a syndicate, the benefits of introducing DLT can be outlined by means of the following components – heightened security, reduced time for carrying out a transaction, lower transaction costs and enhanced operational efficiency. The *"security"* component of BT is based on the shared storage of information, which makes loss of information practically impossible (Table 1). Transaction security is achieved by means of the processes of authorization and encryption.

Table 1

Impact of blockchain technology on syndicated loans – "security" component

Security	
Situation at present	With the application of BT
Participants rely on the service system of agent banks and try to synchronize their own databases with those of the banks by keeping parallel documentation on transactions	Shared storage of data in a single ledger without the administration of the intermediary organization
Possible problems: - Possible loss of data - Possible high operational costs for technical maintenance of document turnover - Possible missing history of records (transactions) - Unreliable/dubious data entered - Low degree of transparency in engagement with and administering the loan - Problems with storing and synchronizing information	Possible solutions: - Loss of data impossible, because of shared storage in multiple nodes - Low maintenance costs - The full transaction history is stored - Input of new data is immediately recognized by all nodes in the network - Increased transparency of deals - Shared storage, immediate and simultaneous synchronization of information - Encryption and authorization enhance the consumers' convenience to always have updated records

Source: Compiled by author.

Owing to the fact that each participant possesses a copy of exactly the same database, should any of the nodes develop a failure, that is, if a particular bank's server fails, this will not result in an irretrievable loss of information. Shared storage not only enhances data security and prevents the system overload, but it also guarantees *credibility* of information (Table 2). Due to the use of digital signature each added record in the database can be traced back to the participant who created it.

Table 2

Impact of blockchain technology on syndicated loans – "credibility" component

Credibility	
Situation at present	With the application of BT
Different information systems are relied upon and participant banks keep identical transaction records	A unified information system with authorized access for participants through a unique digital code
Possible problems: - Data duplication in different information systems - With signed handwritten documents there is a risk of the document content being replaced/forged - Possible manipulations: change data backwards - Possibilities for fraud through unauthorized access to the system	Possible solutions: - Simultaneous recognition of records by all participants - The availability of a unique digital signature verifies the authenticity of transaction - Users cannot claim that DL does not recognize credibility - Elimination of unauthorized access, as a digital signature is required

Source: Compiled by author.

Another advantage of DLs is that they store the *full chronology* of activities, and not just the end results. Because of the specifics of syndicated loans, it is highly likely that in the process of bookrunning and servicing a loan hundreds of transactions may occur. DL will not only trace and "record" all the transaction history, but will make this history *traceable and accessible* to all authorized users of the system (Table 3). The digital sign guarantees only the authenticity of a transaction, while its verification results from checking the contents of the transaction. One of the ways to check the transaction before the said transaction "flows" into the DL is through the agreement mechanism. A transaction is considered valid if the banks participating in the transaction have agreed upon the main parameters and conditions for the validity of the said transaction. The process of further validation goes on, with verified transactions being arranged in separate blocks (where the name of the technology comes from). Each separate block in the chain is assigned a unique hash-code, that is generated by means of complicated mathematical formulae. Each block contains a reference link with the hash-code of the preceding block. Thus, if a particular transaction demands a change in the hash-code of the block where the transaction is stored, this change is reflected in all the blocks along the chain. In other words, an activity which aims to change or replace information in the DL will be immediately spotted and will be traceable by all the participants. The concept of *immutability* of DL transactions increases the degree of trust among partners (Table 3). DL can elegantly solve the problem with the so called "duplicate sales"[2], which may be unintentional and may result from technical gaps, but can also lead to serious conflicts between participants.

Table 3

Impact of blockchain technology on syndicated loans – "traceability" and "immutability" components

Traceability	
Situation at present	With the application of BT
Total traceability of transaction history is usually not accessible to all participants	The complete chronology of activity is stored
Possible problems: - Only the end result is visible (final or current balance) - Risk of doubts and misunderstanding arising and possible questioning the credibility of the current status by certain participants	Possible solutions: - Each participant can trace the full history of transactions - Doubts about the credibility of the current results eliminated, as all participants can audit the chronology of the result

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[2] The effect of "duplicate sales' occurs when it is possible for the Arranger bank or the Administrative agent to sell more shares of loan than it possesses at the time of the deal. Using DLT, this cannot happen, as the transaction blocks are sequentially arranged in time and the system is intelligent enough to find out that the placing bank does not have the necessary resources to sell.

Immutability	
Situation at present	With the application of BT
An authorized user can alter retrospective data in the system	Irreversibility of stored information is guaranteed
Possible problems: - Lack of trust may arise between participants - There are possibilities for replacement and falsification of information - A risk of committing frauds through "duplicated" sales	Possible solutions: - A high degree of trust is generated - Data cannot be replaced or erased - The technology prevents 'duplicated" sales

Source: Compiled by author.

3. Smart contracts – a foundation for key processes automation

The"*smart contract"*concept is an underlying principle of DLT and is particularly suitable for deals like syndicated loans, where there is direct commitment between fulfillment of contractual terms and performing real transactions. Smart contracts are a sequence of self-executing engagements (Gheorghe P., Tiganoaia B. & Niculescu A., 2017). They provide an automated execution of the contractual terms, render intermediaries superfluous and speed up the payment process. They could be described as a computer code version of contractual terms or a pattern of the "if-then" type" (Anupam M. et al., 2016) or a computer program that can automatically execute the terms of a contract (Blockchain: Powering the Internet of Value, 2016). A significant advantage of theirs is that the executed transactions are legally valid and facilitate the functions of regulators and oversight – they provide higher security and a possibility to trace transactions (Petrasic K. & Bomfreund M., 2016). The key components of smart contracts are autonomy, self-sufficiency, and decentralization. The classic example used to demonstrate smart contracts in the form of code executing automatically is a vending machine (Swan M., 2015). The main difference between smart contracts and similar procedures stored in non-DLT databases consists in the fact that "since smart contracts are written in the ledger, validation of their execution follows the same procedure as any other transaction. The execution of the smart contracts is therefore also similarly protected from attack" (Pinna A. & Ruttenberg W., 2016). Applying smart contracts to syndicated loans can cover all the key phases of the credit cycle. The procedure of granting a syndicated loan suggests negotiating and coordinating the conditions of financing among the lead banks and the borrower and results in signing a loan agreement. The idea of such an agreement is for banks to place their resources under the same contractual terms and conditions. Using transparent and fully automated criteria for selecting a syndicate formation reduces the time for the formation of the syndicate. Smart contracts allow the automated execution of real transactions in compliance with the terms of the contract. Besides, a smart contract in a DL solves the problems with the central registry, as it is no longer necessary for an intermediary agency to play this role. At present, for this purpose, an intermediary is authorized to execute clearing and settlement through independent information about transaction verification. Instead, a smart contract using BT can be programmed to manage the whole credit cycle – from negotiating the loan to payment of interests and principals, notice of unsettled debt and even use of collateral, and all of these without human interference and at the same time regulators receive up-to date information about the activities performed. Automated execution of the terms of contract considerably contributes to raising the confidence between participants, achieving quicker settlement and higher operating efficiency (Fig. 1).

Automated execution of contractual terms without manual interference	Obtaining a validated code protects participants from fraud, mistakes or data replacement	No need of an intermediary agency to perform the role of a central registry
Higher trust	**SMART CONTRACT**	Faster settlement
Increased transparency with loan pricing	Facilitated procedures for secondary sales	Complex management of all phases of the loan cycle

Source: author's construction

Fig. 1. **Advantages of smart contracts**

The formation of a bank syndicate takes place through the process of primary trade, whereby lead banks make an offer to other lending institutions to join in with their own share in placing the resource to the borrower under pre-negotiated conditions. The problems counterparties face stem from certain confusion regarding the technology of primary trade and the much too long time period until the deal of syndicate formation is finalized (Table 4). To the Lead Arrangers *delaying the settlement* means extending the period in which the bank has an exposure that is larger than the target exposure, and consequently requires keeping larger provisions[3]. Settlement duration is influenced by various factors – technical as well as ones that account for the interests and attitudes of the major "actors" in syndicated loans – borrower, agent and investors. Thus, for example, delays in the settlement period usually happen when the borrower is required to approve each investor who wishes to join the syndicate[4]. In turn,Lead Arrangers and Administrative Agents take on counterparty risk and have to perform Know Your Customer (KYS) procedures. The former have to prepare analysis and evaluation of borrowers/ project, while the latter have to assess the quality and capacity of the loan partners. A number of studies have identified too high a degree of information asymmetry between the borrower and the syndicate, on the one hand, and within the syndicate on the other (Bosch O., 2007; Ivashina V. & Scharfstein D., 2010; De Haas R. & Van Horen N., 2010). The average duration of procedures involved in KYC activities and borrowers on-boarding takes up over 26 days (Thomson Reuters, 2017b). This problem can be solved by using a digitized database. The Arranger may perform the KYC activities in real time mode, establishing the digital identity of the corporation with the functionality of the DL data base (McWaters R. et al., 2016). With placing of loans, however, delayed settlement can be investors' fault. They may have an interest in procrastinating the procedure, as according to the unwritten laws of the industry, a seller of a share of syndicated loan owes the buyer a default compensation for every delay of settlement for over 7 business days after trade date, that is, the date the deal is closed[5]. In some cases, under the initiative of the Agent bank, frozen trading dates are

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[3] Such reasoning is justified if the deal is not made under a "best efforts" condition. Average duration currently varies from 12-14 days from closing the deal to the settlement date, when the actual change of ownership over the resource takes place (Anupam M. et al., 2016). Leverage loans that are sold at a large discount usually need more time, which shows that in practice, the said average values cover certain deals with even lengthier periods.

[4] Syndicated loans can be structured in such ways as to allow more flexibility of entering current corrections of conditions, or of breach of certain covenants, if lenders agree about that. Under these conditions the borrower may disagree, if a lender, who is not willing to compromise, wishes to join the syndicate.

[5] The logic of a similar compensation scheme is the following: the seller of a resource continues to earn income from the interest the borrower pays until the settlement date, but after the 7 day period expires, the seller is obliged to compensate the buyer for benefits foregone. This, however, creates an unhealthy incentive for the buyer, as he doesn't get any benefit of the settlement taking place on time; furthermore this seems to encourage a certain behavior through which additional gains are made out of transferring the load to the seller's balance sheet. In 2016 the Loan Syndications & Trading Association (LSTA), the trade group representing the US syndicated loans market has recommended a seven-day settlement timetable, but the industry is far from accomplishing that ideal. Because of the number of approvals and quantity of information that must be exchanged between counterparties and agent banks, it could be than two weeks from when the counterparties agree to the trade to the date it settles (Kentouris C., 2017).

set, and no trade takes place on these dates. As the agent is responsible for maintaining a registry of records and exercises control over transactions, any correction of the conditions of a given transaction must be duly registered in the systems of the agent bank. In peak periods of many transactions waiting to be processed by the system a huge administrative load and a great deal of stress occur in the agent's back office. If in the meantime investors continue to actively trade their shares, this is a good reason for announcing frozen trading dates, usually at the end of a quarter[6]. The burdens of document turnover and manual manipulations when accounting transactions are other factors to cause delayed settlement (Table 4).

Table 4

Impact of blockchain technology on prime trade and servicing of syndicated loans

Prime trade	
Situation at present	With the application of BT
There is information asymmetry between borrower and the syndicate and between agent and remaining participants	Reduced time for syndicate formation by means of transparent and fully automated criteria for syndicate formation with the help of pre-programmed smart contracts
Possible problems: - Selection of syndicate members is time-consuming and ineffective because of manual processing and analysis of results - Non-transparent criteria for selection of syndicate formation - A long period of finalization - about 30-45days, during which the Lead Arranger acquires an exposure that is larger than the desired or target one - Slow settlement - Low transaction efficiency - Processes involved in KYC activities and borrowers on-boarding take time	Possible solutions: - Acceleration of settlement period - Enhanced transaction efficiency - Lenders release capital that matches the regulatory requirements for the period when exposure is not fully transferred - Bank trading offices can administer new deals if exposure limits are not reached, due to accelerated settlement - Performing automated KYC-procedures for Lead Arranger through digital client identification
Servicing	
Situation at present	With the application of BT
Ineffective procedures of loan servicing, cash flow distribution and manual processing of document turnover	Data from the agent's system are imported in DL
Possible problems: - All lenders receive loan payments under the same contractual terms, the agent maintains a registry of records for the whole syndicate group and each participants also supports their own database containing their share of the loan - Labour-consuming business correspondence – sending tons of faxes and/or e-mails to investors to inform them of transactions performed, as well as explanatory calculations - Predominantly time-consuming manipulations in transaction processing - High agency fees	Possible solutions: - With the application of smart contracts cash flows are automatically and simultaneously distributed among participants - Reducing the volume of workload for back-office employees for agents and participants alike – No manual data and information processing is necessary - Considerable reduction of transaction processing time - Reduction of agency fees

Source: Compiled by author.

Syndicated loans are among the few segments of the financial industry that suffer a low degree of key process automation and still rely on faxes, e-mails and manual data processing[7]. Manual input of data mostly burdens the Agent, no matter if it is a direct participant in a given deal or a go-between in the trade among investors. Habitually data and

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[6] With large syndicated loans, procedures are usually cumbersome and many of these deals are finalized at the end of a quarter (approximately 80% of primary deals are centered around the quarter end). This causes considerable stress during peak periods in the agent's back offices. Deals queue, waiting for settlement, which further delays the settlement and makes it impossible to register all the current changes in due time.

[7] On this occasion Paul Woods, a Senior Vice President at State Street Global Services says that manual input of data is performed by high-cost individuals. He has found out that every year approximately 25 million faxes and e-mails are exchanged between the participating banks to meet the needs of the main accounting functions (Turner E., 2016).

transaction records undergo multiple transfers over various systems, serviced by different providers in the industry, which is a prerequisite for making mistakes during the manual entering of data, or mistakes of technical character because of incompatibility between the service systems[8].

It has been found that syndicated loans trading is carried out considerably slower than any other class of financial assets, which places them in the unenviable position of a financial instrument characterized by some of the lowest degrees of liquidity (Rutenberg S. & Wenner R., 2017). They are administratively burdensome and expensive to manage, and a delayed settlement limits their liquidity. Using DLT and smart contracts is expected to result in a considerable *acceleration of settlement and lower operating cost* associated with servicing syndicated loans. Certain experts forecast a reduction of the settlement period from the 20 days at present to 6-10 days (Maity S., 2016). According to Deloitte's estimates, applying BT in syndicated loans would lead to cutting transaction costs by 70-80% (Deloitte, 2017). Acceleration of settlement and improved operational efficiency, in turn, can reasonably lead to increased interest and to a larger number of new investors on the market[9]. Eventually, the operational efficiency obtained as a result of eliminating the superfluous component of intermediacy, can save an enormous amount of fees that borrowers pay lenders for servicing syndicated loans. Table 5 presents ten of the fees that are most often charged in syndicated loans. As a result of the application of smart contracts and BT changes are envisaged which will lead to cutting the number of fees and/or considerable reduction of their size. The new technology can eliminate four of the fees used now, while another four types of fees are expected to remain, but with their sizes substantially corrected. (Table 5).

Table 5

Impact of blockchain technology and smart contracts on some of the existing fees on syndicated loans

Type of fee	Payable	Provided blockchain is used
Arrangement fee	Front-end	+ remains, but probably of reduced size
Legal fee	Front-end	- should not remain, given the smart contract
Underwriting fee	Front-end	+/- can remain but substantially reduced
Participation fee	Front-end	+/- can remain but substantially reduced
Facility fee	Annually	- unlikely to remain
Commitment fee	Annually, charged on undrawn part	+ will probably remain as it is tied up to resource price
Utilization fee	Annually, charged on drawn part	- no good reason to remain
Agency fee	Annually	+/- can remain but substantially reduced
Conduit fee	Front-end	- no good reason to remain
Prepayment fee	One-off if prepayment	+/- can remain if negotiated

Source: synthesized by the author in accordance with fee classification of Gadanecz B,. 2004, p.80.

4. Problems and challenges

Blockchain technology can offer adequate solutions to problems associated with the selection of syndicate members, frozen trade, automation of KYS-procedures, using different service systems and manual data processing. However, not all problems can be solved by using the new technology as a magic wand. A consensus is necessary among all stakeholders

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[8] According to a survey carried out by Thomson Reuters the time associated with refreshing client records is quite excessive, with the global average standing at 20 days. Looking at the refresh strategy, a quarter of Financial Institutions (FIs) in this study schedule periodic checks (for example once a year). A paltry 12% dynamically check their records so that they are always up to date and 9% have no formal refresh process. This means that nearly 90% of FIs across the board are not ensuring that their client records are always up to date (Thomson Reuters, 2017b).

[9] According to expert estimates, this effect can be measured by an additional 5 % growth in the demand for syndicated loans, that is equal to 2 and 7 billion dollars (Maity S., 2016).

concerning the advantages of the new technology and the benefits from its application. Reducing the intermediary role of the agent bank, for instance, will positively impact operational efficiency, but this will not be unanimously accepted by the said agent banks, in case it negatively affects their future income. Agents must be convinced they will acquire gains from accelerated financial procedures in order to be motivated to invest in a technology that provides operational efficiency mainly to the demand-side participants. It is also possible that part of the institutional investors who practice the "buy and hold" strategy may be considerably less interested in changes of technology if they are more focused on profitability, than in relations with the borrower. It is also debatable what type of blockchain to use. Out of the possible varieties – public, permissioned and private, the last two types seem to be more suitable, in view of the confidential character of the relationships between syndicated loans participants. Besides, it is impractical for the demand-side institutions to connect their main registries to numerous DLs. To solve this problem, a unified database for the industry is needed and that raises a lot of questions regarding the confidentiality of information. It is not only because of their inherent conservatism that banks find it difficult to reject their existing technological infrastructure. The more sensitive issue here is whether lead banks would be willing to share confidential KYS information and relinquish their domineering role of "enlightened" participants who deal with information that is complex, but, more often than not, inaccessible to the public?

As an innovative technology, the application of blockchain in syndicated loans faces a number of *challenges*:

- Although records in a DL are credible and immutable, they have to be clearly regulated by law. If, for example, two banks are involved in a law suit, it is uncertain if and how this will affect the status of their transactions in DLs.

- Regulatory bodies have to discuss the ways they can exercise effective control over this technology. Clearly formulated rules are needed as to how BT will be regimented by laws, provisions and regulations regarding the syndicated loans market.

- Automation of the processes involved in the formation of a syndicate and KYC activities performed by banks, can only be achieved if these processes are based on a single and generally accepted rating system.

- Cost-benefit assessments of using the technology can vary considerably among the members of the bank syndicate. This may question the benefit of cooperation between participants as well as return on investment in the technology.

- A question that remains hanging is "Who should address the issue of rules and how to formulate the new ethical principles and rules when the human factor is being replaced by computer algorithms"?

Conclusions

The syndicated loans industry definitely needs technological changes. BT has the necessary potential to make these changes a reality. Specific procedures in negotiating and servicing syndicated loans make the process labour- and time-consuming. The way syndicated documentation is processed now makes it an expensive and inefficient process that relies mostly on manual manipulation. There are many problems of technical character, such as lack of technological connectivity, incompatible and/or unsynchronized service systems used by the various syndicate members and this in turn results in mistakes and duplicated activities, as systems do not communicate with each other. It is usually the third party intermediaries who provide service, which brings about a more costly payment process and imposes additional expenses upon investors.

The results of the performed analysis unambiguously show that blockchain is more than a technology. It is gradually turning into a survival philosophy and a strategy for the development of the financial industry. The questions whether the

technology will destroy the foundations for the development of syndicated loans or will contribute towards the evolution of this segment of the industry remain open for the time being. This paper supports the view that the destructive potential of blockchain can be transformed into a creative disruption for industry and turn into a real opportunity for an evolutionary jump. From this viewpoint, the following *recommendations* can be made to stakeholder counterparties:

- Start activities regarding the building of unified and generally accepted rating system of banks and borrowers, which should allow an automated KYC process. A great deal of investment and effort is needed to coordinate and manage the process.

- Start pilot DLT projects for syndicated loans with relatively uncomplicated procedures and a limited number of participants, of the type most of the so called "club deals" are.

- Regulatory bodies should take legislative initiatives to outline the legal framework for using BT.

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AN ALTERNATIVE FOR DETECTING SYSTEMIC RISK IN THE BANKING SECTOR. PRINCIPAL COMPONENTS APPROACH

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Abstract. Since last global financial crisis academics and regulators alike have drawn increased attention to evaluating and limiting the systemic risk within financial industry. While regulators have full access to confidential information on all supervised entities and market data are available to all interested parties, determining systemic risk where bank shares or debt securities are not publicly listed is problematic to say the least. Therefore, the aim of this paper is to evaluate principal components analysis (PCA) as an alternative method for identifying level of systemic risk among banks in small, open economies with un-developed capital market for banks.

The study presented in this paper uses publicly available yearly bank performance data (return on assets, equity multiplier, non-performing loans ratio, liquidity and capital adequacy) in Latvia to compute principal components. The increased cross-correlation and interdependency of bank performance indicators, materialized as increased percentage of variance that first two principal components explain, during global financial crisis and ensued European debt crisis show that PCA is an alternative method for tracking level of systemic risk in small, open economies with undeveloped share market for banks. The increased interdependency leads to potential system instability to marginal threads.

The results of the research show that PCA is a suitable method for tracking the level of systemic risk in the banking sector even with divergent business strategies and regulatory framework.

Key words: *banks, principal component analysis, systemic risk*

JEL code: C38, G21, G28

Introduction

Since last global financial crisis and subsequent European debt crisis the level of systemic risk has been the centre of studies done by academics and regulators alike. European Central bank has even set up a new entity – European Systemic Risk Board (ESRB) (EC No. 1092/2010), national regulators have increased their focus on detecting and containing the level of systemic risk. However, the detection of systemic risk in small, open economies with undeveloped capital markets is still problematic, not only to the regulator but also for academics. Furthermore, the inability to test and later confine systemic risk can lead to disastrous outcomes not only locally, but also regionally.

The issue itself is not that straightforward as ESRB, national regulator and even national legislators have divergent opinions (Latvijas Banka, 2017) which entities are to be called systemic and which don't and at least among scientists how to adequately evaluate the overall level of systemic risk in an economy (the banking sector). One of the source of such divergence are the different definitions of systemic risk and subsequent evaluation.

The research conducted shows the alternative way of detecting overall level of systemic risk in the banking sector in small, open economy with undeveloped share market[*]. This is especially important as with developed share market, the level of systemic risk can be rather precisely found by other methods like those developed by *Acharya and others* – Systemic Expected Shortfall (Acharya *et al.*, 2017); *Brunnermeier* – Conditional Value-at-Risk (Adrian and

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[*] Banks are either privately owned or directly owned by large Nordic banks as subsidiaries.

Brunnermeier, 2014); *De Jonghe* with extreme-value analysis (De Jonghe, 2010); *Huang et al* – Distress Insurance Premium (Huang, Zhou and Zhu, 2012), *Jobst et al* with Systemic Contingent Claims Analysis (Jobst and Gray, 2013), *Allen* with network based model (Allen, Babus and Carletti, 2010) and finally *Brownlees and Engle* – SRISK (Brownlees and Engle, 2016) among others. However, Conditional Value-at-Risk, Systemic Expected Shortfall and Distress Insurance Premium along others often use data that are based on usually high correlation between banks – that leads to the fact that during calm periods the build-up of systemic risk is hard to detect (Billio *et al.*, 2012).

However, using historical data with low frequency have some **drawbacks** as market returns reflect the information more rapidly (Billio *et al.*, 2012), but in long term such low-frequency analyses are less exposed to market noise.

An alternative strand of literature deals with using mainly accounting data to detect the level of systemic risk or possibility of a failure of a bank. The study of Turkish commercial banks (their financial data) using PCA, the failure of such a bank was tested (Canbas, Cabuk and Kilic, 2005), while the health of Chinese banks using PCA on bank performance indicators like liquidity, credit risk, capital profitability etc. were evaluated by Shih (Shih, Zhang and Liu, 2007). PCA is also applied on sectoral indexes (Zheng *et al.*, 2012) where the authors state that the higher the first principal component, the higher the systemic risk that leads to higher possibility of a financial crisis in the near future.

This study is similar to the one of the first in the field done by Billio (Billio *et al.*, 2012) – in finance and insurance sectors applying PCA and Granger-causality networks to test for the level of systemic risk on monthly returns of hedge funds, banks, broker/dealers, and insurance companies.

This study, however, **complements** the usage of PCA on bank performance indicators in small, open economy with undeveloped share market and banks having dual types of shareholders either privately owned by few or operating as subsidiaries of large Nordic banks. Besides the banking sector in Latvia is quite **dual** – part of banks that are privately owned by few shareholders service clients from Commonwealth of Independent States (CIS) (mainly money transfer functions) while other part of banks that are acting as subsidiaries of large Nordic banks is servicing local clients (mainly lending and depository functions). The literature to test systemic risk within such a dual market is limited.

The level of systemic risk in this research is exposed by **level of interlinkages by individual bank performance indicators**. The higher the explained variance by first and second principal component the closer related are banks. Therefore, if one of the bank fails or experiences high level of instability (risk), the **effects through high interconnectedness propagates to other banks.** Moreover, banks are more exposed to common external shocks.

The **research question** thus is: what the level of systemic risk in small, open economy with undeveloped share market during years 2005-2016 was.

The aim of this study is to test if PCA is a good reflection for overall level of systemic risk in small, open economy with undeveloped share market. The main **tasks** of this study are: check the adequacy of the bank performance indicators for PCA, test the PCA as a tool for detecting the overall level of systemic risk in small, open economy in the banking sector.

The **research methods** applied are statistical and mathematical analysis, graphical analysis and literature review. **Information sources** are journal articles, working papers, publicly available bank financial report data, advanced statistical methodology book (Manly, Alberto, 2017) and handbooks for PCA.

One of the **delimitations** of this study is that banks in this study do not amount for 100% of the banks in Latvia as some banks are acting as subsidiaries and these subsidiaries are not obliged to publicly disclose their financial statements. Moreover, some small, irrelevant banks during the period of the study chose to sell assets and close operations in the market therefore liquidating before financial data could be gathered.

In the next section the Author describes the methodology applied as well as the data used, later on results are shown and properly discussed. The paper ends with conclusions and proposals.

Research results and discussion

1. Methodology and data

PCA is a statistical data reduction tool that reduces the dimensionality of a data set, highlights hidden features of the whole data portfolio, and visualize the main relationships that exist within observations (Bruce Ho and Dash Wu, 2009). These principal components are indices that explain the underlying relationship between the original panel data (Manly and Alberto, 2017).

The latter feature is especially important in detecting the level of systemic risk as closer related the data set, the higher the level of systemic risk – observed data are more exposed to common shocks and are inter-related. Besides the PCA retains as much of the initial data variation as possible with the first principal component accounting the largest share of the variance, and each following component accounting less and less of the remaining variability (Tsai, 2009).

The PCA was applied to bank performance ratios explained below.

<u>**Ratios**</u>

In this study five financial indicators for each bank in question were used to describe the stability and sustainability of the banking sector. Where possible, bank and not group data were used, as group entities in periods of crisis can be isolated from the bank and it's pertaining regulatory obligations. The calculation of equity multiplier was followed by Ross *et al* (Ross, Westerfield, Jaffe, Jordan, 2011) while the calculation of other ratios was followed by *Ong* (Ong, Jeasakul and Kwoh, 2013).

First ratio was **equity multiplier**. The calculation was done according to formulae 1. The higher the equity multiplier, the riskier banking operations are.

$$Equity\ multiplier = \frac{total\ assets}{total\ equity} \tag{1}$$

The next ratio was **return on assets** (ROA). The calculation was done according to formulae 2. The higher the ratio, the bank is performing better. However, if bank has excessive returns it might develop traits of possible instability.

$$Return\ on\ assets = \frac{total\ profit\ after\ taxes}{total\ assets} \tag{2}$$

The next ratio was **1-NPL** or "1 minus non-performing loans ratio". The calculation was done according to formulae 3. The NPL shows the percentage of loans being non-performing and late and without provisions. To normalize the results and make them comparable with other ratios, the non-performing loans ratio was deducted from 1. In this case the result closer to 1 means that the bank has less non-performing loans without provisions and therefore is safer in longer term.

$$1 - NPL = 1 - \frac{loans\ assessed\ as\ impaired - provision\ for\ impaired\ loans}{total\ loans} \tag{3}$$

The penultimate ratio was short term **liquidity** ratio. The calculation was done according to formulae 4. This ratio shows how well bank is able to meet its short-term obligations – the higher the ratio the more liquid (safe) the bank is.

$$Liquidity\ ratio = \frac{current\ assets\ with\ maturity\ up\ until\ one\ month}{current\ liabilities\ with\ maturity\ up\ until\ one\ month} \tag{4}$$

Last ratio was **capital adequacy (CA)** ratio. The calculation was done according to formulae 5. This ratio shows how well capitalized the bank is – higher the ratio the more capitalized the bank is (and is to be considered safer).

$$Capital\ adequacy = \frac{total\ capital}{risk\ weighted\ assets} \tag{5}$$

Due to data limitation 1-NPL could be evaluated only yearly therefore all data were taken year-end.

Data

Year end publicly available financial report data from 17 banks resident in Latvia were used. Data span from 2005 till 2016. 16 of which were obtained from bank webpages, and for bankrupted bank Latvijas Krajbanka data were obtained using Lursoft – the paid database for all registered legal entities subjected to Latvia's legislature and taxes. Although in earlier years the number of banks in the study dropped to 10 – due to mergers, acquisitions or exits from the market.

As it is seen from Table 1 the study covers undeniably largest part of the banking sector of Latvia. However, there is a major player in the local lending and deposit holding sector that operates as subsidiary of a large Nordic bank and is not legally bound to publicly disclose financial data.

Table 1

Banks in the study

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of total variables	40[†]	55	55	60	75	80	85	80	80	80	80	80
Banks in the sample	10	11	11	12	15	16	17	16	16	16	16	16
AB LV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Baltik International Bank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Baltikums/ Blue Orange	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bank M2M Europe					✓	✓	✓	✓	✓	✓	✓	✓
Citadele						✓	✓	✓	✓	✓	✓	✓
DnB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Latvijas Krājbanka				✓	✓	✓	✓					
Latvijas Pasta Banka					✓	✓	✓	✓	✓	✓	✓	✓
LBK/ Ekspobank		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Meridian Trade Bank/SMP					✓	✓	✓	✓	✓	✓	✓	✓
Norvik Banka	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Privatbank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Reģionālā investīciju banka	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rietumu banka	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rigensis bank							✓	✓	✓	✓	✓	✓
SEB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Swedbank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: author's calculations based on bank financial report data

Data validity

To perform the data reduction technique, the data set must be applicable.

Firstly, variables must **be continually levelled** (Laerd statistics, 2013). This assumption holds as all parameters are ratios.

[†] In 2005 1-NPL could not be calculated due to missing data as at the time it was not legally required to publicly disclose data on quality of the loan portfolio.

Secondly, there must **be linear relationship** between all variables (Laerd statistics, 2013). This assumption must hold because PCA is based on Pearson correlation coefficients. This assumption holds for most cases as tested in matrix scatterplots (not included in the paper due to volume limitation). Other times when there are data clouds it means that banks and their performance indicators are not closely related and therefore are not systemically linked which is also of methodological conclusion of the PCA. Moreover, there should be **no significant outliers**. However, in this study there are some outliers during crisis periods like:

a) Bank is not fulfilling its functions but only holds a licence;

b) Bank is in the process of restructuring.

However due to largeness of the sample these outliers do not significantly impact the results (this is also seen in Table 3 where PCA scores are not significantly greater than 3 standard deviations away from the mean).

Thirdly, the size of the sample must be adequate, meaning there should be **at least five to ten cases per each variable**. In this study there are minimum 10 banks with four to five parameters. Also, Kaiser-Meyer-Olkin (KMO) test shows the proportion of variance in the variables that might be caused by underlying factors. If KMO score is less than 0.5 then the PCA is not the most adequate technique for dimension reduction (IBM Knowledge Center, 2017).

Finally, data should be suitable for data reduction and this feature is tested by Bartlett's Test of Sphericity – if the correlation matrix is not an identity matrix. The year 2007 stands out in a way that variables are unrelated and therefore unsuitable for structure detection. However, this is also a result – showing that bank performance indicators have low cross-correlation (low level of systemic risk)[‡].

The overall adequacy of the data sample is shown in Table 2.

Table 2

Adequacy of the sample

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Kaiser-Meyer-Olkin Measure >0.5	0.437	0.568	0.566	0.628	0.699	0.606	0.581	0.56	0.644	0.564	0.57	0.497
Approx. Chi-Square (large)	21.46	22.52	3.39	24.23	30.88	26.47	44.08	67.93	32.92	22.92	25.49	24.53
Bartlett's Test of Sphericity df	6	10	10	10	10	10	10	10	10	10	10	10
Bartlett's Test of Sphericity Sig. <0.05	0.002	0.013	0.971	0.007	0.001	0.003	0.000	0	0	0.011	0.004	0.006

Source: author's calculations based on bank financial report data

2. Results

The produced results allow to say that PCA is a good approximation of systemic risk level in the banking sector in Latvia. As seen from the graph below the level of systemic risk was the lowest in 2007. This is partly explained by the Bartlett's test results that performance indicators are not evenly distributed. That means that banks were quite diversified and therefore were not much interdependent (at least banks within the sample). However, it is clear that in 2008 the interconnectedness increases sharply, and the bank performance indicators are closely interconnected and dependent on few underlying components. In Latvia situation was tense due to the take-over of JSC Parex banka in 2008 and the

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[‡] When looking at correlation matric, in some cases the duality of the banking sector is seen (divergence in performance indicators).

government turning to international donors for assistance (Rupeika-Apoga, 2014). Besides in years 2008 and 2009 only one component was extracted meaning the banks were so closely interdependent that a single factor could explain the total variance of the performance indicators. Rather high interconnectedness remains through all the crisis periods until 2012.

Another interesting aspect is that while non-residents servicing banks were externally forced to reduce their exposure to CIS countries after year 2013, the underlying idea would be that the banks were becoming more systemically interconnected and interdependent. However, the results undermine this particular idea as the level of data variance that first (and second) principal component explain continues to decrease. That means that banks were actually further diversifying their businesses, at least their performance indicators show that.
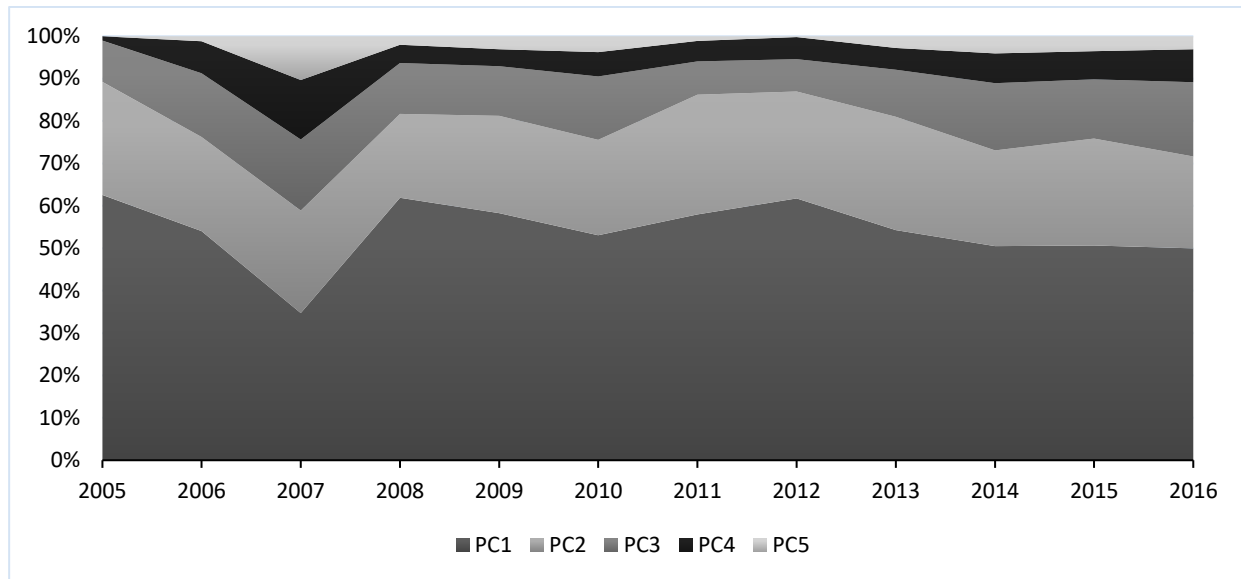
Source: author's construction based on author's calculations from bank financial reports

Fig. 1. **Level of systemic risk in the banking sector in Latvia, years 2005-2016**

As previously mentioned there are some outliers that pop out in different years but due to the largeness of the sample they do not impact results significantly. Even repeating the tests without particular outliers, like Expobank (had to restructure its business due to significant losses in Russia) or Latvijas Pasta banka (newly established bank that did not perform banking activities for few years), the main results stay approximately the same. Full results of PCA are shown in Table 3.

Table 3

PCA results

		PC1	PC2	PC3	PC4	PC5
2005	**Total**	2.503	1.066	0.39	0.042	
	% of Variance	62.567	26.653	9.739	1.041	
	Cumulative, %	62.567	89.22	98.959	100.00	
2006	**Total**	2.704	1.107	0.753	0.378	0.058
	% of Variance	54.087	22.132	15.05	7.566	1.166
	Cumulative, %	54.087	76.219	91.269	98.834	100.00
2007	**Total**	1.735	1.21	0.838	0.701	0.517
	% of Variance	34.695	24.193	16.758	14.023	10.33
	Cumulative, %	34.695	58.888	75.646	89.67	100.00

		PC1	PC2	PC3	PC4	PC5
2008	**Total**	3.094	0.991	0.599	0.216	0.099
	% of Variance	61.883	19.817	11.981	4.33	1.988
	Cumulative, %	61.883	81.701	93.682	98.012	100.00
2009	**Total**	3.152	0.927	0.552	0.219	0.15
	% of Variance	63.046	18.545	11.043	4.375	2.991
	Cumulative, %	63.046	81.591	92.634	97.009	100.00
2010	**Total**	2.653	1.126	0.746	0.287	0.188
	% of Variance	53.058	22.514	14.929	5.733	3.765
	Cumulative, %	53.058	75.573	90.502	96.235	100.00
2011	**Total**	2.899	1.412	0.394	0.239	0.056
	% of Variance	57.977	28.245	7.877	4.776	1.125
	Cumulative, %	57.977	86.223	94.099	98.875	100.00
2012	**Total**	3.087	1.262	0.38	0.259	0.011
	% of Variance	61.746	25.231	7.607	5.189	0.227
	Cumulative, %	61.746	86.977	94.584	99.773	100.00
2013	**Total**	2.716	1.333	0.556	0.256	0.139
	% of Variance	54.311	26.663	11.121	5.117	2.789
	Cumulative, %	54.311	80.974	92.095	97.211	100.00
2014	**Total**	2.524	1.129	0.795	0.351	0.201
	% of Variance	50.477	22.585	15.893	7.03	4.015
	Cumulative, %	50.477	73.062	88.955	95.985	100.00
2015	**Total**	2.532	1.261	0.699	0.332	0.176
	% of Variance	50.649	25.225	13.976	6.635	3.515
	Cumulative, %	50.649	75.874	89.851	96.485	100.00
2016	**Total**	2.5	1.083	0.875	0.389	0.152
	% of Variance	50.005	21.666	17.495	7.787	3.046
	Cumulative, %	50.005	71.671	89.166	96.954	100.00

Source: author's calculations based on bank financial report data

3. Discussion of Results

Overall the PCA is a good alternative method for testing the level of systemic risk in the banking sector in small, open economy with undeveloped capital markets as it shows the interdependence of performance indicators as well as it particularly shows the moments when the whole system is in such a stress and so interconnected that a single factor could explain the overall variance of the data. Besides the PCA tests also shows the moments when performance indicators are so un-related that system is in low-interdependence state. However, looking from the historical perspective such low-interdependence states can be misleading. As PCA looks retrospectively on the level of systemic risk as interconnectedness of the banking sector, one should not try to directly use the results for forecasting. It is clear that the results are robust due to adequate tests performed. Using the predetermined data set with all five indicators is possible only yearly as banks are not enforced to publicly disclose NPL data more often.

A drawback of this method that it only determines the level of systemic risk, but it does not explain the factors that create (influence) the level of systemic risk. As an example, the factor that did influence bank performance indicators could be a simple GDP drop.

Applying PCA to bank performance indicators in the banking sector in small, open economy is a novelty therefore this method should be applied to other countries, for example, Baltic countries and later on tested if banks in the whole region were similar in attributing the level of systemic risk. It would also be beneficial to test if the increased size of the sample would significantly influence the results.

Conclusions and proposals

Conclusions

1. PCA is a good retrospective testing method of the overall level of systemic risk in the banking sector in small, open economies.

2. Systemic risk is displayed as increased interconnectedness of bank performance indicators that translates as increased level of first and second principal component.

3. Banks in 2007 had low interconnectedness and overall level of systemic risk due to varied business strategies.

4. In years 2008-2009, 2012 the level of systemic risk was high.

5. The restructuring of some bank business strategies in order to reduce their exposure to CIS countries did not significantly increase the level of systemic risk.

6. Due to largeness of the sample outliers – banks that did not perform banking activities – did not significantly impact the overall results.

Proposals

1. To researchers: expand the study to the Baltic region and test if PCA could be applied to regional banking sample.

2. To policy makers: look retrospectively on the impact of several legislative measures taken.

3. To policy makers and regulators: continuedly evaluate the set individual threshold for bank liquidity, capital adequacy indicators.

4. To banks: publish quarterly non-performing loans data to increase the frequency of possible data analysis done by researchers.

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THE STRUCTURE AND CREATING OF FAMILY SOCIAL CAPITAL IN BUSINESS

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Abstract. In the conditions of the economy of the XXI c. intangible resources play a major role in creating business competitive advantage. Human capital is the vehicle of them. To benefit from the human capital, businesses have to work on developing social capital - relational one, which enables the staff to exchange experience, share knowledge and create a new knowledge. Family businesses appear to have a particular form of social capital from the very inception. Family social capital comes from the family, its culture, traditions and results from the frequent, deep and long-lasting personal interactions among family members. Emotional trust and strong moral infrastructure seem to be the most invaluable components of it. In turn, they result in creating such strategic resources like: strong internal and external social architectures of the business, reputation and mechanism of protecting tacit knowledge, which all are the sources of family business competitive advantage over their non-family counterparts. The paper aims at explaining the emotional and moral processes in family businesses. The Author refers to the results of own research (phone in-depth interviews carried out with 12 entrepreneurs) to illustrate the processes and show the effects.

Key-words: *family businesses, family social capital, emotional trust, moral infrastructure, competitive advantage.*

JEL code: F23, F20, F00, F61, L26, M16, M21, O19, O32, O30

Introduction

Nowadays, in the times of the market economy and intensified competition, success is enjoyed by those enterprises which possess, continuously expand and protect such intangible assets as knowledge, the carriers of which are people. Never before has human capital been considered to be an ultra-strategic asset to such an extent. The intellectual capital of employees itself is crucial, but insufficient to guarantee success. It is, after all, possible to create a football team consisting only of stars – exceptionally talented players, who will be defeated by a better composed team of less renowned players that are more team-oriented and motivated to co-operate during the game. In the process of using individuals' intellectual capital in business and creating the intellectual capital of the organisation as a whole, it is imperative to have social capital, based on relationships, communication and exchange between people. The exchange of knowledge, experience, and ideas and opinions allows for a better and more versatile application of possessed intellectual assets in the functioning of the business, to achieve the effect of synergy, and it also offers an important contribution in the making of a new knowledge, which is a challenge faced by all contemporary enterprises.

J.L Arregle, M A. Hitt, D. G. Sirmon and Ph. Very (2007) developed and extended social capital theory by exploring the creation of organizational social capital within a highly pervasive, yet often overlooked organizational form: family businesses. Theoretically, they described mechanisms of isomorphic tendencies, shared organizational identity, rationality, human resource practices and overlapping networks (business, family, owners), that link a family social capital to the creation of an organizational social capital.

The purpose of the article is to present the nature of family social capital in family businesses, and to describe the mechanism of creating its most valuable constituents: emotional trust and morally-ethical infrastructure, which may be sources of family businesses' competitive advantage over their non-family counterparts. The notion of family social capital as a resource in family businesses was introduced only in 1999 by R.L Sorenson and next developed by J. Hoffman,

M. Hoelscher ,R.L Sorenson in 2006 and R.L Sorenson, K.E Goodpaster, P.R. Hedberg in 2009. Their contribution to the scientific knowledge is significant in the field of family social capital and its influence on family business competitive advantage over non-family counterparts. Referring to their three key publications, literature on moral intelligence and benefiting from own long time research experience regarding family business functioning the author has proposed an original model of creating family social capital in family businesses pointing out the potential for sources of their competitive advantage. The author refers to the results of own qualitative research, showing the role of moral and emotional intelligence in achieving a business success in the sector of antique e-commerce. 12 entrepreneurs out of the most successful ones and with the most positive customer feedbacks (no negative and neutral opinions) operating on line for a long time agreed to take part in phone in-depth interviews. Majority of them appeared to run family businesses, which practices proved their high moral and emotional intelligence resulting to spectacular success. There is little literature on family social capital in family businesses due to the fact that it is a quite new and extremely difficult area to explore. The author proposes own approach to the model of creating family social capital and the research methodology applied by him is original and may be an example to follow in profound studies on the issue of family social capital in the future.

The nature of family social capital

P. Bourdieu (1986, pp.241-258) defines social capital as: "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition or in other words, to membership in a group which provides each of its members with the backing of the collectivity-owned capital, a credential which entitles them to credit, in the various senses of the word."

Social capital can, in a nutshell, be described as a potential resulting from the cohesiveness of interpersonal relationships which have been generated and consolidated over time, and from the strength of social bonds which serve mutual and not individual interests only, and which increase the operational efficiency and activity co-ordination within social organisations. Relationships that function within the social structure of families differ from those which can be encountered in groups, communities or non-family organisations. Family relationships refer exclusively to family members, and are stronger, more intense, durable and stable . **Family capital is a peculiar form of social capital** which can only be created within the environment of family relationships, including a positive network of relationships among family members, between the family and customers, and between the family and the local community.

The constituents of family capital include **internal channels of communication** – among the members of the family network, **external channels of communication** – between the family and outside-world entities, and **family standards/norms** (Hoffman, Hoelscher, Sorenson, 2006, pp. 135-144).

Internal channels of communication include networks of mutual personal relationships that family members develop over time, within both the family and the family business. External channels of communication (co-operation with other organisations, external consulting, relationships with the local community, generally understood systems and connections) are social networks which link the family and the family business with their surroundings. The patency of channels and the frequency of their use determine their effectiveness in the process of building family capital.

Family norms create a system of social control within a family business. Limited access to family members, the intensity and depth of interaction, and a long, historical or even multigenerational period of their duration contribute to the development and consolidation of strong ethically-moral standards, or in other words, the philosophy/logic of the family, which determines the attitudes, values and behaviour of its members towards one another, the family business and the outside world. **Family standards include: trust, obligations and expectations based on the reciprocity rule, as well as identity, a strong reputation and a morally-ethical infrastructure.** The family philosophy facilitates mutual

communication, collaboration, development of a shared vision of the business, and making decisions regarding the strategy of its implementation. It allows for focusing upon values that are crucial for participants in the outside world, motivates family members to show greater commitment to the success of the family's enterprise, and finally, it reduces unfavourable agency-related phenomena in the business.

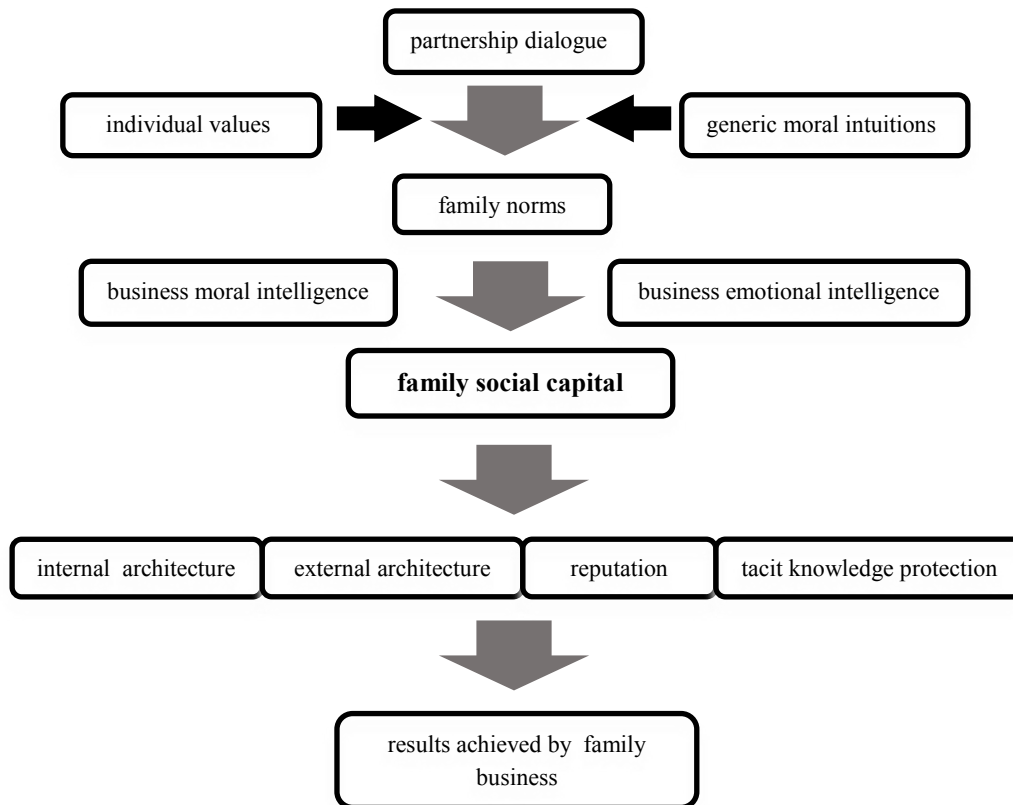## Emotions and morality as the most valuable constituents of family social capital

Trust, which is a constituent of family social capital, is emotional in its nature and firstly develops in the family and, later, when the family starts its own business, it is brought into it as a strategic asset. Emotional trust occurs when individuals understand each other's desires, when there is a convergence of their goals and the unity of thinking and sensing which results from shared standards and values. Individuals identify with shared needs, priorities and preferences, and they are ready to make extraordinary sacrifices and dedications. Kinship, i.e. family, is the most favourable environment for trust based on emotions and identity. Numerous social organisations drive at building trust (between their members) that is, at least, similar to emotional trust as a method of developing collectivity, work culture and the exchange of experience. Substantial efforts are made, and yet the outcome is unknown and distanced in time. In non-family businesses, it is easier to develop trust based on calculation and competences. In family companies, the situation is inverse – from the very beginning, such a business possesses the most precious form of trust, based on emotions, and in order to maintain it, family owners ought to build trust based on knowledge and a system - procedures that are binding in business (Sundaramurthy, 2008 pp. 89-102, Shi, Shepherd, Schmidts, 2015, pp. 814-841). The best way to generate trust based on knowledge/competences is family members' participation in educational programmes regarding company management and a thorough occupational preparation of successors to perform managerial functions in the future. The point is to eliminate situations in which those managing may make mistakes that stem from a lack of competences, and expose the family business to risk and uncertainty, which is a direct route to the erosion and loss of emotional trust among family members.

In a family business, moral infrastructure consists of a set of beliefs and convictions on family, business, the local community, and their mutual interrelations. Intense, long-term and deep relationships within the family network shape, develop and consolidate these convictions. When a family sets up a business, the beliefs, convictions and standards that dominate in the family are usually transferred into the business. Thus, what differentiates family businesses from non-family ones is heredity, and the transfer of beliefs and standards as part of their social structure. The social structure often shapes the organisational structure of a business, and a moral infrastructure creates the bases of a formal and informal code of ethics and demeanour within a family business (Sorenson, Goodpaster, Hedberg, 2009, pp. 1-14).

'Genetic' moral human intuitions – independent of national culture, time and place – are the primary source of each family's philosophy, especially of its morally-ethical infrastructure. This is confirmed by contemporary anthropological and social research (Brickhouse, Smith, 1996, p. 42), and the science of philosophy has propagated this opinion for a long time. These intuitions guarantee that through frequent interactions people can work out mutually shared standards which they later wish to follow. This common, inborn and intuitive moral awareness is the basis of the morality which develops specifically in a family environment (Haidt, Joseph, 2007, p. 20). During intensive communication between family members, aimed at overcoming a problem within the family itself or in the family business, a reference to such moral intuitions takes place. Although the development of standards on the basis of primary moral intuitions may take a different course in any given family, the foundations remain unchanged. These foundations of moral intuitions include:

a) integrity (being fair towards others) and expectation of reciprocity in that matter,
b) loyalty to a group or one's own community,
c) obedience and respect of legitimate power and authority,

d) high regard of virtues,

e) looking after others,

f) not harming others.

Fig. 1. **Moral and emotional processes within a family business**

Inborn morality is also called 'moral intelligence' (Lennick, Kiel, 2007, p. 25) and described as the ability to differentiate between right and wrong, defined by means of universal principles expressing beliefs and convictions regarding human behaviour and common to all cultures in the world, and the ability of mind to establish and choose the method of reconciling one's own values, ambitions and actions with those universal principles. And there are four major principles: integrity, responsibility, empathy and forgiveness. We speak both of morally intelligent people and of moral social organisations, including businesses. Anthropologists, sociologists and psychologists are convinced that people are programmed to act morally. Some evidence has even been collected that shows that altruism, loyalty, empathy and collaboration can be traced in some animal species. Moral intelligence of man begins to develop at his birth and this development is most intense until the age of 5 and a few successive years of his socialisation, which means that it is an outcome of biological, cultural (experience) and health conditionings. A low level of moral intelligence may stem from brain damage, a mental disorder, or an emotional disability caused by pathologies in the family. Moral intelligence shapes beliefs, values and attitudes of man, which in turn impact his drives and goals that determine his actions and behaviour.

Cohesion between thinking, ambitions and actions makes man moral. There is no ultimate and faultless moral intelligence. In the course of a moral process, destructive feelings such as envy, and the need for revenge and domination may appear, as they reside in our subconsciousness and disturb the cohesion between moral intelligence, ambitions and actions.

In modern business management, the crucial role of rational intelligence (IQ) and the technical intelligence of its managers and key employees is emphasised. Undoubtedly, their role is significant, since rational intelligence allows for quick learning while technical intelligence allows them to become an expert in certain subsystems of the business. Rational and technical types of intelligence are skills that distinguish but do not warrant a clear competitive advantage, since leaders of rival businesses may be equally intelligent and experienced. Moral and emotional types of intelligence are competences which are difficult for the competition to imitate. Despite being appreciated and desired in business, emotional intelligence does not have a single and comprehensive definition. On the basis of various scientific opinions on the matter, Salovey (Yale University) broke the term down into five constituents: a) awareness of one's own feelings (self-awareness), b) control of one's own feelings (self-control), c) the ability to recognise the feelings of others and controlling them, d) self-discipline, and e) social skills (the ability to evoke liking and trust in relationships with others, the readiness to bring help and collaborate). Moral and emotional types of intelligence complement one another and determine each other's efficiency. Numerous American studies on the influence that the level of moral and emotional intelligence in managers has on the results returned by the companies they govern show a strong positive correlation. The greatest successes are enjoyed by those managers who boast high levels of moral and emotional intelligence (Lennick, Kiel, 2007, p. 41).

Communication between family members is a fundamental mechanism which creates, develops, expands and consolidates moral and emotional intelligence. A positive influence of communication upon the standards of the family, which regulate the behaviour of its members and constitute a basis for solving problems and making decisions, depends on its nature. Communication can be executed on the principle of: a) a partnership dialogue, b) reducing tensions related to a difference of opinions, c) domination and rivalry connected with an arbitrary imposition of opinions and with sanctioning standards by one of the parties. Another approach is to avoid communication in sensitive matters, but then – due to the lack of interaction – a gap within the system of shared standards and values will appear. The first empirical studies on the effectiveness of individual forms of communication in the process of creating a mutual family philosophy in family businesses (Sorenson, 1999, pp. 325-339) showed that partnership dialogue was positively corelated with both financial results returned by any given company and with harmonious and good relationships between the members of the owner family. Communication that involves the mitigation and reduction of tensions had a positive impact only on relationships in the family, whereas communication based domination and rivalry was positively corelated neither with financial results nor good relationships between family members.

Partnership dialogue in communication within the network of family relationships can be defined as a problem-oriented discussion, the result of which is the achievement of mutually beneficial agreements and compromises (Rahim, 1983, pp. 268-376). This form of communication makes it possible to understand and explain the great and positive force with which the family philosophy affects everyday decisions made by the family, including strategic decisions, and decisions related to both private life and the business itself. Partnership dialogue is a constant and interactive process, triggering a specified action, which in turn leads to another round of dialogue. It is a process which deepens mutual understanding and confirms the existence of ethical standards within the family that have been set this way. From the perspective of the science of philosophy, dialogue is used to probe thinking, motives of behaviour and convictions which have not yet become standards recognised and shared by any given community. Philosophy believes that the role of dialogue is neither to intimidate the adversary nor to impose moral values upon them, but to trigger a process that resembles a 'tug-of-war' and which constitutes the essence of learning and educating. Dialogue shapes moral perception.

Fundamental principles of partnership dialogue include showing respect and pocketing one's pride instead of swaggering. It also involves challenging without autocracy, and convincing instead of dominating (Brickhouse, Smith, 1996). Therefore, there is a connection between the ethical process (partnership dialogue) and the ethical content (standards), in the midst of which there are individuals' moral beliefs. Families which base their communication more on domination and rivalry, simultaneously restricting dialogue, decrease the probability of generally shared ethical standards being accepted, and they diminish the readiness to follow them. In time, a family articulates its own philosophy (family standards), which determines the style and how its functions within the network of the family, the business and the outside world.

A will to conduct a dialogue and get involved in its process enables individuals to express their own assessments and opinion in a direct and sincere manner. Knowing the nature of primary morality and moral intelligence, one ought to expect that individuals participating in the dialogue will, in all probability, focus upon such values as: integrity, care for others and loyalty (Haidt, Joseph, 2007, p. 65). In family businesses, partnership dialogue will be a tool to generate and deepen ethical standards, which are to become a formal code of ethics for the business. Issues or situations that require decisions to be made will activate successive rounds of partnership dialogue. And the ethical standards stemming from them will reinforce the social structure and control within the business that reflect the family's philosophy. Due to the frequency and depth of interactions between family members, partnership dialogue – at the same time – contributes to the exclusion of non-family individuals from the process of developing moral standards. In that matter, it is only the family members that enjoy exclusiveness, and therefore, there is certainty that these standards will be shared and followed. Nevertheless, the standards formulated by the owner family shape the organisational culture of the family business and become a guideline of behaviour and attitudes for all participants of this business.

A high level of moral and emotional intelligence within the majority of family businesses contributes to the making of a favourable atmosphere and working conditions for those who share similar values accordant with universal principles. Such people are more motivated and committed in the execution of a mission, a vision, and goals of the company, since they identify with these, feel more secure and less exposed to stress and frustration, and are more creative and oriented to teamwork. The moral intelligence of family businesses builds their strong reputation, and evokes their positive reception in the outside world, i.e. among financial institutions, suppliers, recipients and co-operatives. The result of empirical studies conducted on a group of 405 small family enterprises in the United States in 2009 confirmed that, in a business, the presence of ethically-moral standards that stem from partnership dialogue creates social capital, a strategic asset which is positively corelated with financial results returned by the enterprises in question (Sorenson at al., 2009, pp. 5-11).

Family social capital and the sources of the company's competitive advantage

The creation of family social capital within a family business results in strategic assets, which are intangible in their nature and play a significant role in building the competitive advantage of family businesses over their non-family counterparts (Hoffman, Hoelscher, Sorenson, 2006, pp. 135-144, Arregle, Hitt, Sirmon, Very, 2007, Coeurderoy, Lwango, 2012, pp.415-437, Barros, Hernangómez, Martin-Cruz, 2017, pp.14-24). These assets include: *the strong internal architecture of the business, the strong external architecture of the business, the high reputation of the family and the business, and the protective mechanism of the cumulated knowledge and experience*. The elements that constitute **the internal architecture of the business are** a strong culture of collaboration and the exchange of knowledge and experience, collectivity, trust, loyalty between family members, the readiness to make sacrifices and commitments, mutually shared and followed moral intelligence that creates a positive family philosophy and the formal code of ethics

within the business, and social control that limits agency-related costs and consequences. **The external architecture of the business** includes: orientation towards the stakeholders' expectations, empathy, integrity, fair-play principles in relationships with customers, clients, suppliers, and other parties who cooperate, the ease of developing and functioning within business networks, a particular social responsibility in terms of environmental protection and activities for the benefit of the local community create positive and strong relationships between the family business and its national and global surroundings. Integrity, reliability, and a high level of quality and safety of the business offer determine the brand power and **the high reputation of the business and the family**. Family social capital allows for the effective protection of tacit knowledge – the source of competitive advantage in terms of technology and non-coded knowledge – against invigilation by competitors. Both accumulated business knowledge and experience are the subject of intergenerational transfer, thanks to which they can be effectively protected.

The influence of moral and emotional intelligence within family businesses upon their competitive position– a report on the results of the author's own research

Methodology

In order to verify the aforementioned relations (Figure 1) between the form of communication among family members that run a family business, ethically-moral standards and emotional trust – the main constituents of family social capital that result from such communication – and the competitive position and financial results returned by the family business, the author conducted a pilot study among 12 entrepreneurs who traded in antiques online on the ALLEGRO platform. The applied qualitative research method was a phone in-depth interview carried out with the 12 entrepreneurs in the first half of February 2014.

Selecting interviewees

The selection criterion for the entrepreneurs was their impeccable history of transactions and positive customer feedback (only extremely positive opinions – five stars), a large number of transactions in total (more than 4.000), and a relatively long period of their online business activity (more than 5 years). Thus, prior to commencing the interviews, it was not known how many interviewees might represent family businesses. The selected group consisted of those entrepreneurs who enjoyed greatest successes and a strong reputation among buyers. The author identified 20 businesses meeting the above mentioned criteria and asked 20 businesspeople-leaders of enterprises from the same online sector "antiquities" to attend an interview, having e-mailed them a list of questions/issues that he took interest in, the purpose of the research, and his personal data in the form of a link to the website of the university faculty at which he is employed. In the most part, the questions regarded personal matters, family relationships, conditions of socialisation, the system of values represented by the interviewees, their personal experiences related to running an e-commerce business, and the sources of the success they enjoyed. The entrepreneurs themselves were also supposed to determine the level of profitability of their businesses. The majority of questions were open-ended. Eventually, 12 entrepreneurs agreed to participate in the study, 3 refused to take part due to the personal nature of the questions, and 5 decided against replying at all. Each interview lasted between 40 and 60 minutes. The demographic profile of the interviewees are presented in the section "research results".

The characteristics of the online antiquities sector

All the researched entrepreneurs had been conducting e-commerce on Allegro since approximately 2008. This fresh and quite specific segment of the antique sector seems to be attractive due to the growing popularity of this form of e-trading in Poland and the increasing interest the Polish demonstrate in purchasing antiques at bargain prices. Not long ago, such goods could only be purchased in antique shops, at open-air markets and from private sellers, who were most likely to display sales advertisements in the mass media. Since during the Second World War Poland irretrievably lost a substantial amount of antique household goods and home-kept paintings, the prices for the saved items were extremely high, which made them unaffordable to the majority of Polish society. Western European countries had not suffered to such an extent in that matter and even today there is a plethora of unique items on the market there, representing a high historical and collectible value. Upon Poland's accession to the EU in 2004, numerous Polish entrepreneurs used the opportunity to legally bring large quantities of small antiques to Poland from the West, mainly from Germany, Great Britain and Scandinavia, in order to sell them via the Internet, which allows sellers to reach a wide group of potential buyers, such as collectors, interior design companies, entities that purchase antiques to furnish offices (e.g. law firms), antique stores, and enthusiast who like to be surrounded by antique objects.

The key factors of success enjoyed by the entrepreneurs in the scrutinised segment are: participation in borderless networks of collaboration that allows them to acquire antiques abroad (supply channels), strong and positive relationships with online recipients/customers (target customers' loyalty), an impeccable reputation, the rich, attractive assortment of offered items, and the ability to wrap and secure those items for posting.

The assortment offered by the entrepreneurs includes: antique castings made of colourful metals (figurines, candlesticks, vessels), decorative plates, porcelain, antique books, paintings and furniture. Since these are not brand-new products, but items manufactured between the 18th and 20th century, their condition varies. Some are preserved in a very good state, considering their age, and thus require no restoration. For obvious reasons, however, the majority are damaged or have flaws which lower their value. Therefore, in numerous cases, they require some restorations or repair work upon purchase. Quite often on Allegro, there are vendors who wish to sell their items quickly, but the main obstacle they meet is the aforementioned defects. Immoral practices commonly applied by such sellers are setting low initial prices, failing to mention the imperfections in item descriptions, and adding photographs that conceal these flaws. Occasionally, some vendors turn out to be common crooks who cash the payment and never fulfil their obligation to deliver the purchased good. And when their trading history becomes riddled with negative feedback from disappointed buyers, they change their company names, open new accounts and start their businesses afresh.

In online transactions concluded through formalised auction procedures, the most crucial role is played by trust, reliability in compiling descriptions and photographs of items that the vendor wishes to sell, and his/her reputation measured by the amount of positive, negative and neutral feedback from buyers. Maintaining perfect post-sale feedback (free of negative comments and opinions) by an entrepreneur who has conducted large numbers of transactions in the relatively long period of his online business activity is an exceptional and extraordinarily difficult state to achieve. And when some sellers' immoral and dishonest practices quite rightly result in overall negative feedback in the history of their transaction, serious and responsible vendors may sometimes be exposed to purchasers' insincere intentions, and burdened with unintended consequences of a damage or loss in delivery. The threat of negative post-sale feedback may also stem from the fact that the buyer is dissatisfied with the discrepancy between the actual condition of the purchased item and the expectations they had after viewing its photos and descriptions online, or from a lack of awareness of what condition antique objects usually represent.

Research results

1. All the interviewed entrepreneurs stated that they run a business activity from home, and 10 out of the 12 respondents declared that the members of their family become involved in the business on a regular basis. For 6 interviewees, this is the only source of income. Most often a business is run by spouses aged 35-55 who are assisted by their children. In nearly all the cases, the founders have a passion for antiques, collect them themselves, and are singlehandedly capable of determining their age and style. In the case of 1 entrepreneur, there had been a family tradition of antique trading. None of the interlocutors has been formally educated in the history of art or antique conservation, although the majority has a tertiary education diploma (both spouses) in the fields of geology, gardening, farming, economics, etc.

2. The entrepreneurs described their business activity as profitable or fairly profitable.

3. In their families, there are either very good or good relationships. Married couples make decisions together and solve problems through reaching a compromise that satisfies both parties. Great attention is paid to bringing up children. Communication within families is based on partnership dialogue. Nobody assumed that the communication in their family is based on one party's domination, rivalry or avoidance of communicating. Alternative forms of communication were always explained to the respondents in detail.

4. When asked about happiness and self-fulfilment, 9 respondents declared they were happy, but not entirely self-fulfilled, and 3 did not answer the question. Even a female respondent who has a disabled son and who had previously been unemployed for a substantial amount of time, stated that she was happy, but not completely fulfilled.

5. The systems of value applied by all interlocutors were very similar, with the first place occupied by family, then work and health (in this or reverted order), and further on integrity, reliability, safety, fair play (righteousness), all in various ordering configurations.

6. When asked an open-ended question about the possible source of their high level of moral and emotional intelligence in business (prior to which the respondents had been provided with a thorough description of the terms), the respondents chiefly pointed to their upbringing. Other answers included higher education, role models (e.g. the rector and an academic teacher at the university one of the respondents had graduated from), and a marketing training course at their former workplace (the Amway direct sales system). 1 respondent emphasised the role of his mother, who still is an active and recognised tutor, in shaping his moral intelligence, and another interlocutor the role of her grandmother. Following the author's suggestion, eventually they also mentioned religious beliefs, but without visible enthusiasm and with an exception of one case, in which the interlocutor pointed to his Catholic religious beliefs and then higher education as the most significant sources.

7. All respondents get involved in some form of charitable activity such as raising funds for sick children, providing free transportation services for those in need, and donating 1% of their tax obligations to the needy.

8. When asked how they avoid negative feedback when facing occasional trouble with purchasers on Allegro, the interviewed entrepreneurs listed various methods of amicably resolving disputes, such as the possibility to return or exchange the purchased items, special dispensations (a partial refund), and the use of official procedures offered by Allegro. The entrepreneurs emphasised the fact that critical situations are extremely rare, but if they happen, they show good will and style, always acting with the customer's satisfaction in mind.

9. Most respondents were not aware of the role family businesses play in the market economy, but they all assumed that this form deserves popularisation, especially with 'the high level of unemployment in the country', the limited access to external funding, and due to the fact that 'family sticks together and supports its members emotionally'. During the interview, most entrepreneurs realised that they have the best and most beneficial

business relationships with foreign suppliers who also run family businesses. They are bonded by many years of friendship, trust and a shared perspective on family and business. One of the interlocutors confirmed the family-like nature of his major supplier, but he remarked that while performing transactions, he is guided by the principle of 'taking cheaper offers' rather than looking at the nature of any contractor's business.

The analysis of the auctions where the entrepreneurs offer their items proves how exceptionally professional they are, meeting the requirements of each particular website and e-commerce standards. The careful choice of style and language, and detailed and exhaustive descriptions of the items, accompanied by high quality photographs, an attractive layout and design of the auction pages, and the possibility to contact the seller prior to bidding arouse trust and help potential buyer to overcome insecurity and the sense of risk which are always present when goods are purchased online. And the positive feedback is evidence of the respect, acknowledgement and satisfaction of their customers after transactions. These include not only regular, customary and laconic statements. One can find longer and more emotional comments, written from the heart, full of admiration and gratitude.

The aforementioned findings are an illustration of the theoretical content included in the earlier parts of this article. The results of the research prove the important relation between family social capital – morally-ethical and emotional infrastructure in particular – and the competitive position of family businesses and the positive social reception of their business activity. Close family relationships and communication between family members based on partnership dialogue create unique conditions for shaping, consolidating and developing high ethical standards that are mutually shared and followed.

Future research on family social capital

The results of the research provoke one to reflect upon the uniqueness and importance of the family environment for the ethical entrepreneurial activities of man, and to conduct profound studies on the issue of family social capital. This may be a real challenge for researchers due to the nature of social capital as well as extremely private culture of family businesses. Besides the terminology and notions related have to be clearly explained to respondents during collecting data. Future quantitative research could comprise comparative analysis of social capital potentials generated by family and their non-family counterparts to better appreciate the role of a family in business.

Conclusions

The nature of family social capital and the mechanism of its generation, as described in this article, allows the following conclusions to be formulated:

- Due to the strong, deep and pure personal interactions between relatives, family businesses can generate an exceptional form of social capital – an intangible asset which is a source of their competitive advantage over non-family companies.
- Emotional trust and strong morally-ethical infrastructure are unique constituents of family social capital. These are the result of extraordinary abilities to develop emotional and moral types of intelligence in the family and business, which – apart from rational and technical intelligence – determine the success of a modern enterprise regardless of its nature. Moral and emotional types of intelligence are competences that are difficult for competitors to imitate.

- Empirical studies and observations confirm that the biggest success is enjoyed by enterprises which are most intelligent morally and emotionally. Therefore, family businesses have a great potential to generate value added.

- Communication based on partnership dialogue is an effective tool for developing and expanding moral and emotional intelligence. Other forms of communication may have negative effect on family relations and business performance.

- The author's model of creating family social capital has been positively verified by the results of the qualitative research. The most successful vendors in the sector of online antiquities have appeared to be family businesses practising partnership dialogue in communication, with strong moral infrastructure. They enjoy loyal, satisfied clients-patrons and describe their performance as profitable. Strong internal and external relations (architecture) and reputation (only positive feedbacks, the results of analysis of clients' opinions) are the sources of competitive advantage of the researched businesses.

- Personal, moral and emotional intelligence mainly results from the process of socialization in a family. The mechanism of creating moral norms among related people is transferred into a business established and controlled by them. What's more some respondents in the research underlined a special role of women in their family socialization.

- Apart from the strong relations with clients, the external family social capital in the researched businesses is mostly a result of building personal networks with family members of other family businesses operating as foreign suppliers. Similar value systems, business logics and higher levels of moral and emotional intelligence encourage family businesses located in different places in the value chain to cooperate with one another, share knowledge, other resources and support. Personal, cross-border networking is of great importance for all businesses to go and develop international.

- The research results show that family social capital can make up for the lack of some professional business competences to some extent mainly at the earlier stages of the business life cycle. None of the interlocutors has been formally educated in the history of art or antique conservation, although the majority has a tertiary education diploma (both spouses) in the fields of geology, gardening, farming, economics, etc.

- The family business formula is worth promoting due to the social and economic benefits it involves. The formula should be more recognized by the widely understood environment. Business higher schools particularly from emerging economies could take active part in the process, adapting their curricula to the specificity and needs of family businesses, which dominate in market economy and undertaking research initials in order to change existing, often harmful stereotypes about them or to formulate recommendations for their professionalization.

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DOING BUSINESS ON THE INTERNET: DEALING WITH ONLINE CUSTOMERS IN LATVIA

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Abstract. The purpose of the paper is to find and analyse customer behaviour in the online dimension. To find approaches that will help customer feel satisfied and loyal to the local vendors.

Both qualitative and quantitative methods were used during research - scientific literature selection and analysis, analysis of data obtained through questionnaires of respondents. The main problem is to understand that the online market is interesting for Latvian residents, as well as how to build a long-term relationship with them. This is the novelty of the research - to combine theory, data on the world and the opinion of buyers in the territory of Latvia.

It is hard to imagine our everyday life without using computers, telephones or other devices and internet. People try to use all the opportunities to make their lives easier and to do things faster and efficient. For the vendors who has become online, it is a challenge to transfer all their knowledge and practise from traditional trading to the online. It is impossible to do business only with already used traditional approaches because purchase as a process and customers behaviour in the online dimension differs from traditional one.

As a result, authors will show the main approaches that will be useful for the company strategies building a long-term relationship with their customers and making them loyal. The focus is on the local customers. Which means that the results could be used in both ways theoretical and practical for the Latvian online market. The results can increase business efficiency in the online dimension and improve local company's strategy.

Key words: *online business, customer behaviour, customer loyalty, long-term relationship*

JEL code: M31

Introduction

Although consumer loyalty and satisfaction, as well as relationship marketing, is not a new phenomenon, when companies go online, they lose their loyalty and willingness to cooperate in the long-term. Why is this happening? It looks like the customer should create his own purchase model, in the same way, both offline and online, which passes through five stages in classical interpretation. However, in the Internet environment, this is not always the case. Businesses need to adapt their strategies and communication techniques to be able to find the most effective. Dealing with online customers means to realise whom different and at the same point, same they are to the traditional market customers, to integrate and adopt all the best practises of online dimension.

The purpose of the paper is to find and analyse customer behaviour in the online dimension. To find approaches that will help customer feel satisfied and loyal to the local vendors.

Both qualitative and quantitative methods were used during research - scientific literature selection and analysis, analysis of data obtained through questionnaires of respondents. The main problem is to understand that the online market is interesting for Latvian residents, as well as how to build a long-term relationship with them. This is the novelty of the research - to combine theory, data on the world and the opinion of buyers in the territory of Latvia.

The authors carried out a pilot research showing the main trends of Internet shopping among the Latvian population. The study began on April 3, 2018 and is still ongoing. These interim results were answered by 86 respondents. Respondents are Latvian residents, internet users who make purchases on the Internet. The questionnaire was sent to the Internet with the help of Google Forms, which made it possible to immediately display respondents who use the Internet. The research is carried out within the framework of the thesis.

The research is limited to the main features that influence the development of consumer behaviour and loyalty on the Internet. A further study will be to evaluate these features using factor analysis to find out exactly the specificities of Latvian consumers.

1. Meaning of relationship marketing

How the interactive marketing has been deduced is related to building long-term relationships with the consumer. It should also be noted that this phenomenon would also be related to consumer behaviour on the market. Because, with its correct interpretation, the company could create a successful interaction with its consumer.

Companies are trying to create relationship marketing (sometimes loyalty) programs to increase the level of interaction with the consumer, which in turn will increase the level of loyalty to the company and its products (Schiffman, Kanuk, 2004). The main cornerstone of relationship marketing is the creation of a link between the company and its consumer (Roberts, Varki, Brodie, 2003). Various sources of literature can be counselled that this interaction also includes a financial, social and structural side (Lin, Weng, Hsieh, 2003). In any case, in the interaction with the consumer, one should not forget about the components of consumer behaviour (Gwinner, Gremler, Bitner, 1998).

Another important element in building long-term interaction relationships is the value (Pride, Ferrell, 2003). Value definitions are very diverse and different; in this case, it would be the result of experience. In 1994, the value is defined as the advantage of an entity through its interaction (interaction) with another subject, product (Babin, Darden, Griffin, 1994). In more developer relationship marketing, the company instantly crystallizes and finds exactly the value it needs for the consumer, considering the mix of the marketing mix (Pride, Ferrell, 2003).

Many scientific sources say that marketing activities such as shopping trips and sales events are primarily intended as utility values (Ailawadi, Neslin, Gedenk, 2001). In other places, it is noted that the consumer needs more economic values that are related to the hedonic buying style, or only emotional. In any case, when the company stops interacting with marketing, he understands what is needed for his consumers, hears them and gives everything he needs. And when the consumer gets his or her benefits, he is motivated to be loyal to the company (Chiua, Hsiehb, Lic, Lee, 2005).

The concept of relationship marketing includes many specific business methods that are reflected in a targeted interaction with customers. Thus, Peppers D. and Roger M. note that an essential condition for effective interaction between the company and the client is the individualization of the company front office (front-office) communication (Peppers, Rodgers, 2006). Recent scientific articles find that consumers are increasingly choosing goods in traditional stores, but shopping is done directly in the Internet dimension (Chiou, Chou, Chung-Chi Shen, 2017). The authors of the work would like to note that this could be explained by the fact that it is possible to quickly and easily compare the goods and services on the Internet environment that were chosen in the real environment. In that case, as well building a long-term relationship and interactions with customers are important step for the companies in order to be competitive.

2. Internet approach to the customer loyalty

Internet commerce in the short term is mainly driven by the development and growth of Internet connectivity and the use of smartphones. Other factors contributing to the growth of e-commerce in all major geographic areas include:

- Improvements in technology: fast, secure and affordable technology has enabled many young players to enter the e-commerce market, making it highly competitive and cost-effective. Over the last 20 years, technology has evolved from traditional touch to drop-down menus to apps, making it simpler and easier to use. Consumers now have a higher level of comfort using technology, which has had a positive impact on online sales.

- Consumer Needs: Online retailers are currently focusing on identifying consumers' needs and understanding their behaviour to better serve them with innovative products and services. Retailers are diverted not only to customers based on demographic data, but they better analyse their spending patterns by selling their products. This precise targeting helps online retailers convert more leads to sales.

- Increase in the number of Internet and smartphone users: In 2011, smartphones and tablets exceeded the number of desktops and laptops for the first time. Over the next couple of years, it is expected to access more consumer Internet through mobile devices than desktop computers. The reduction of components and wireless technologies has enabled consumers to. Make a purchase and interact online while they are on the move.

- Social media: social networking platforms have opened new channel online retailers to promote and increase awareness of their products. Social media is mostly used by people aged 18-34, which is an important tool for branding and loyalty. Social marketing programs should be about today's user experience and provide excellent platform retailers to get customer feedback.

However, it should not be forgotten that the product and payment preferences are preserved to ensure and enhance the online shopping experience, to drive e-commerce growth. But there are some issues that the e-commerce industry is facing. Regardless of these issues, it will be difficult for the industry to continue their growth path. The main tasks are:

- Security issues: the number of online fraud cases dropped by 2010. At the same time, the cost of combating fraud has increased as incidents increase and occur in more profitable sectors. This suggests that the complexity and sophistication of online fraud attacks continues to rise and is still weighing heavily on many consumers who do not want to buy or do online business.

- Poor digital marketing skills: e-commerce is a new marketing concept and online retailer teams are still looking for suitable ways to reach consumers. Unlike traditional media (time bought or advertising space), Facebook and Twitter are free. However, the learning curve used by online marketers has been rapid. Bad marketing skills have a negative impact on the company's brand involvement, sales, customer acquisition and retention.

- Lack of proper governance: Due to changing market dynamics, new product lines and new sales channels, online retailers are struggling to manage their e-commerce efforts. How businesses move from traditional retail online retailing can result in inadequate management and ineffective control structures.

- Inadequate integration of technologies: Incorrect or inadequate system integration and business processes (such as money transfer management and customer relationship management) have negatively affected customer experience. It will be difficult for online retailers to maintain their customers if they will not integrate their rear systems forever with the frontal system. Many online retailers do not offer multi-channel

payments, which has also negatively impacted their business (Evolving E-Commerce Market Dynamics, 2017)

One can see that the latest articles mention that loyalty to online stores is most often measured by repeated purchases (Pee, Jiang, Klein, 2018). The authors of the article, would like to emphasize that this is one of the easiest and most convenient ways of understanding whether the consumer is loyal or not. As for the internet marketing market, repeated purchases could take place if customers are happy and satisfied. The scientific article analyses that satisfaction results from the qualitative activity of the company (Udo, Bagchi, Kirs, 2010). In this study, scientists come up with a variety of quality dimensions, they determine that quality can be broken down into: quality of information, service (system) quality and product quality. This quality distribution can also be applied to the Internet. In turn, each type of quality can be subdivided into components, so let's assume that the quality of the service consists of five factors that affect it: goodwill, trust, responsibility, confidence and empathy. The author agrees to such a split but believes that the quality should be accompanied by the quality of supply and the factors - the speed of the reaction. The quality distribution can be represented as follows:
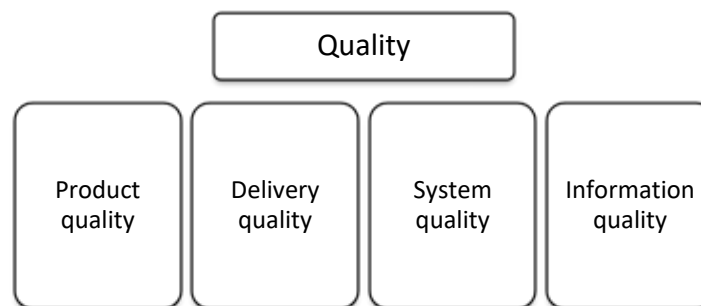
Source: Author's construction based on Udo, Bagchi, Kirs, 2010

Fig. 1. **Quality's four dimension**

For the consumer, it's important not only to use a well-designed website, which consumers are already accustomed to, where they have certain guarantees and good attitude towards consumers, friendly, but also need to be resolved quickly and efficiently. However, the author for his part also added the quality of supply, as shown in Figure 1., which is an important element in the overall quality of production, which in turn is affected by speed, price and location, as there are countries, cities and other areas where delivery is sometimes not possible.

One of the key principles of the concept of interactive marketing is to consider the value of the client to the community throughout his life in her life. From the point of view of target interaction, which means that the focus of the company to maximize the income of one client during this time, firstly, increasing customer cooperation with the company, and secondly, promoting the buyer more active consumption of its products and services.

Many authors argue that all transactions carried out by the consumer should be considered in relation to one single consecutive chain of events. According to researchers, long term cooperation with consumers needs to be made using the maximum number of products and services per customer throughout its life cycle, which greatly increases its value to the company. Thus, looking at the value of the consumer in the organization is related to the term, such as the consumer's life cycle.

There are several approaches to formalizing the consumer's life cycle. For example, Grenroos K. proposed the following categorization system:
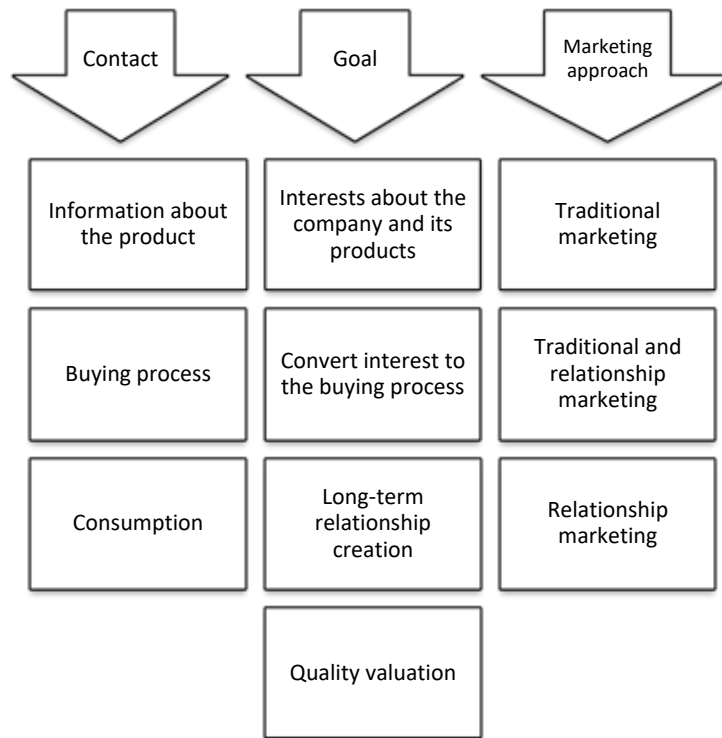
Fig. 2. **Different communication with consumer access**

Following this model, the relationship building process with the consumer begins even with the emergence of interest in the company's products and services. It should be noted that from the point of view of the interaction of marketing, all activities carried out at this stage need to provide the buyer with the necessary information and have a positive impact on interaction so that he is interested not only in the product but also about the company and its activities.

After the buyer's introduction of the company's offer, the second phase of the life cycle begins the buying process. This stage is characterized by the fact that the buyer compares his impressions with the acquired experience of interactions with the company, transferring his past experience to the future. At this stage, it is necessary to begin to create consumer loyalty to the company, which can first be met by satisfying all the client's functional needs. This phase is characterized by the fact that the client gains experience in interacting with the company at all contact points and experience related to the quality of his needs satisfaction. Important factors here are the quality of products and services, as well as the extent to which the company will be able to interact with the consumer.

If the customer's experience is positive and the company succeeded in achieving its first goal in developing long-term interactions, the third step begins - the purchasing process when the product or service is used. From an interactive marketing perspective, this development phase in the consumer's life cycle is most saturated with various company offers aimed at increasing customer value-added, offering customer cards, discounts for the next purchase, etc.

In the latest research there can be found an information about 3T framework while dealing with online customers. That 3T is timeliness, transparency and trust (Stevens, Spaid, Breazeale, Jones, 2018). 3T provides an easy-to-use set of instructions for companies that build relationships with their customers in an online environment, but do not know how to ensure that they meet their needs in an online environment. About trust there also is a proved hypothesis that the user's trust towards the website of a financial institution has a positive and direct influence on customer online loyalty (Miguens, Vazquez, 2018). The authors of the work also insist that trust is a key point in strengthening customer loyalty.

3. Data Analysis on the online shopping in Latvia

However, what does it really mean to work with clients in an online environment? On the one hand, the same people are picking up the purchases, but they need to include the same principles and models. However, as mentioned earlier, the speed and capabilities of new technologies form the client's attitude differently.

The authors carried out a pilot research showing the main trends of Internet shopping among the Latvian population. The study began on April 3, 2018 and is still ongoing. These interim results were answered by 86 respondents. Respondents are Latvian residents, internet users who make purchases on the Internet. The questionnaire was sent to the Internet with the help of Google Forms, which made it possible to immediately display respondents who use the Internet. The research is carried out within the framework of the thesis.

Respondent responses are summarized in Figures 3, 4 and 5, which reflect what motivates consumers to shop online, from which regions are most often made online purchases, which also encourages consumers to turn to a merchant and advise them to others.
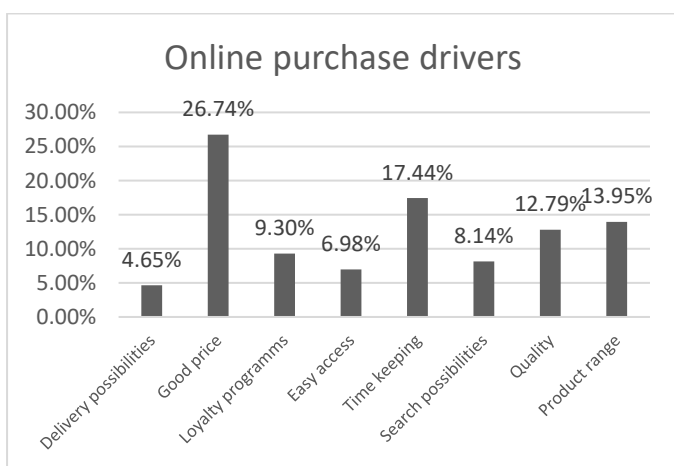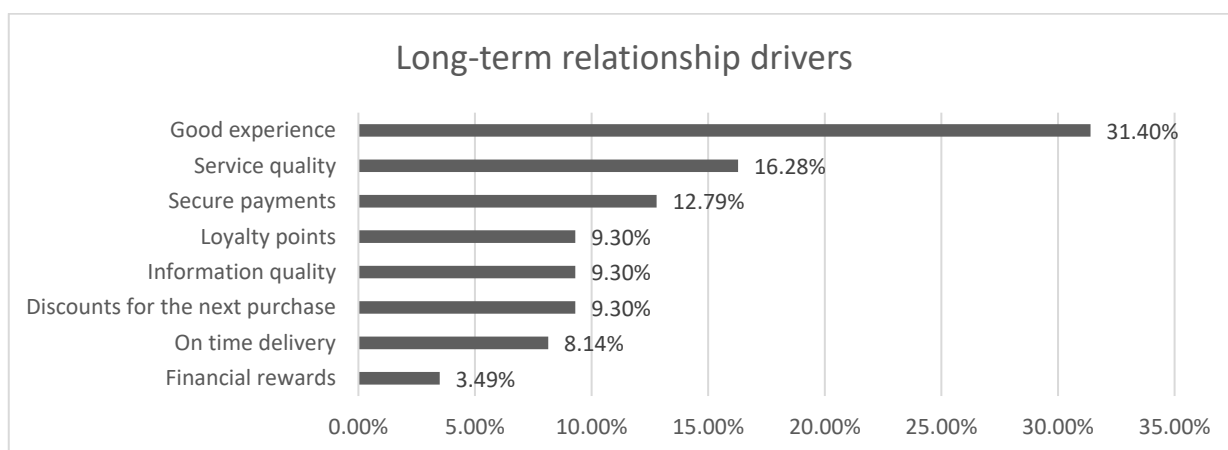

Source: Authors created figure

Fig. 3. **Online purchase drivers**
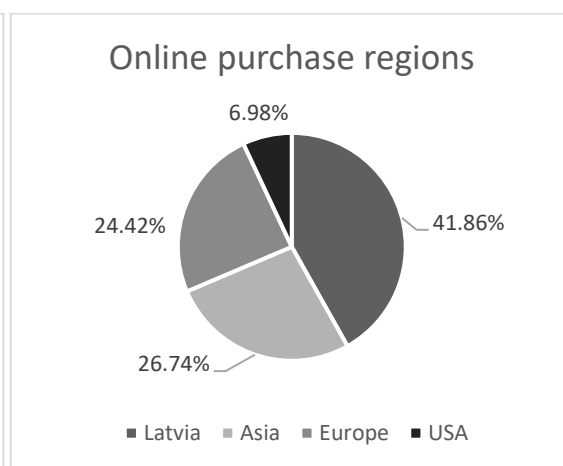
Source: Authors created figure

Fig. 4. **Online purchase regions**

Source: Authors created figure

Fig. 5. **Long-term relationship drivers**

Having analyzed three figures about the trends of Internet shopping among residents of Latvia, the authors of the article came to the opinion that it is important for Latvian residents to choose goods at a convenient price for them

(26.74%). They are also interested in preserving their time (17.44%), since making a purchase on the Internet is a fast and convenient process. Among the inhabitants of Latvia, a wide range of products is relevant (13.95%), which is explained by the fact that on the order it is possible to buy products that are not available in off-line stores.

What was also noticed is that buyers began to buy more goods from local traders (41.86%). When asked this question, it was specifying that it was not only online stores but also products offered through social networks. Still, residents of Latvia often make purchases in the Asian region (26.74%), basically this is a purchase from Asian traders on large platforms, such as ebay.com, amazon.com, etc. There is a direct connection with the fact that the main motivator for Latvians to make purchases on the Internet is the price.

The residents of Latvia are determined to build a long-term relationship with the company, including re-purchasing and recommending the company to friends and acquaintances if they had previously a positive experience (31.40%). Companies also need to think about the quality of the service provided, as Latvians are ready to continue to work with traders further with the availability of quality services (16.28%). Also important is the security of payments, how much it is safe to pay through the Internet (12.79%). Based on the responses of respondents, the authors emphasize that for long-term online cooperation between companies and residents of Latvia, it is necessary not only to offer different and unique goods, but also to monitor the level of prices, safety and quality of services.

Conclusions, proposals, recommendations

1. Long-term relationships with consumers also boost their loyalty to the Internet, but one must not forget that any business strategy needs to be refined and adapted to the Internet dimension. To act quickly, create an enterprise customer database and adapt it to their in-depth research, create a convenient place for purchases, where the customer can easily navigate and securely pay, etc.

2. The quality side must also meet the consumer's desires and needs because the quality is an important part of developing relationship marketing to motivate the customer to become loyal to the online store.

3. It has been concluded that consumer behaviour in the Internet environment is different from behavioural in the traditional one. In addition, what the consumer wants to achieve the outcome of the purchase is also different. Therefore, it is important to remind repeatedly to understand customers what they are most likely to be interested in and how to reach them most effectively.

4. It is important for Latvians to choose goods at a convenient price for them (26.74%). They are also interested in preserving their time (17.44%), and a wide range of products is relevant (13.95%). Latvians are ready to buy in online local stores (41.86%) more than on large foreign trading platforms. Such factors as a positive previous experience (31.40%), service quality (16.28%) and payments safety (12.79%) help to build a long-term relationship with customers. For a long-term online cooperation between companies and residents of Latvia, it is necessary not only to offer different and unique goods, but also to monitor the level of prices, safety and quality of services.

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DO PENSION FUNDS' PARTICIPANTS IN LATVIA TRACK THE PROFITABILITY OF THEIR PENSION SAVINGS?

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Abstract. Pension system in Latvia imposes responsibility for the future pension on individuals. The aim of the current paper was to identify the mode of behaviour of Latvians in respect of their mandatory pension savings in mandatory state funded pension pillar. The paper provides the analysis of the responses given by the participants of the survey conducted in spring 2016. The research methods include analysis of scientific publications and analysis of primary and secondary statistical data using descriptive statistics, Kruskal-Wallis test, χ^2 test, and correlation analysis.

The survey revealed, that 76.8% of those respondents who claim to have participated in pillar II pension funds do not control the profitability of their pension plans, and 67.8% of those who control do it less than once per year. The analysis shows no difference in answers of Latvians and non-Latvians, men and women, having and not-having minor children. There are statistically significant differences between respondents from different regions, of different educational and income levels, age, working in public and private sector. The respondents' answers correlate with their locus of control and ability to critically assess the information. The decisions concerning pillar II savings made by pension plan participants are mainly influenced by advertising, rather than rational thinking.

Low interest demonstrated by the population to the performance of state funded pension plans demotivates fund managers from competition and undermines the future adequacy of pensions. Improving financial literacy in the field of pensions is needed to enable people make informed choice of financial services for their future wellbeing.

Key words: *financial literacy, mandatory funded pensions*

Introduction

In the second half of 1990s many post-communist countries in Eastern Europe have undergone architectonic reforms of their pension systems, that were to a large extent inspired by the World Bank path-breaking publication "Averting the Old Age Crisis" (The World Bank, 1994), that introduced the concept of multi-pillar pension system and actively propagated the substantial shift to privatisation of mandatory pensions. It was anticipated that this shift would bring along higher rate of return under individual accounts and better labour market incentives. Mandatory funded pillars (II pillars in the World Bank terminology) based on financial defined contribution principle (FDC) have been introduced in many countries, Latvia launched them in 2001.

The scholars had warned, however, that "individual funded accounts leave the individual facing most of the risk, in particular from differences in pension fund performance" (Barr 2002, p.31) and that the majority of individuals are not fully aware of the risks, as they "can be myopic and/or imperfectly informed, giving a justification for compulsion" (Barr 2006, p.65). At the same time, individuals are becoming "increasingly responsible for their own financial security after retirement. There are real dangers in shifting the responsibility to save on to workers without assessing whether they are equipped to make those decisions" (Lusardi 2014). A knowledge-based welfare state presupposes participation of enlightened individuals in social security schemes, including public and private pensions. Such individuals should be able to make informed decisions with long-range planning horizon. Although the average level of financial literacy among

Latvians is relatively high (Rajevska and Stavausis 2015), their knowledge of the national pension system and long-term investment planning is not sufficient.

Senior economist at the Swedish National Social Insurance Agency, Annika Sunden pointed out that "individuals often have limited financial knowledge and know little about the characteristics of their public and occupational pension plans or how much to expect in retirement benefits. This could mean that many workers reach retirement with inadequate resources and as a consequence will need to postpone retirement or lower consumption in retirement." (Sunden 2006, p. 325). The formulae used in defined benefit schemes are, normally, quite straightforward, making it easy for a worker to estimate the expected benefit and to compare the replacement rate with the advice provided by financial planners about how much of preretirement earnings should be replaced to maintain living standards in retirement. Even when more complicated formulae are applied, it is easy for pension administrators to calculate replacement rates and communicate this information to beneficiaries. Sundén stresses, that, in FDC schemes, benefits are not defined but depend on contributions and it is difficult to express the expected benefit in terms of a replacement rate. It is also difficult to estimate benefits because they vary with the rate of return.

Yet when the state does its best to translate the formulae into "understandable" figures, the people seem not to be fully aware of their meaning. Sunden notes, that "a large share of participants does not know the details about their pension schemes and that this has negative effect on savings and retirement decisions [...] The level of complexity of the schemes implies that the costs associated with understanding the pension scheme could appear greater than the benefits, even if information is available. [...] For many individuals, retirement is seen as something unpleasant and a cause for worry, which means that thinking and planning for retirement can also involve psychological costs." (Sunden 2006, p. 338-339).

This paper provides the analysis of the responses given by the participants of the survey "Mastery of Life and Information Literacy" conducted in spring 2016 by SIA "Aptauju Centrs"; specifically, to the question whether they control the profitability of their pillar II pension savings (under the "financial literacy" sub-group of questions). This question was not included in the earlier analysis of the survey data in Latvia's Human Development Report 2015/2016 (Holma 2017, p. 113), therefore the author has decided to fill this gap and to focus this study on the thorough investigation of the answers to this particular question. The survey was conducted in 121 sample points in all regions of Latvia using multistage stratified random sampling. The research methods include analysis of scientific publications and analysis of primary and secondary statistical data. The statistical analysis of primary data (obtained by the author in the form of SPSS data file) has been performed using descriptive statistics, Kruskal-Wallis test, χ^2 test, and Spearman's rank correlation coefficients. The obtained results are also juxtaposed with the secondary statistical data from other sources.

Research results and discussion

Table 1 below presents the wording of the question and its optional answers, as well as the percentage breakdown of the respondents' answers.

Table 1

Breakdown of the respondents' answers

Do you control the profitability of your pillar II pension savings? (% of all respondents, n = 1018)	
I don't have a pillar II pension account	22.0
I control the profitability of my investments annually	5.8
I control the profitability of my investments once in two or three years	5.3
More seldom	6.9
I do not control it	59.9

Source: Latvia Human Development Report 2015/2016, weighted data

Thus, considering only those respondents who claim to have participated in pillar II pension funds, the survey revealed that 76.8% of them not control the profitability of their pension plans, and only 32.2% of those who control do it annually.

However, the further breakdown of the answers clearly demonstrates lack of financial literacy of the respondents. If one compares the distribution of the answers given by the representatives of different age groups (Fig. 1), it can be found that 31.8% of the respondents aged 65+ have chosen the answers "I do not control" or "I control annually", although the only valid answer for this age group would be "I do not have a pillar II pension account", because they were not allowed to join pillar II even voluntarily. The number of incorrect answers among the Russian-speakers is higher than among the Latvian-speakers: 42.2% and 23.6% respectively, demonstrating statistically significant difference (t-test for two binomial proportions: t-difference = -2.246, df = 110.3, two-sided p = 0.0267).
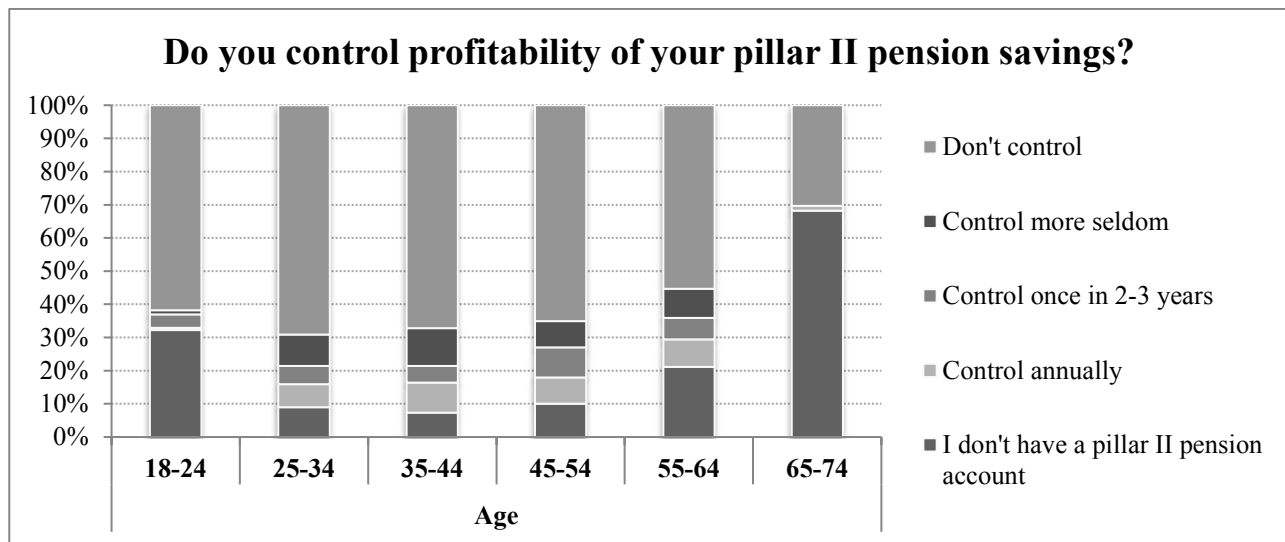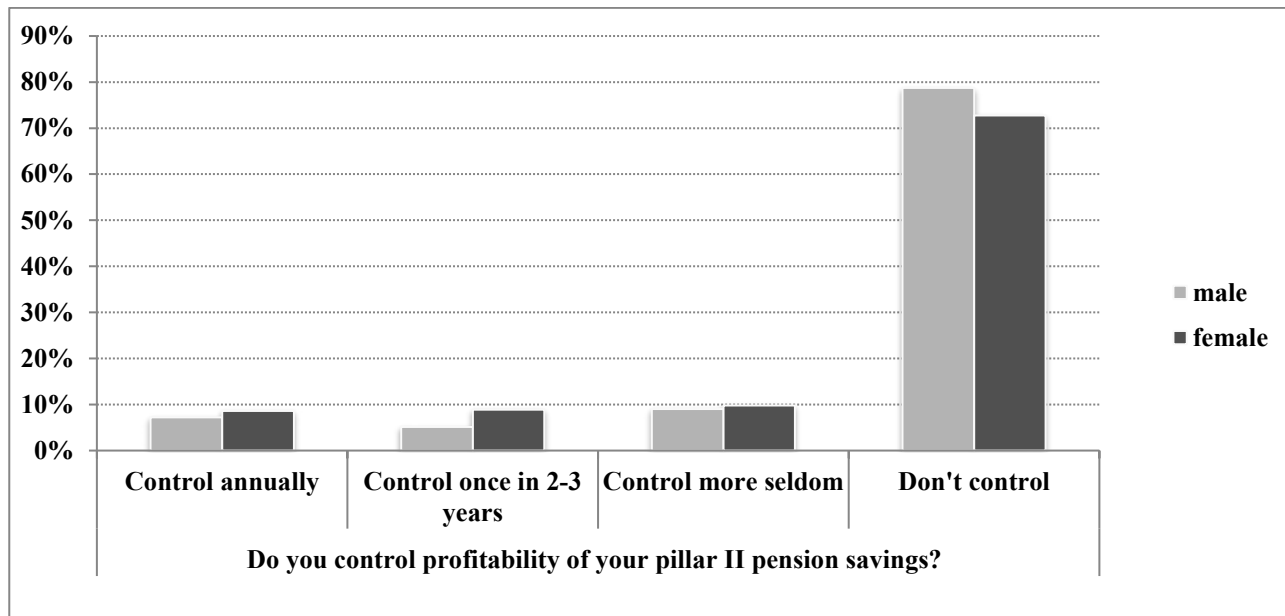

Source: author's construction based on survey data.

Fig. 1. **Distribution of answers in different age groups**

The data don't evidence differences in educational levels between Latvian- and Russian-speakers in this age group, so the higher share of ignorant answers may be due to worse availability of the relevant information and lower interest in it. Because of high level of self-evidently incorrect answers, this age group was excluded from further statistical analysis in order not to contaminate the outcomes.

On the other hand, there are respondents of younger age groups (below 45 years), who are working and who have chosen the answer "I do not have a pillar II pension account", while they have been enrolled in pillar II pension schemes automatically. Such answer in those age groups can be correct only in cases when the person has no official employment record (no work or only undeclared work). In the age group 18-24, there are 22 persons (14.8% of all respondents in this age group) who have working record (either were employed at the time of the survey or were employed earlier), but at the same time have chosen the answer "I don't have a pillar II pension account"; and part of them have been employed in public sector which excludes the possibility of fully undeclared work. On the other hand, in the same age group there are 18 persons (12.1% of all respondents in this age group), who had never worked – and, therefore, cannot have any pension account, but who have chosen the answer "I don't control profitability of my pillar II pension savings", while the only correct answer in that case would be "I don't have a pillar II pension account". This means that more than a quarter of all respondents in this age group (26.8%) have very vague understanding of how a person becomes a participant of mandatory pension system in Latvia.

Further analysis of the respondents' answers took into account only those aged less than 65 years and who have chosen an answer other than "I don't have a pillar II pension account". The researcher's interest consisted in identifying factors that may influence the frequency of the control over profitability of mandatory pension savings.

Women tend to more frequently control their pension savings than men (Fig. 2), but this difference is not statistically significant at α=0.05 (p = 0.161 for χ^2-test).

Source: author's construction based on survey data..

Fig. 2. **Distribution of answers among genders**

Likewise, no statistically significant (at α=0.05) differences were found between Latvian- and Russian-speakers, as well as no statistically significant correlation between the profitability control frequency and marital status or number of children.
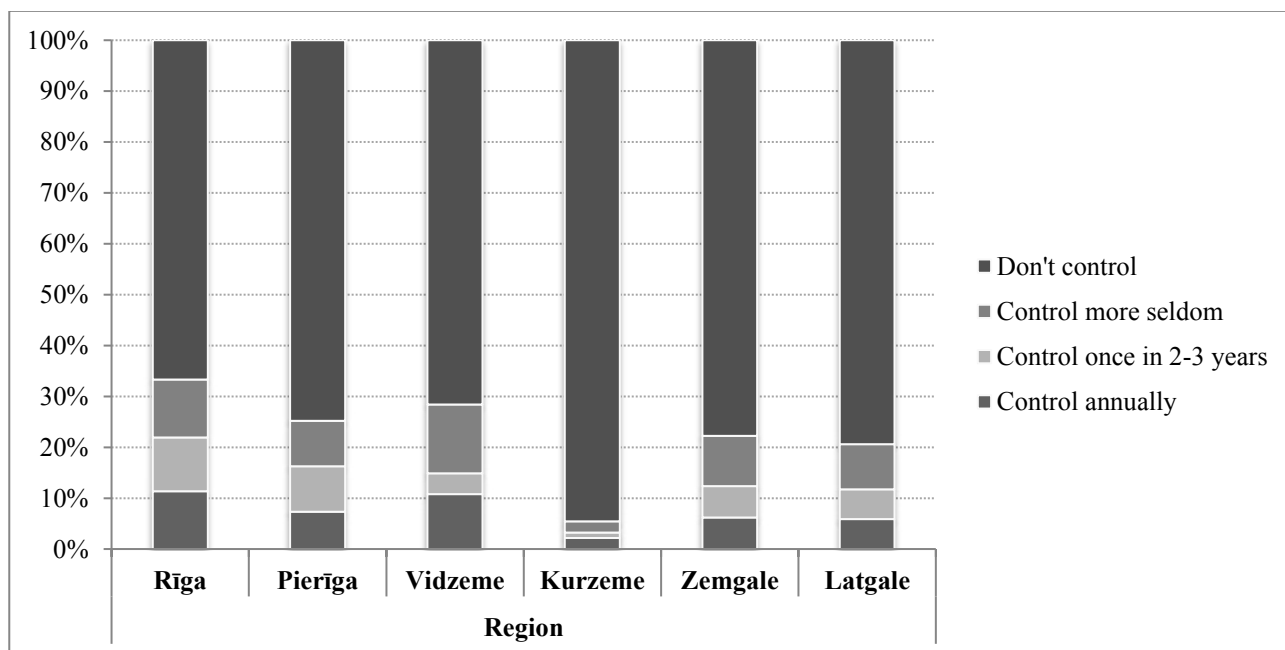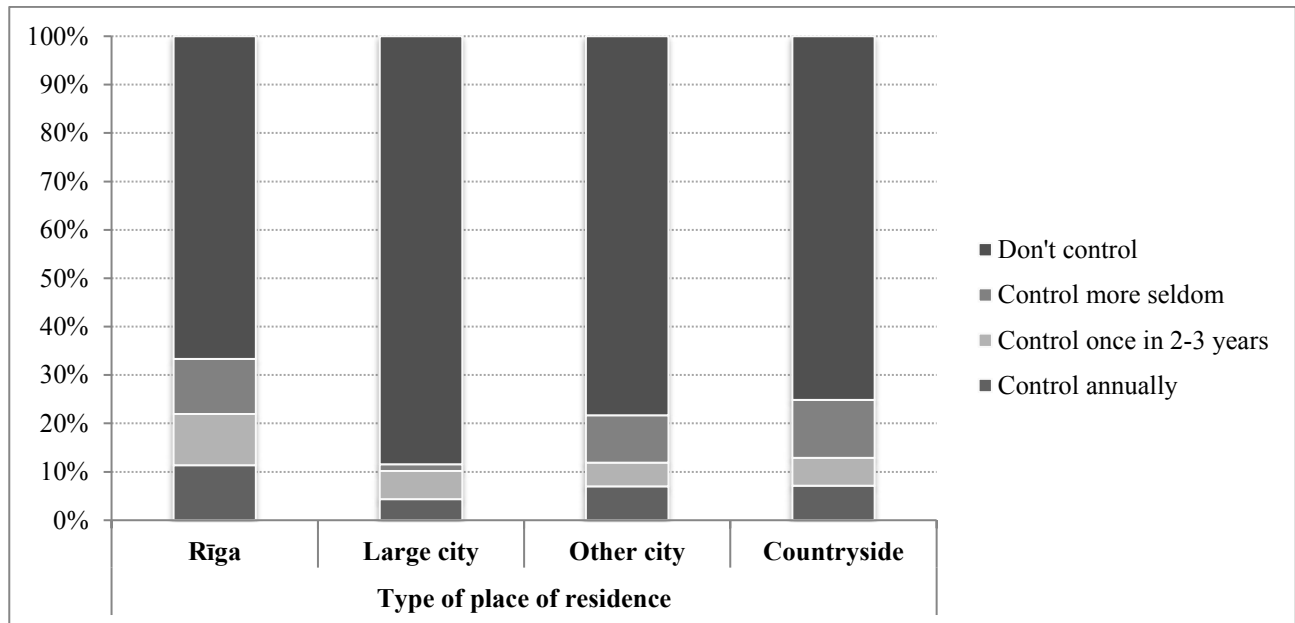

Source: author's construction based on survey data.

Fig. 3. **Distribution of answers among regions**

There are, however, statistically significant differences between the answers of respondents of different regions: Riga, Pieriga, Vidzeme, Kurzeme, Zemgale and Latgale (χ^2=35.011, df=15, p=0.002) (Fig. 3), and of different types of place of residence: Riga, other large cities (Daugavpils, Liepāja, Jelgava, Ventspils, Jūrmala, Rēzekne, Valmiera, Jēkabpils), small cities and rural area (χ^2=29.841, df=9, p<0.001) (Fig. 4).

The most active inspectors of their pillar II savings live in Riga (33.3% of the Rigans do control the profitability of their pension funds), but the pronounced differences between the regions and types of place of residence remain also even if Rigans are excluded from the analysis.

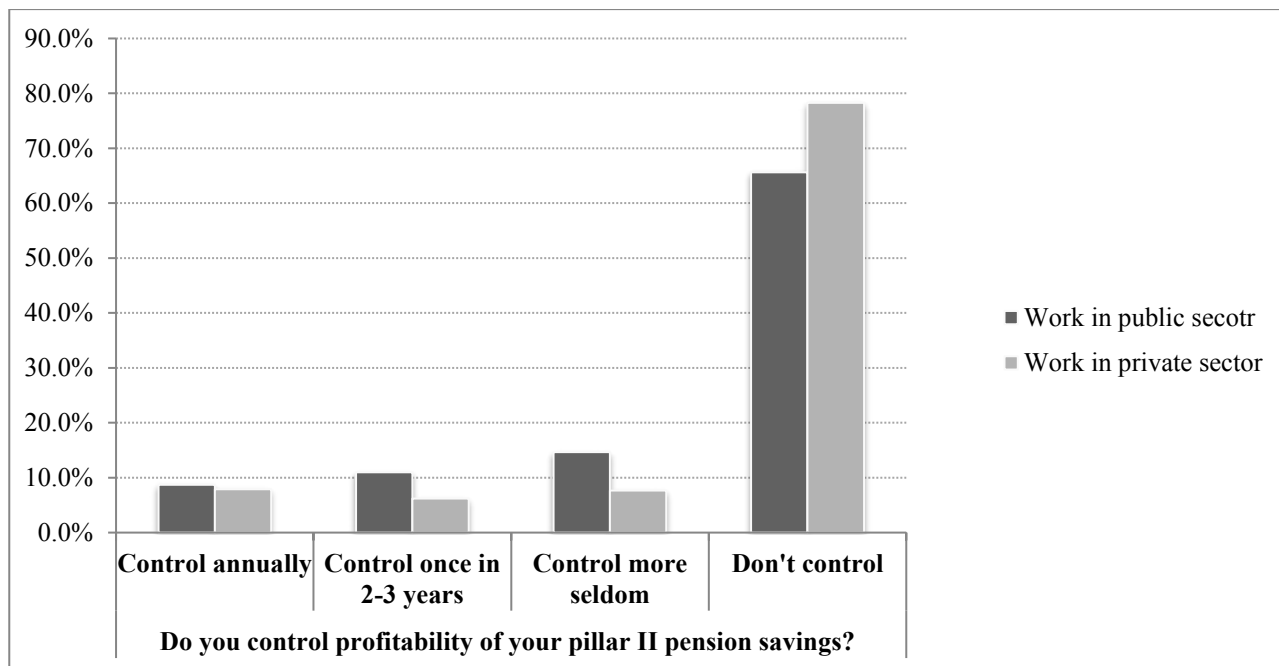Source: author's construction based on survey data..

Fig. 4. **Distribution of answers among types of place of residence**

Statistically significant, but quite weak correlations was found between:
- control frequency and age group: the older respondents are more interested in checking the profitability of pension funds (Spearman's rho = 0.122, p=0.001);
- control frequency and education level of the respondent: more educated persons tend to be more attentive to the profitability of their mandatory pension savings (Spearman's rho = 0.172, p<0.001).

An international research (Lusardi and Mitchell 2011) has shown that persons with higher levels of education – who, as a rule, have higher incomes and therefore make larger contributions to pension funds, - are better informed in financial matters and are less vulnerable to risks of choosing an inappropriate investment strategy. Less educated persons, whose incomes are lower, are more exposed to the risk of making a wrong investment choice. In this context, funded pillars are rendering a disservice to lifetime poor, causing further distortion in income distribution in old age.

Employees in public sectors are more likely to control their pension savings than employees in private sector (Fig. 5): while in public sector 78.3% of all employees never control the profitability of pillar II funds, "only" 65.6% of public sector employees are so ignorant to their pension plans (χ^2=15.202, df=3, p=0.002).

Source: author's construction based on survey data..

Fig. 5. **Distribution of answers among public and private sector employees**

Kruskal-Wallis test evidences also a statistically significant difference in the answers among the income groups (p=0.026). However, the relation is not linear: although in general with the growth of income respondents tend control their savings more attentively (Fig. 6), the highest frequencies are observed among those with net monthly income from €901 to €1,000 as well as among those whole monthly income is above €1,500; while between these intervals frequencies are lower. In likelihood, the absolute prevalence of 'non-controllers' in all income groups, age groups, education groups, among both genders, in all regions and in all types of residence place impairs accuracy of the tests, making the results dependent of quite sparse 'controllers'.
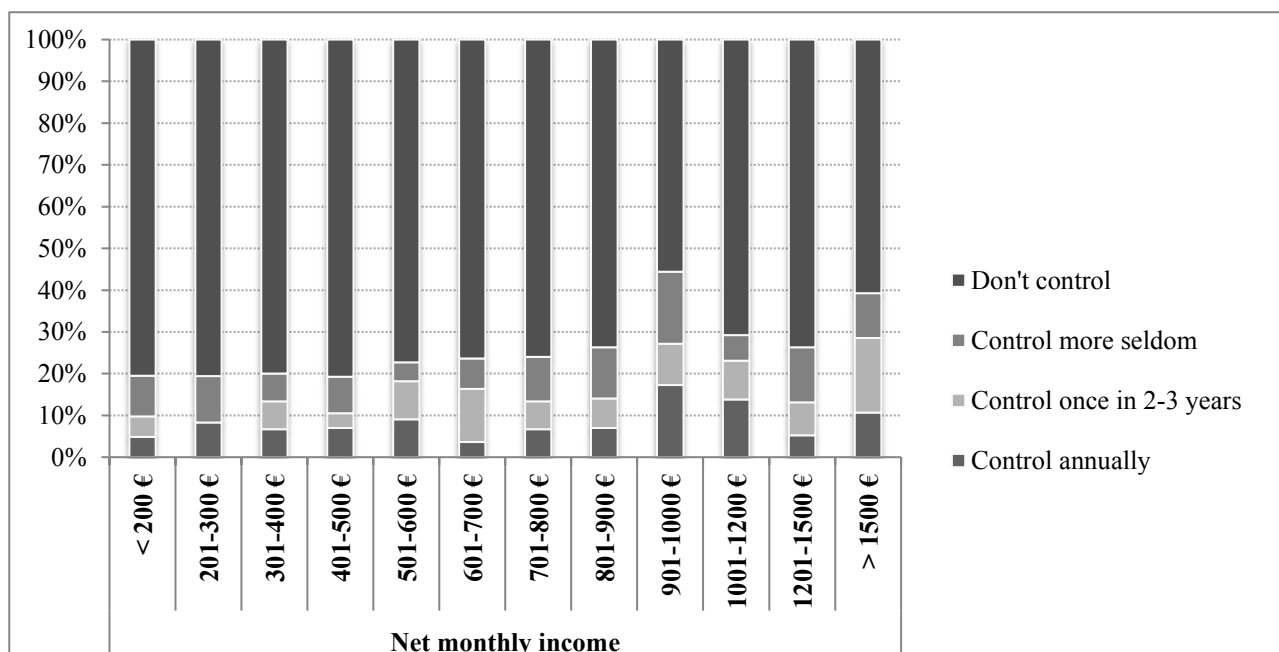
Source: author's construction based on survey data.

Fig. 6. **Distribution of answers among income groups**

Except for socio-demographic characteristics, the respondents' answers about the control over pillar II pension savings have been also compared with their answers to other questions characterising their information literacy. Thus, statistically significant positive correlations (Spearman's rho = 0.183, p<0.001) have been found with the respondent's propensity to double-check the information in media (Fig. 7): the more often respondent is verifying the information from different sources, the more often s/he is controlling his individual pension savings in pillar II.
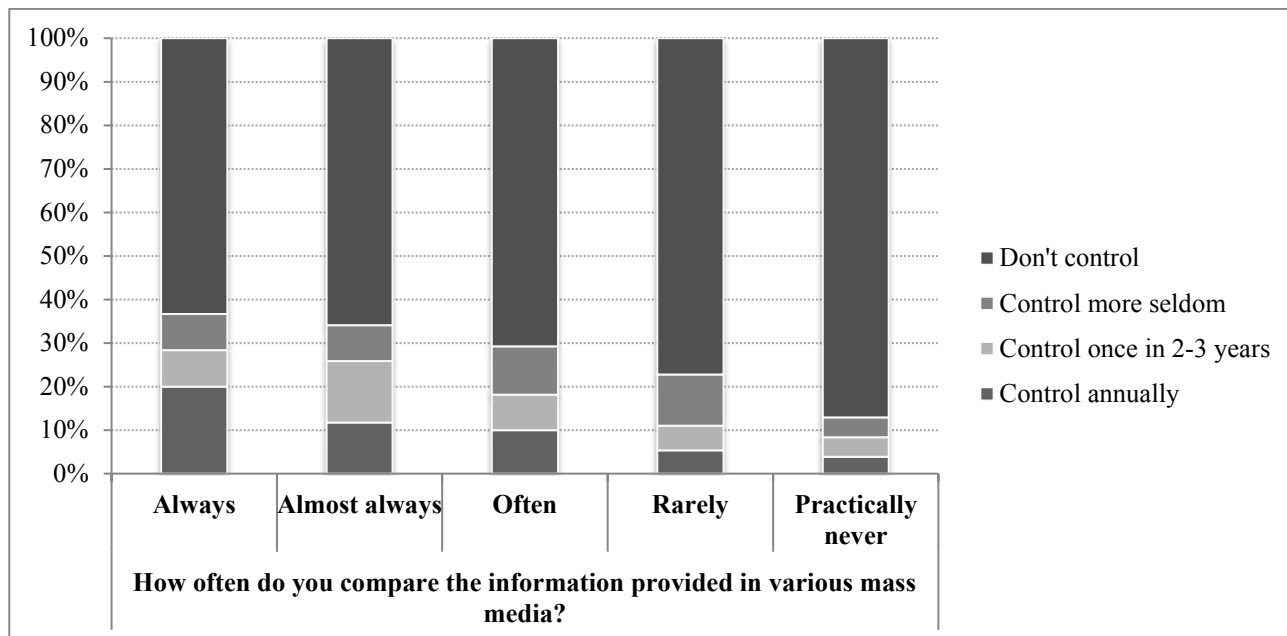
Source: author's construction based on survey data.

Fig. 7. **Distribution of answers compared to media literacy**

These are also the persons, who tend to agree with the assertion that they "try to critically assess the information they have found" (Spearman's rho = 0.141, p<0.001) and to disagree with the assertion that "synthesizing and storing the found information is difficult to them" (Spearman's rho = -0.089, p=0.018). All other variables of the group "information literacy" do not demonstrate significant correlations with the reviewed question. There is another statistically significant (but weak) positive correlation between the control over individual pension savings and their consent with the statement "My life is fully controlled by myself" (Spearman's rho = 0.086, p=0.018), i.e. the more internal is the person's self-reported locus of control the higher is their propensity to control the state of their pension account. However, even in the group who feel their own control over their lives most ("my life is fully controlled by myself"), only 24.9% are paying attention to their pillar II savings; meanwhile in the group with the most external locus of control ("my life is fully controlled by external factors") only 4.2% are monitoring their pension accounts.

Weak concernment of Latvians in their mandatory pension savings is also backed by Financial and Capital Market Commission data. In 2015, the Commission has published the report of the Survey conducted by Research Center SKDS in 2014 and 2015 on the financial literacy of the population of Latvia, which included also some questions on pension literacy as well. According to the Report (FKTK 2015, p. 52), in 2014 and in 2015 only 22% of pillar II participants were following the information on the performance of their chosen fund – profitability, management fee, etc. (SKDS survey does not distinguish how often were they following, only two options were offered to respondents: "follow" and "don't follow"). So, these figures are absolutely in line with the 23.2% obtained in 2016 in "Aptauju Centrs'" survey used in this paper.

Although Latvian legislation allows changing fund manager, more than 90% do not use this opportunity (only 7% in 2014 and 5% in 2015 did change the manager[*]), and almost half of those who use it have done so under the influence of advertising, rather than rational thinking. Only 17% in 2014 and 16% in 2015 of those who changed the manager did it because of being not satisfied with the pension plan results (FKTK 2015, p. 53).

The analysis shows no difference in answers of Latvians and non-Latvians, men and women, having and not-having minor children. There are statistically significant differences between the answers of respondents from different regions ($p<0.001$), of different educational level ($p<0.001$), age ($p<0.01$), working in public or private sector ($p<0.01$), etc. The respondents' answers also correlate with their self-reported locus of control and ability to critically assess the information found and to compare information sources.

Conclusions, proposals, recommendations

1. Pension system in Latvia imposes responsibility for the future pension on individuals. A knowledge-based welfare state presupposes participation of enlightened individuals in social security schemes. Such individuals are expected to make rational informed decisions with long-range planning horizon.

2. Funded pension schemes are a complex financial instrument and the costs associated with their understanding could appear greater than the benefits even if information is available. Furthermore, retirement per se is seen as something unpleasant, which involves also psychological costs of thinking of and planning for retirement.

3. Latvian population demonstrate very low interest to the performance of the pillar II pension plans. Only 23.2% of all respondents monitor the profitability of their mandatory pension savings. Only 7.4% do it annually. Many respondents in the oldest and the youngest age groups provide evidently invalid answers.

4. The analysis shows no difference in answers of Latvians and non-Latvians, men and women, those with and without minor children. There are statistically significant differences between the answers of respondents from different regions, of different educational and income levels, age, as well as between working in public or private sector.

5. The respondents' answers also correlate with their self-reported locus of control and ability to critically assess the information found and to compare information sources.

6. Pillar II participants rarely use the opportunity to change the fund manager, and when do so, are influenced mainly by advertising, rather than rational thinking.

7. Low interest demonstrated by the population to the performance of state funded pension plans demotivates fund managers from competition and undermines the future adequacy of funded pension component.

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[*] State Social Insurance Agency annual reports provide different figures: my calculations based on their data (VSAA 2015, 2016, 2017) return the following shares of "fund manager switchers" among all pillar II participants: 11.3% in 2014, 10.8% in 2015 and 10.4% in 2016. These higher rates can, in my opinion, be explained by the fact, that the majority of the "switchers" are representatives of the youngest age group, and the figures reflect their first-time decisions (made to move from one of conservative pension plan they had been automatically assigned to). In the surveys, however, younger groups are represented proportionally to their share in total population, and not to their share in the total number of "fund switchers".

8. Improving financial literacy in the field of pensions is needed to enable people make informed choice of financial services for their future wellbeing.

Acknowledgements

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SCENARIOS FOR LATVIAN DAIRY PRODUCTS EXPORT DEVELOPMENT

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Daina Skiltere, University of Latvia

Abstract. Dairy industry in Latvia shows rapid growth since milk production facilities are being modernised and milk product assortment is being expanded in the last years. Latvian dairy products export value reached 165.5 million EUR in 2016, decreasing by 23.2% in comparison with export value in 2014. It is impossible to determine the probable industry's of dairy products development and certain products export prospects because Latvian dairy industry researches are included in the whole researches of food and beverage industry. The authors' research is actual in modern market since it analyses production of milk and dairy products in Latvia and contains evaluation of external markets potential.

The research aim is to analyse the potential of external markets for Latvian milk and dairy products industry.

The research uses statistical data processing methods, system analysis, comparison methods, forecasting methods.

The results of the research reveal scenarios for Latvian dairy products export development, which theoretically reflects the dynamics of Latvian milk processing industry development. The authors emphasize that the revealed tendencies are the basis for further research. The credibility of the results will increase after inviting experts and members of industry. According to the authors, the major factors preventing the export of Latvian dairy products are great competition in foreign markets, high logistics costs and low economic freedom. The main export conducive factors are large and open markets and stable demand for dairy products.

Key words: *Milk and milk product production industry, export development scenarios, forecast, economic freedom.*

JEL codes: C53, F17, Q17.

Introduction

In the study the authors analysed the potential of foreign markets for Latvian dairy products, as well as created an export development scenario. According to the authors, scenario forecasting is also useful for decision making at both business and national government levels, since the use of scenarios under market conditions allows to understand the situation and its evolution better and more fully, find out the benefits, assess the potential threats, define possible directions for action, increase adaptation speed and response rate to changes in the external environment. As a result, the authors believe that the main conclusions are applicable for the planning of Latvian economic growth strategies and in the analysis of the economic freedom of external markets. Thus, the results of the study are both theoretically and practically applicable.

The official documents of the Government of the Republic of Latvia, industry reports and statistics were used to create scenarios. For scenario qualitative analyses were mainly used scientific researches regarding foreign markets and economic freedom of target markets. Additional data about the dairy industry in Europe were analysed based on reports from the European Commission.

As a result of the research the authors express their views on the growth of the Latvian dairy product industry, reveal the factors stimulating or preventing export of dairy products.

Research results and discussion

Milk and dairy products are used daily in people's everyday life, and almost every European citizen uses them daily. Latvian dairy industry has been developing rapidly in recent years, modernising production facilities and developing assortment of dairy products in production companies. Dairy farming is a subsector of the national economy and in it is involved a complex system of companies, which processes and produces milk and milk products, supplies these products to intermediaries and market agents and ensures their sale on a consumer market. The dairy industry was 17.7% gross of the total value of agricultural production in Latvia in 2015, thus the sector is one of the basic courses in Latvian agriculture. It is the second largest sector after the grain industry, which is 33.1% part of the agricultural final production structure (Ministry of Agriculture of the Republic of Latvia, 2016). The authors point out that the situation slightly improved in 2016, when the share of the dairy sector increased to 19.6% in the structure of final production of agricultural products, where the first place was occupied by grain production (28.8%) (Ministry of Agriculture of the Republic of Latvia, 2017). After studying the current situation of the Latvian milk and dairy products industry, the authors have found that the Ministry of Economics and the Ministry of Agriculture of the Republic of Latvia include researches concerning dairy industry in researches of the whole food and beverage industry, therefore it is impossible to unambiguously determine the development possibilities for the milk and dairy product industry, as well as to separately assess the export of dairy products. There is a high level of competition in the industry and there is a big gap between leaders and followers, considering processed and produced milk, or financial turnover, or either the pace of technology modernisation. Export value of Latvian milk and dairy products reached 165.5 million EUR in 2016, insignificantly decreasing by 1.7% in comparison with the year 2015 and by 23.2% if compared with the year 2014 (Ministry of Agriculture of the Republic of Latvia, 2017).

The authors describe the dairy industry as a subsector of the national economy, in which is involved a complex system of companies, which processes and produces milk and milk products, supplies these products to intermediaries and market agents and ensures their sale on a consumer market. Milk producing farm is closely dependent on crop production and cattle breeding farming, while the milk production process creates three raw material elements – barn manure that is reused in crop production afterwards; calves, which are also used for the re-cultivating of cows and cattle breeding; raw milk, which is the raw material of the dairy industry and from which dairy products are produced for consumption both in Latvian domestic market and for export.

74 milk buying companies were registered in Latvia in January 2018 (Agricultural Data Centre of the Republic of Latvia, 2018). The authors observe that most of them are agents, who later sell milk to dairy factories or export raw milk as raw material. As a result of the interaction of dairy farming elements many different detached non-dairy products are made, which are sold to final consumers. For instance, biogas, which is a source of heat and electricity, is also produced within dairy industry (Miglavs, 2015). After collecting the statistics authors conclude that the Baltic States have the lowest raw milk prices in Europe (see Fig. 1). The average raw milk price was 306 EUR / t in Latvia in 2016. The government is implementing ever new measures to smooth this indicator within European average and provide any support to Latvian farmers. The authors emphasize that Switzerland is the absolute leader concerning raw milk price, having reached 543 EUR / t in 2016. This is for 83% more than the average raw milk in the European Union. Average raw milk prices in Latvia, by contrast, are 28% lower than the average in Europe. The authors emphasize that the average raw milk price was 214.52 EUR / t in Latvia in 2016, or for 0.7% less than in 2015, and for 26% less than in 2014 (Ministry of Agriculture of the Republic of Latvia, 2017).

The consequences of such hostile trend could be critical to the Latvian dairy industry since companies are in disadvantaged position as their competitors could earn much more for the same product in the other European countries. It contributes to the regression of the industry and the divergence of European countries. The authors state further that in the beginning of 2017 the situation in Latvia has been slightly improved as raw milk prices in Latvia increased rapidly in comparison with the other European countries in December 2017 against December 2016 (see Fig. 2). Raw milk price has increased by 42.6% during the last year. By contrast, the European Union's average raw milk price has grown by 0.3% per month and in March 2017 was EUR 334.2 per tonne. (European Commission, 2017).
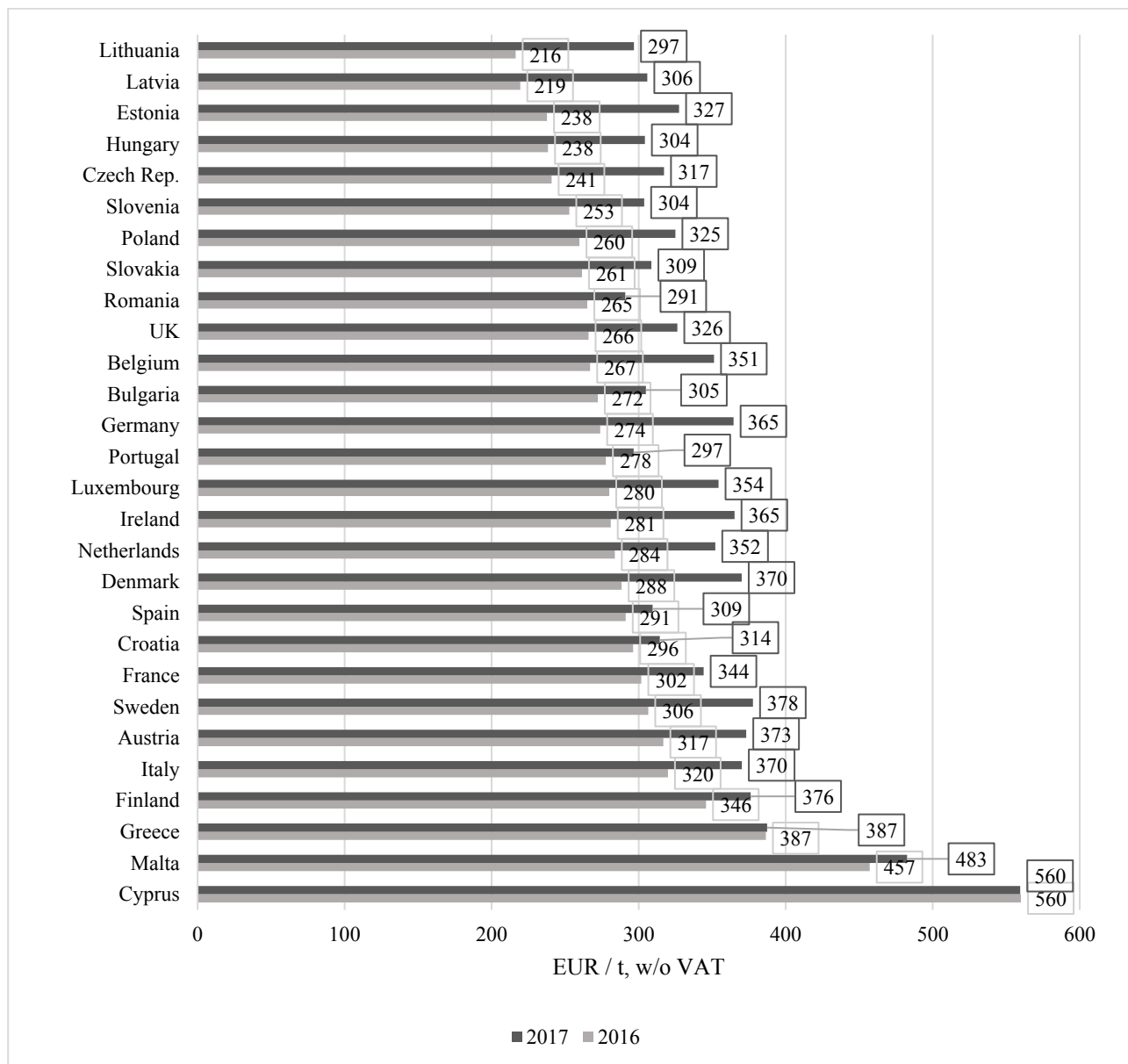
Source: authors' construction based on Eurostat and Italian Dairy Economic Consulting organisation data (Eurostat, 2016), (European Commission, 2017)*,* (Italian Dairy Economic Consulting Organisation, 2016)

Fig. 1. **Comparison of the average raw milk prices in European countries in 2016 – 2017**

The authors conclude that raw milk prices in European countries are not stable, and tended to continue to grow, however, the average milk price in Latvia is still below the average price level in the European Union. The authors believe that improving the competitiveness of Latvian manufacturers should work on efficiency, because industry's players are highly dependent on government subsidies or subsidies of European Union. According to the authors opinion, banks do

not invest in agricultural projects, whose viability and long-term repayment trends depend on political decisions and subsidy procedures.

The authors indicate seasonality of the dynamics of raw milk purchasing (see Fig. 3). Milk processing industry flourishes during summer with increase in the purchasing of raw milk. November and February are the lowest points in purchasing volumes. The authors add that the tendency in 2017 repeats the comparative periods of previous years.
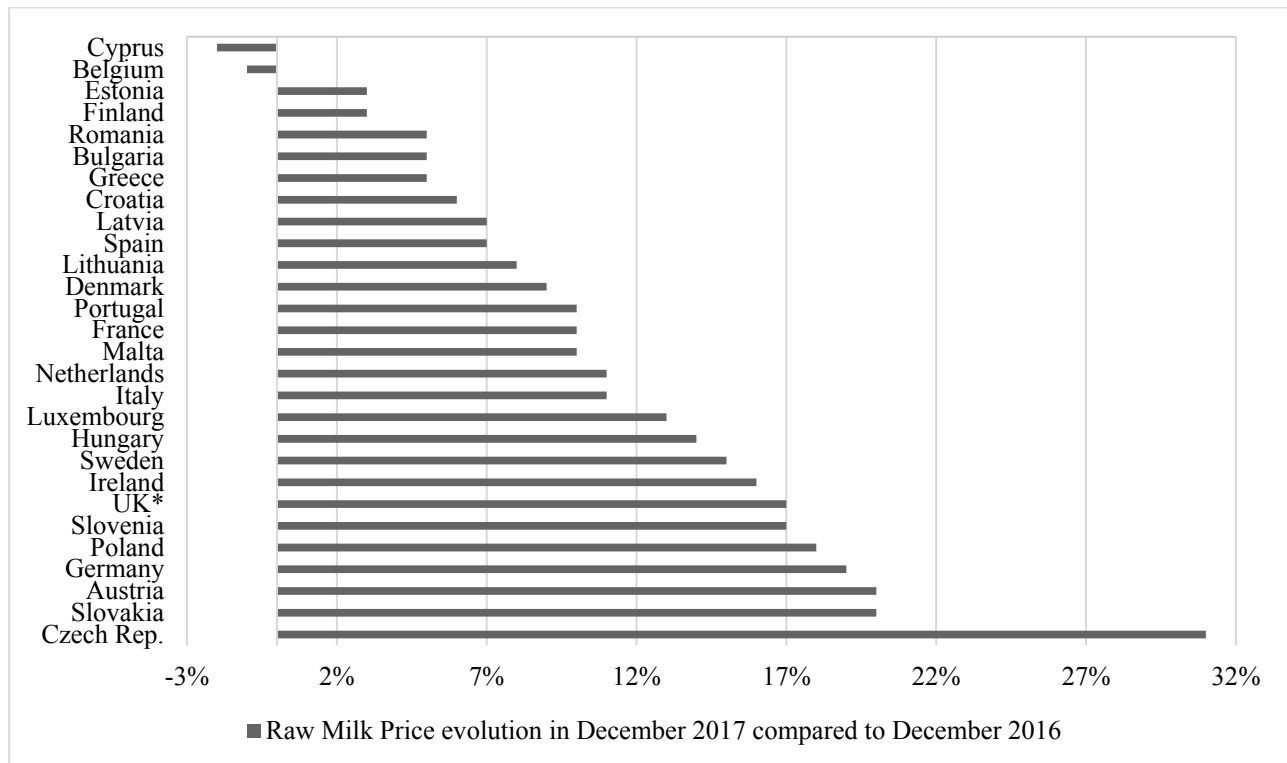
Source: authors' construction based on Milk Market Observatory (European Commission, 2017)
*: estimated figures for December 2017

Fig. 2. **Raw Milk Price evolution in December 2017 compared to December 2016**

Government of the Republic of Latvia granted state funding of 7 million EUR to milk producers in Latvia in May 2017 in order to reduce fundamental revenue cuts since the import embargo in Russia since August 2014. The project is intended to extend the European Union's exceptional adjustment assistance provided in December 2016 valued 9.76 million EUR with additional support from the state budget in order to facilitate market stabilisation and promote economic sustainability of dairy farms (Cabinet of Ministers of the Republic of Latvia, 2017). Aid from the state budget is necessary, as the current European Union and national emergency aid measures only compensated a small reduction in revenue and dairy producers suffered serious financial difficulties. The support has also been granted in the context of a downgrading raw milk prices after a few months of raising. It was expected that after summer season raw milk prices usually reduces further, aggravating the financial difficulties of dairy producers. The authors indicate that financial support has been granted only to milk producers, who had implemented at least one of these activities during a certain period – reduced o rat least did not increase production, implemented a quality scheme or a project aimed at promoting quality and added value, implemented cooperation projects, applied environmentally or climate friendly production methods or engaged in small-scale farming. The aim of certain activities is to contribute to stabilising the market and to promote the economic sustainability of farms. The producer will receive support for just one activity.

The authors conclude that the European dairy market is overcrowded, that is why the government is taking decisions to stimulate the reduction of milk production. According to the authors, this situation is absurd in whole, since milk

producers are forced to stop the production process, maintain or sell cows. If the crisis situation will not be improved and resolved in the near future, local farms may go bankrupt, even in spite of the granted subsidies.

The number of dairy cows in Latvia is also indicative of the reduction of milk production during 2015 – 2017. It is important to note that the number of dairy cows used for direct milk production is far less than the total number of cows (see Fig. 4). According to the authors, it already shows a reduction in milk production. Sustainable development of the dairy industry is not possible in this situation. Number of dairy cows, whose milk was used in production in 2015, was much lower than the total number of cows. Owners of shepherds also reduced the total number of cows in 2016. Number of cows continued to decrease in the beginning of 2017. The authors believe that cow owners are forced to sell animals because there is no way to keep shepherds. Obviously, milk cows are not in demand in Europe in the current situation, so most cows are sold to slaughterhouses.
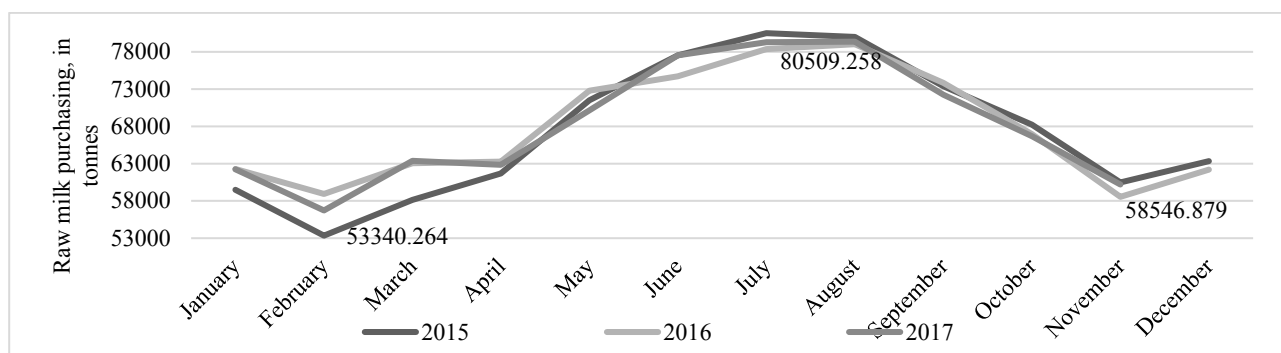
Source: authors' construction based on Agricultural Data Centre of Republic of Latvia (Agricultural Data Centre of Republic of Latvia, 2018)

Fig. 3. **Purchase of raw milk in Latvia from 2015 to 2017 by months in tonnes**
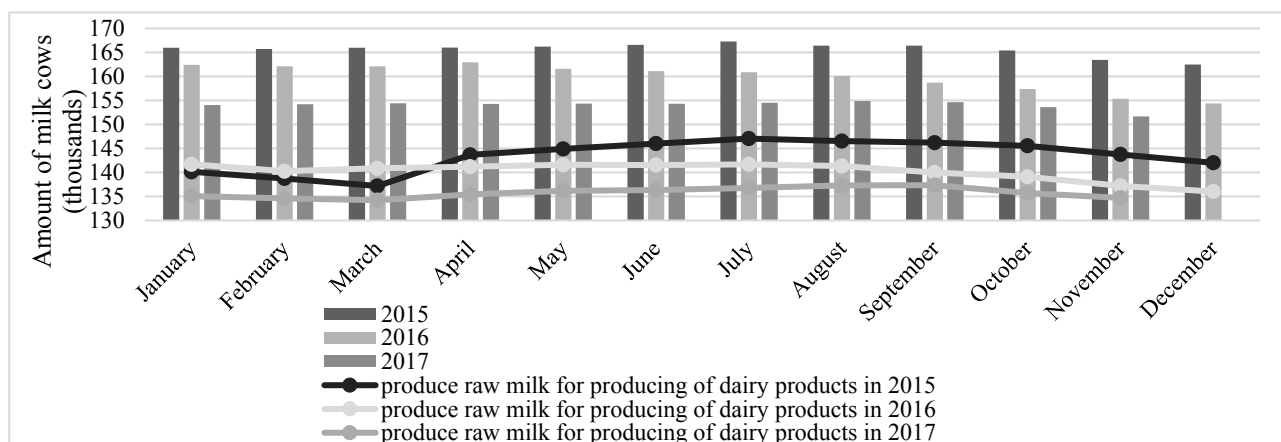
Source: authors' construction based on Agricultural Data Centre of Republic of Latvia (Agricultural Data Centre of Republic of Latvia, 2018)

Fig. 4. **Amount of milk cows (in thousands) in Latvia from 2015 to 2017**

The export scenarios for the Latvian milk and milk products industry are one of the tools for assessing the sustainability of the sector and the economic freedom of the market. Historically, the scenario method was used only to predict the state of research object as a whole, usually for a period of 10 to 20 years. With the emergence of a market economy, scenarios are developed at almost any stage of the research. The scenario construction involves both the object development scenario to extrapolate the trends discovered during research to individual subsystems and to create individual scenarios for each subsystem to apply the synergy effect shown to the common system as well. Economic industry's development scenarios are classified according to several features. For example, industry's development scenarios, scenarios for sectoral enterprises, territory planning scenarios, product development scenarios (Nikolaev, 2011). For dairy products produced in Latvia it is not possible to objectively define market sharing, as the dairy production

industry does not have a common approach how to divide the external markets. According to the authors, the most relevant markets could be the Baltic States, the rest of the European Union countries, the Russian market, the Asian market, as well as other regions of the world. In this study, the authors assess only export scenario in general terms, forecasting only total export volumes, but assessing the trends of separate markets with a qualitative approach.

All calculations are based on unpublished data from the Central Union of Latvian Milk Manufacturers. The data for the last months of 2017 was not compiled at the time of this research, so all calculations are based on data of the first nine months of 2017, from January to September respectfully. The forecasts of milk and dairy products export volumes in Latvia by 2020 are based on a trend $y = a \times t^b$. The authors focus only on export volume forecasting, considering retrospective data shown since 2012. Taking into account researches regarding dynamic relationships between world regions, the authors suppose that by adding more influencing factors and more empirical observations, the model type could be possibly extended. Additional variables potentially could be interest rates, exchange rates, environmental variables, consumption and investment.

The modelling approach chosen in the research is the base for the future researches. Econometric framework to analyse the dynamic relationships between the world's largest regions is advised to be based on Vector AutoRegression (VAR) model (Caporale & Girardi, 2016). Since the authors observed quarterly real gross domestic product series for six major Latin America countries (Argentina, Brazil, Chile, Mexico, Peru and Venezuela) over the period of more than thirty years, they advised to implement VAR models only to complex variables and observations. They found out that smaller series make the VAR models more unstable (Caporale & Girardi, 2016). On the other hand, forecasting only export quantity is quite accurate process, the results depend only on retrospective analysis. While analysing previous trends of export, some trend models could be used (Tahir, 2014). Quadratic models of trend analysis are best suitable for variables when export quantity and export value were both zero at the beginning of observations. The authors discus the mentioned research, because it solves the similar problem to Pakistan, forecasts export quantity of citrus not taking into calculations any other influencing factors besides actual retrospective data. The authors emphasize that the research of volume of exported dairy products could be used for the future researches. By adding trend selection criteria the best fitted model could be selected. The advised model evaluation criteria could be mean absolute percentage error, mean absolute deviation, mean squared deviation (Tahir, 2014).

The same results were shown in recent research of Philippine merchandise export performance, the authors of that research test seasonal ARIMA models to forecast export (Natividad, et al., 2017). The particular research investigates the comparison between two models, different seasonal autoregressive integrated moving average (SARIMA) models were developed for the clustered commodities and for the total exports based on the monthly merchandise exports of the Philippines from 2011 to 2016. The authors support the method of a comparison of the root mean square error (RMSE) and mean absolute error (MAE) of the models, that should be used for the future researches on Latvian dairy industry products export. ARIMA model is used in the recent research of hazelnut export of Turkey, but it is based also of various factors and variables (currency exchange rates, export revenue, trade liberalization), that supports the conclusion about implementing complex model for export forecasting after additional variables are requested (Akal, 2009). ARIMA model offers a good technique for forecasting, but better be used for at least 50 observations to receive more trustful results (Farooqi, 2014). The authors conclude, that after choosing the other retrospective period and after adding various other factors to the model, trend forecasting could be possibly changed to a different model, taking into account the respectful criteria for model evaluation.

After summarising data for the last six years, the authors conclude that the volume of dairy product exports in the first nine months of each year increased for some product categories since 2012, while others remained unchanged. Exported

cheese volume ranged from a minimum of 11 124 tonnes in 2014 to 15 638 tonnes in 2017, while the minimum exported volume of milk and cream (without raw milk) was in 2012, reaching 8 113 tonnes, but in 2016 it was 19 469 tonnes already. The volumes of total exported dairy products are shown in the Table 1.

Table 1

Volume of exported dairy products (in tonnes)

Product	Year	Volume of exported dairy products (in tonnes)	Volume of exported dairy products (in tonnes) for January - September
Dairy products in total	2017	287 556*	287 556
	2016	260 570	262 064
	2015	358 938	274 423
	2014	357 639	272 608
	2013	334 332	255 126
	2012	326 911	249 580
Dairy products, except raw milk	2017	64 755*	64 755
	2016	98 011	71 652
	2015	80 215	63 476
	2014	82 854	63 144
	2013	78 609	58 035
	2012	66 105	47 756

Source: authors' construction based on unpublished data of Latvian Agricultural Organisation Cooperation Council
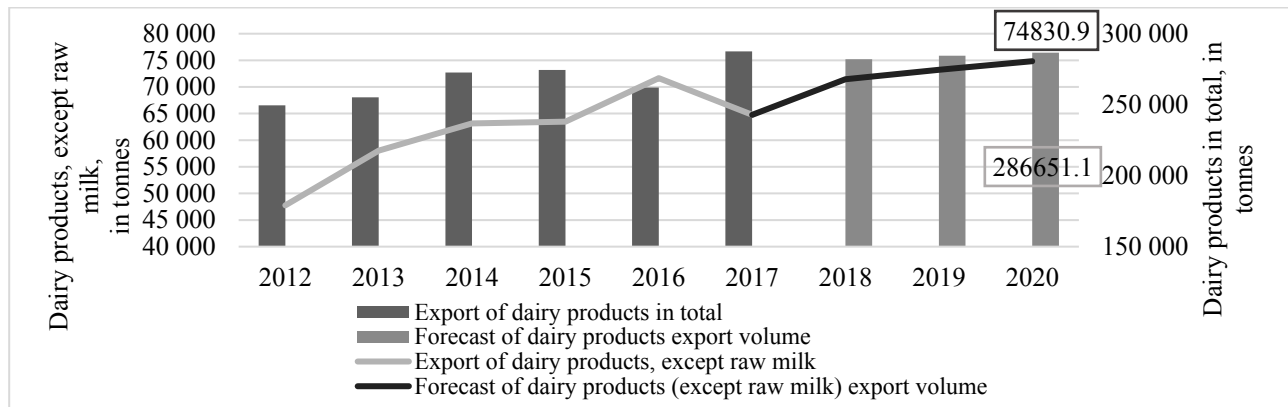**: Volume of exported dairy products (in tonnes) for January – September*

If current trend persists, total exports of dairy products will increase in the coming years. The total amount of dairy products exported will be 286.7 thousand tonnes in 2020, while the volume of dairy products, excluding raw milk, will be 74.8 thousand tonnes. Trend equation for the total exported volume of dairy products is the following: $y = 248175.4 \times t ^ 0.066$, trend equation for the exported volume of dairy products, excluding raw milk, is the following: $y = 49941.614 \times t ^ 0.184$ (see Fig. 5, Table 2). Correlation coefficient of the total export trend is 0.851, correlation of the export of dairy products, excluding raw milk, is 0.928. Correlation coefficients in both cases indicates that the obtained trend values have a close correlation with the initial data.

The authors emphasize that the total volume of export will depend on several factors, both stimulating and preventing. Export markets for dairy products could be open and favourable, but also those, where exports of dairy products could be very difficult. The Lithuanian and Estonian markets are the closest to Latvia, therefore, such form of cooperation will not be affected or will be neutrally affected by factors such as limited product expiration term, political decisions (sanctions, embargo etc.), global currency exchange rates, high logistics costs, intolerance and milk allergy, lack of information on foreign markets. In addition, the authors emphasize that Lithuania and Estonia are members of the European Union, therefore they have the same quality requirements and standards, there are no complicated customs procedures. Authors believe that the main limiting factor of export in the Lithuanian and Estonian markets is a very high level of competition in these countries and, consequently, marketing costs will be high as Latvian dairy producers will have to compete in markets that are overwhelmed by local production.

Slightly different situation is in the rest European countries. European exporters of dairy products lost the opportunity to export their products to Russia, which was large and significant partner, and thus tried to realise the surpluses of produced products within the European domestic market. According to the authors, the most probable export scenario for Europe is the following: until co-operation agreements with Russia are restored and local European dairy producers will

not find new markets, Latvian dairy producers will be forced to sell their products in the European internal market. The authors suppose the main objective of Latvia and Europe is to regain the Russian market in order to preserve the opportunity to export and sell there milk from Latvia. According to the authors, the main preventing factors for export to Russia are bureaucratic burdens and complicated customs procedures, as well as high logistics costs. Russian market was not evenly acquired in 2014. Latvian dairy products were mostly sold in Moscow, St. Petersburg, and other big cities closer to the border of Latvia. The authors emphasize that the Russian market is also perspective in the socio-economic aspect as consumers in Russia historically believe that Latvia's production is ecologically clean and highly qualitied, therefore consumers in Russia are loyal to Latvian dairy products and for several years Russia has a stable demand for Latvia dairy products.

Source: authors' calculations based on unpublished data of Latvian Agricultural Organisation Cooperation Council

Fig. 5. **Forecast of dairy products export volume**

Table 2

Index for forecast of exported dairy products

Parameter to research	Trend coefficients		Correlation coefficient
	a	b	r
Export of dairy products, except raw milk, in tonnes	49,941.614	0.184	0.928
Export of dairy products in total, in tonnes	248,175.400	0.066	0.851

Source: authors' calculations based on unpublished data of Latvian Agricultural Organisation Cooperation Council

According to recent researches, the impact of the embargo since August 2014 was the decline of 0.12% from total European export of goods. This was equal to 3.2 billion USD decrease of export flows. Therefore, the mostly affected industry was vegetables and fruits production, which suffered export decline by almost 30% or by more than 1.8 billion USD. Less significantly reduction was in the total export of meat production by 14% and dairy products by 11% (Kutlina-Dimitrova, 2017). On the other hand, recent researches discus that previous experience with doing business in Central and East European countries can be regarded as a key advantage with the future business prosperity (Gorynia, et al., 2015).

The analysis of Russian market potential needs to be taking into consideration with numerous limitations, politics being the most unstable factor. Researches show that Russian market is not stable because of global energy market trends and various combinations of related economic, political, technological and ecological factors (Kuzminov, et al., 2017). Technology-related drivers are playing the leading role in stress scenario realisation for the Russian market, but it is usually a specific combination of other drivers that could trigger the launch a particular scenario, that implement changes for Latvian milk and dairy industry products export.

The potential of Asian countries for Latvian milk production, according to the authors, has not yet been evaluated and fully exploited. Kazakhstan, Uzbekistan, Azerbaijan and other South Asian countries, as well as China, Vietnam, Thailand, and other East Asian countries and the Middle East have a great potential for Latvian dairy products. Firstly,

the consumption of dairy products in these regions has increased in recent years, as many new products and new flavors have appeared. Secondly, because of the climate specificities and the lack of livestock areas, there is no way to engage in dairy farming wholly to meet adult demand. The authors believe dry milk products are almost boundless from being sold in Asia due to the unlimited shelf-life. Authors believe that the Asian market has great potential, but historically people in Asia cannot eat milk enzymes, but in recent years, both medical innovation and the opportunity to travel a lot in the age of globalization, the consumption of dairy products in Asia has also increased. However, there are not enough areas with good qualitied ecology so that the products would be ecologically clean and fresh, that is why export issue is crucial. According to the authors, New Zealand and Argentina are among the main competitors on the market because they have enough resources. The authors also believe that there is now a market niche in Asia that needs to be completed as soon as possible. Several modes of transport can be used for delivery from Latvia to Asia: rail transport, maritime transport, road transport, air transport as well.

The authors suppose that the most suitable dairy products for export to East Asia are cheese, milk powder, ice cream. If companies will be able to provide the necessary temperature regime during transportation, the variety could be extended by yogurt, cottage cheese, cream, etc. Authors point out that by rail transportation dairy products will be delivered to the place of sale in about a week. Thus, the authors offer to start using the rail transport service as it will reduce delivery costs, but relatively quickly (within a week) the cargo will be delivered. If the experience is successful, the companies can also use air transport. The main export preventing factors for Asian market are the lack of financial aid and export subsidies, a large gap between national quality standards and outdated technologies. According to the authors, with modern technologies it is possible to prolong the expiring term of dairy products, and thus increase the interest of local consumers and confidence in Latvian dairy products.

European Commission is constantly working towards opening new export markets for European producers. They concluded the agreement with Australian Government in November 2015 with the main goal to proceed towards a free trade conditions. Due to European market's size such opportunity could affect Australian exporters of agricultural production, including milk and dairy products. With the expansion of the European Union, all European countries together are the largest producers and consumers of dairy products in the world now. The main market players in milk-producing are Germany, France and the United Kingdom. The Common Agricultural Policy (CAP) has supported the dairy industry with variable import fees and export subsidies. This growth contributed to European Union producers becoming a major producer and exporter of agricultural production. European Union removed the milk quota system in April 2015. Since 2014 world dairy prices has fallen critically (Howden, et al., 2016).

The authors believe that the export of Latvian dairy products to South America, the USA, Canada and African countries is limited for objective reasons. One of the major problems is the limited shelf life of products and the logistical problem. The low potential of this market is also indicated by particularly low supply volumes and low added value. The authors believe that the South American, US and Canadian dairy products market is also well filled with local products. Authors also believe that the main obstacle is the distance and the impossibility of rail supplies. In addition, there are very different standard requirements in South America, the United States and Canada, so Latvian dairy producers must adapt their production directly to American quality standards. Authors believe that existing export volumes can not cover the cost of delivering using airplanes, so the most efficient way would be to use rail or auto logistics services across Europe and further deploy shipping. Thus, potentially exportable dairy products are those with longer shelf life. In addition, producers of dairy products must find a balance between the price of products on the market and the cost of logistics. Another important task and problem to be solved before initiating an export is financing of marketing campaigns and additional funding for advertising.

The only way possible export to Africa is dry milk products, mainly dry milk powder, used as a raw material for other dairy products. According to the authors, export volumes to Africa will increase in the near future as it is an export market with a high potential that can be gained by Latvian milk producers, thus replacing other regions' embargo. Authors believe that it is now possible for producers of dairy products in Latvia to look for opportunities to start exporting to Africa because there is no opportunity to deal with livestock farming because of the climate, so locals produce milk from dry raw materials from Latvia.

Table 3

Summary of export development scenarios for the milk and dairy products industry in Latvia

	Foreign markets	Key influencing factors	
		Stimulating	Preventing
1	Lithuania and Estonia	A short distance, united quality standards, loyalty of local consumers	High level of competition, high marketing costs
2	Other European Union countries	United quality standards, relatively small distance	High level of competition, high marketing costs
3	Russia	Very large market, local people's historical trust in quality and their loyalty	Bureaucracy, complex customs procedures
4	Asia	Very large market, stable demand for dry dairy products	High logistics costs, high level of competition
5	Other regions	Very large market	Very high logistics costs, different quality standards

Source: authors' construction

Taking into account the above-mentioned trends, the authors conclude that, if the current trend persists, the volumes and value of Latvian dairy product exports will increase by 2020. The authors emphasize that the Lithuanian and Estonian markets have the lowest relative value of dairy products, while the Russian market is the highest (see Table 3).

The authors consider the major competition in foreign markets and high logistics costs as the most important factors preventing export of dairy products in Latvia. The main stimulating factors are large market and a stable demand for dairy products. Authors believe that economic freedom includes all these factors, comparing all above-mentioned markets between each other. According to the recent researches about economic freedom it was founded that high income of inhabitants shows insignificance of any other issues associated with economic freedom. Higher level of exports contributes to keeping taxes lower and economic freedom of particular country higher, that is why differences in population income level in already wealthy areas fundamentally differ from the other (March, et al., 2017).

Conclusions, proposals, recommendations

Conclusions

1. The dairy industry was 17.7% gross of the total value of agricultural production in Latvia in 2015, thus the sector is the basic in Latvian agriculture. It is the second largest sector after the grain industry, which is 33.1% part of the agricultural final production structure. Export value of Latvian milk and dairy products reached 165.5 million EUR in 2016, insignificantly decreasing by 1.7% in comparison with the year 2015 and by 23.2% if compared with the year 2014.

2. The Baltic States have the lowest raw milk prices in Europe. The average raw milk price was 306 EUR / t in Latvia in 2017. Average raw milk prices in Latvia, by contrast, are 28% lower than the average in Europe. Average raw milk price was 214.52 EUR / t in Latvia in 2016, or for 0.7% less than in 2015, and for 26% less than in 2014.

3. Volume of Latvian dairy product exports in the first nine months of each year increased for some product categories since 2012, while others remained unchanged. If current trend persists, total exports of dairy products will increase in the coming years. The total amount of dairy products exported will be 286.7 thousand tonnes in 2020, while the volume of dairy products, excluding raw milk, will be 74.8 thousand tonnes.

4.   The main limiting factor of export in the Lithuanian and Estonian markets is a very high level of competition in these countries and, consequently, marketing costs will be high as Latvian dairy producers will have to compete in markets that are overwhelmed by local production.

5.   The main preventing factors for export to Russia are bureaucratic burdens and complicated customs procedures, as well as high logistics costs. Russian market is also perspective in the socio-economic aspect as consumers in Russia historically believe that Latvia's production is ecologically clean and highly qualitied, therefore consumers in Russia are loyal to Latvian dairy products and for several years Russia has a stable demand for Latvia dairy products.

6.   The potential of Asian countries for Latvian milk production has not yet been evaluated and fully exploited. Firstly, the consumption of dairy products in these regions has increased in recent years, as many new products and new flavours have appeared. Secondly, because of the climate specificities and the lack of livestock areas, there is no way to engage in dairy farming wholly to meet adult demand. There is a market niche in Asia now that needs to be completed as soon as possible.

7.   The most suitable dairy products for export to East Asia are cheese, milk powder, ice cream. If companies will be able to provide the necessary temperature regime during transportation, the variety could be extended by yogurt, cottage cheese, cream, etc. The main export preventing factors for Asian market are the lack of financial aid and export subsidies, a large gap between national quality standards and outdated technologies. Due to modern technologies it is possible to prolong the expiring term of dairy products, and thus increase the interest of local consumers and confidence in Latvian dairy products.

Proposals

1.   Raw milk purchasing prices in Latvia are the lowest in the European Union, hence in order to promote the development of Latvian farms and therefore the quality of milk, the Ministry of Finance should include the dairy industry in the priority sectors by allocating additional financing to the industry, consequently promoting the prosperity of the industry and also economic freedom in the internal market in order to stimulate export. In addition, all official representatives of Latvia abroad should participate in the lobbying of Latvian agricultural and dairy sectors in order to make Latvian farmers and dairy producers recognisable in the external markets.

2.   As future external trade will be related not only to the demand intensity but also to the image of the Latvian state and the ability of Latvian products to withstand competition with foreign producers, Latvian producers need to pay more attention to increasing the range of dairy products in order to be able to fill one of the external market niches and increase the potential of external markets.

3.   The Ministry of Agriculture should apply research studies that are binding on the milk and dairy products industry and, in particular, to forecast exports at the beginning of the research, as the basic principles of factor analysis and scenario forecasting, since export forecasting is a very complicated task; export has been widely affected by external and internal factors, but unique factors are also binding on the product industry.

4.   Latvian milk and dairy products companies should increase their export to Asia, Africa and America, as these regions have a high potential for Latvian dairy products. Firstly, the consumption of dairy products in that region has increased in recent years, as many new products and new flavours have appeared. Secondly, because of the climate there is no opportunity for Asian region to engage in dairy farming to meet the demand of inhabitants.

5.   More research is needed from industry's in-house researchers regarding foreign markets' economic freedom and influencing factors. Total understanding of economic freedom modelling would increase total understanding of each market developing dynamics since all export preventing or stimulating factors are accounted also in economic growth and widely influences the possibility to import agriculture products.

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BANKRUPTCY PREDICTION MODELS WITH STATISTICAL AND ARTIFICIAL INTELLIGENCE TECHNIQUES – A LITERATURE REVIEW

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Abstract. Bankruptcy prediction has been an active research domain since 1960s. The possible bankruptcy of the company has consequences for not only the owners and creditors of the company, but also for investors, employees, therefore, in order to receive timely, and the most accurate signals for possible bankruptcy, is the priority for all interested parties.

The effectiveness of a bankruptcy prediction model is determined by the accuracy of its outcome. Models are mainly divided into two categories: statistical and artificial intelligence models. Mostly used statistical model methods are *Multivariate discriminant analysis, logit*, *probit* and others. However, in this century the use of Artificial Intelligence techniques in predicting bankruptcy is undergoing rapid development. As its main techniques can be mentioned – *Decision trees, Classification and regression tree, Artificial neural network, Genetic algorithms, Support vector machines* and others. The main conclusion is that Artificial Intelligence techniques yield the result with much higher accuracy than the statistical methods that is essential for bankruptcy prediction considering potential financial consequences.

The methods used in the study are monographic analysis, graphical presentation, grouping and comparison.

Key words: *artificial intelligence, bankruptcy prediction models, statistical techniques*

JEL code: G33

Introduction

Bankruptcy prediction is one of the most crucial business decision-making problems. The negative impact of bankruptcies on the economy and society, has led to the extensive researches and development of many bankruptcy prediction models. Financial distress and financial failure of a business is an extremely costly event. Bankruptcy prediction involves developing statistical and modern technique models based on publicly available information like financial ratios that provide warnings. Accurate prior warnings would promote economic stability and lead to qualitative actions in avoiding financial distress or even worse – insolvency of the company. The successful development of the bankruptcy prediction model depends on selected variables as some researchers, like Argenti (1976) notes that qualitative variables like size of an enterprise, defects in top management, is crucial for predicting financial distress.

The most popular statistical methods used for developing bankruptcy prediction models (Balcean, Ooghe, 2006) are Multivariate discriminant analysis (MDA) and Logistic regression (LR). With vigorous growth of Artificial intelligence (AI) tools, most comprehensive methods used for bankruptcy prediction models are Artificial neural network (ANN), Support vector machines (SVM), Decision trees (DT) and Genetic algorithms (GA).

The general trend in bankruptcy prediction is orientated towards building a new model that provides a higher level of accuracy than any model before. In order to prove it, the new model is often pitted against a popular predecessor. Altman et al. (1977) compared ZETA model with the original Altman (1968) Z-score, ZETA model showed improving accuracy. Altman et al. (2017) compared support vector machines, bagging, boosting, random forest, neural networks (AI

techniques) and discriminant analysis, logistic regression. Their study defined that Artificial intelligence techniques showed approximately 10% higher accuracy than traditional methods.

Agriculture companies have high volatility in financial results as global market situation, production volumes and price trends, weather conditions, influence their performance. The flourishing and prosperity of these companies are challenging issue to the owners. Agriculture in Latvia made 3.9 % of GDP in 2017 (Central Statistical Bureau of Latvia, 2018), grain is one of the main products and export goods Latvia is competitive, in 2016/2017 Latvia exported 2.3 million tons of grain, 90% wheat (Ministry of Agriculture, 2018). Therefore, specific model evaluating financial situation of the agriculture companies, giving correct signals of possible financial threats is vital for the industry.

The research object is statistical and artificial intelligence methods for bankruptcy prediction.

The aim of the paper is, based on the analysis of the statistical and artificial intelligence methods for bankruptcy prediction examined in the scientific literature, to define the methods, which the author will use in the future studies for creating bankruptcy prediction model for the agricultural companies in Latvia.

The aim implies the following tasks: to analyse and assess the theoretical basis provided by scientific literature regarding the methods for bankruptcy prediction; to consolidate the data of previous research on the significance of the methods; to define the methods that have the highest accuracy using quantitative and qualitative variables.

The paper proceeds as follows, the first chapter presents theoretical part on bankruptcy prediction techniques, the second chapter presents results of the literature review on bankruptcy prediction models, their performance and comparison. The last chapter corresponds to the concluding remarks.

Research results and discussion

1. Bankruptcy prediction techniques

In the scientific literature, bankruptcy prediction models mainly use such popular statistical methods as Multivariate discriminant analysis, Logistic regression or Artificial intelligence methods, most popular of them are Neural network, Support vector machines and Decision trees. One of the most commonly used statistical methods is Multivariate discriminant analysis, normally used with financial ratios for bankruptcy prediction. Artificial intelligence methods are computer based techniques of which Artificial neural network is the widely used for bankruptcy prediction (Alaka, 2018). In order to evaluate these methods, most studies select several methods and acquired result is compared from the point of accuracy (the higher is the result the better). Some of the methods, for example, Support vector machines are better in dealing with small sample sizes, on the contrary – Logistic regression, Multivariate discriminant analysis, Neural network deal with large data sets. These features should be taken into consideration when correct method is selected.

This study will review six methods used to develop bankruptcy prediction models (Fig.1.) including: *Multivariate discriminant analysis, Logistic regression, Artificial neural network, Support vector machines, Genetic algorithms and Decision trees.*
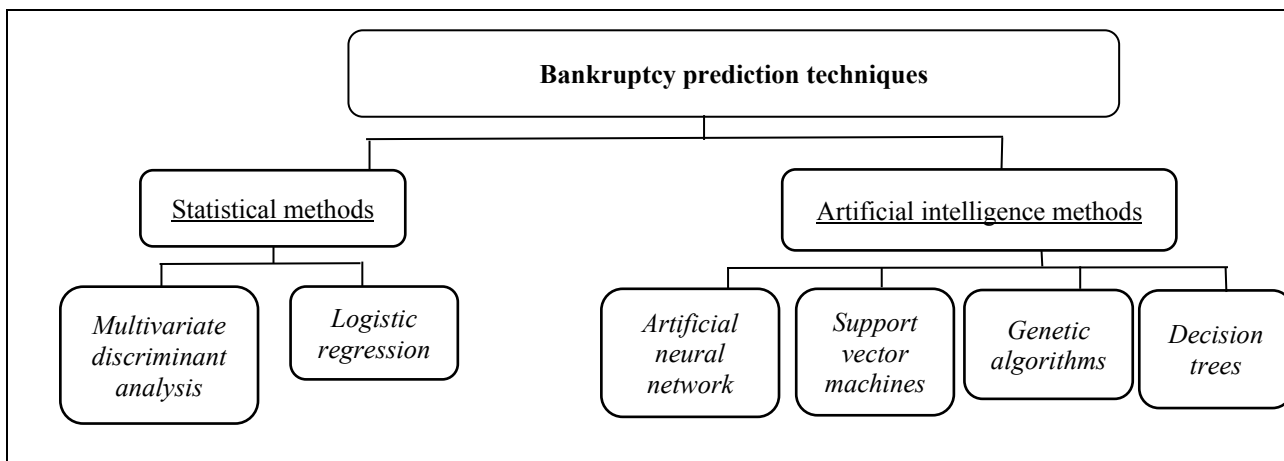
Source: author's construction on selected methods

Fig. 1. **Bankruptcy prediction techniques**

Statistical methods:

Multivariate discriminant analysis (MDA) is based on the minimisation of the variance among observations of the same group and the maximization of the distance between observations of different groups (Mahmoudi, Duman, 2015). The method produces a score, and an observation is classified into a group depending on the score relative to an arbitrary cut-off value (Altman et al. 2017). MDA uses a linear combination of financial ratios that best differentiate between failing and surviving firms to classify firms into one of the two groups. The first MDA model was developed by Altman (1968), called Z-score model, the MDA function:

$Z = c_1 X1 + c_2 X2 + \ldots\ldots\ldots c_n Xn$

$c_1, c_2, \ldots\ldots\ldots c_n$ = discriminant coefficients

X1, X2,………. Xn = independent variables

The function calculates Z-score of any company that possesses the independent variables in the function.

Logistic regression (LR) is a conditional probability model, which uses the non-linear maximum log-likelihood technique to estimate the probability of firm failure under the assumption of a logistic distribution (Jackson, Wood, 2013). Ohlson (1980) first applied LR to bankruptcy prediction known as Ohlson logit model. According to du Jardin (2016) Logistic regression is more popular alternative as a multivariate model for application scoring due to the restrictive assumptions of MDA, such as requiring normally distributed variables and sensitivity to outliers.

Artificial Intelligence methods:

Artificial neural network (ANN) was created to imitate how the neural system of the human brain works and was first applied to bankruptcy prediction by Odom and Sharda (1990). A network is usually made up of three layers: an input layer made up of as many neurons as there are explanatory variables, a hidden layer made up of a certain number of neurons and an output layer made up of a single neuron, when the classification task at hand is binary (du Jardin, 2016). Common architectures for ANNs include Multi-layer perception, self-organizing mapping and Perception (Chang, Tan, Holdsworth, 2008).

Support vector machines (SVM) was developed by Vapnik and his colleagues as a state–of-the-art machine learning algorithm for classifying high-dimensional data (Vapnik, 1998). The main difference between ANN and SVM is the principle of risk minimization. While ANN implements empirical risk minimization to minimize training data error, the SVM implements the principle of structural risk minimization by constructing an optimal separating hyperplane in the

hidden feature space, using quadratic programming to find a unique solution (Shie, Chen & Liu, 2012). SVM uses a linear model to develop an optimal separating hyperplane by using a highly non-linear mapping of input vectors into a high-dimensional feature space. It constructs the boundary using binary class. The variables closest to the hyperplane are called support vectors and are used to define the binary outcome (failing or non-failing) of assessed firms. All other samples are ignored and are not involved in deciding the binary class boundaries (Alaka et al. 2018).

Decision tree (DT) is a non-linear discrimination method, which uses a set of independent variables to split a sample into progressively smaller subgroups. The procedure is iterative at each branch in the tree; it selects the independent variable that has the strongest association with the dependent variable according to a specific criterion (Michael, Gordon, 1997).

Genetic algorithms (GA). The optimization problem can be very difficult to solve given huge search parameters, but GA is usually used to search for a function's global optimum, and can also be used to increase the robustness and global optimization of many applications (Chen et al., 2007). The GA performs the optimization process in four phases: initialization, selection, crossover, and mutation (Kim, 2003).

2. Results and Discussion

In 1968 Altman changed fundamentally corporate bankruptcy prediction when his seminal paper "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy" for the first time combined five ratios into one single linear function, called the Z-score model. Model measures liquidity, profitability, leverage and solvency of the company. Z-score model consists of a linear combination of variables estimate through Multivariate discriminant analysis. Other researchers who applied MDA for bankruptcy prediction model were Deakin (1972), Edminster (1972), Taffler (1982).

The Logit model is a conditional probability model, which uses the non-linear maximum log-likelihood technique to estimate the probability of company failure under the assumption of a logistic distribution. The logistical function ensures that the probability estimates are bounded between 0 and 1. A high logit score indicates high failure probability and poor financial health. A low logit score indicates good financial health and a low probability of failure. Ohlson (1980) first used the econometric methodology of conditional logit analysis for corporate bankruptcy prediction. Ohlson's model uses nine predictive variables that measures company's size, leverage, liquidity and performance.

Both statistical methods use only financial ratios like liquidity, performance and leverage – theses ratios are the basic components of quick financial analysis. Extant studies show that in most cases not only financial ratios are signals of some risks but also unprofessional management decisions may lead to financial distress, the age of the company, changes in tax policy, macroeconomic data and industry specific features (subsidies) - these may qualified as qualitative variables. The bankruptcy prediction model technique should allow implementing all necessary variables if that is need.

The Artificial neural network has been applied extensively in financial forecasting and bankruptcy prediction. Unlike MDA and logit, ANN have the advantage that they do not rely on any pre-specification of a functional form, they are not restricted in their assumptions regarding the characteristics and statistical distributions of the variables. ANN are more able quickly analyse complex patterns within the data and with a high level of accuracy (Back at al. 1996). Odom and Sharda (1990) applied neural network for failure prediction using a simple three-layered (1x input, 1 x hidden, 1 x output) network with back-propagation training algorithm the compared the accuracy of neural network to a discriminant analysis model. Odom and Sharda found that neural network provided better results than the discriminant model showing on average 20% higher accuracy level.

Chen (2011) has compared statistical (discriminant analysis, logistic regression) with intelligent techniques (decision tree, support vector machine, genetic algorithms) for bankruptcy prediction. Intelligent techniques outperformed

statistical with around 90% accuracy. In his work 8 variables were selected, 34 variables were discarded (including non-financial and macroeconomic index), 200 companies analysed. As conclusions, Chen suggests using financial ratios as they have greater effect on financial prediction. Accuracy for intelligent techniques showed higher lever, especially closer to the time of the actual bankruptcy event. Chen also concluded "the closer we get to the time of the actual bankruptcy event, the more accuracy predictions will for all classification algorithms except for the Linear discriminant analysis and Logistic regression algorithms. Traditional statistical methods are better able to handle large datasets without suffering a drop in prediction performance."

The most important parameter for the evaluation of the model is its performance. According to Kirkos (2012) "One of model problems is data overfitting, when model memorizes the training samples, instead of actually learning. The result of data overfitting is that the models succeed very high accuracy rates against the training set, but disproportionally lower performance against out-of-the-training-set observations. When applied in the real world the model will face new patterns and thus a model suffering from data overfitting will present weakness. For that reason the performance must be estimated against object not included in the training set." This test is known as model's validation.

The basic model performance measure is classification accuracy. Accuracy is crucial for bankruptcy prediction model developer and user, as wrong prediction may have to costly result. Classification accuracy is defined as the total number of cases correctly classified, divided by the total number of cases in the data set (Kirkos, 2012). Accuracy level over 85% up to 90% is the target for the model because it can influence main business decisions as well as a company wrongly classified as failing may end up failing because customers due to misclassification avoid business deals with such company. Figure 2 presents the distribution of the accuracy performance of the bankruptcy prediction methods in Alaka's (2017) study. Alaka et al. analysed 17 studies and calculated the mean average accuracy value. Their study clearly indicated ANN and SVM to be the most accurate while MDA method appeared to be the least accurate. Although ANN and SVM are more accurate, there is one disadvantage – "black box" nature or variables are very hard to interpret, GA and DT produce explanatory results that can be easily interpreted and understood (Alaka et al., 2017).
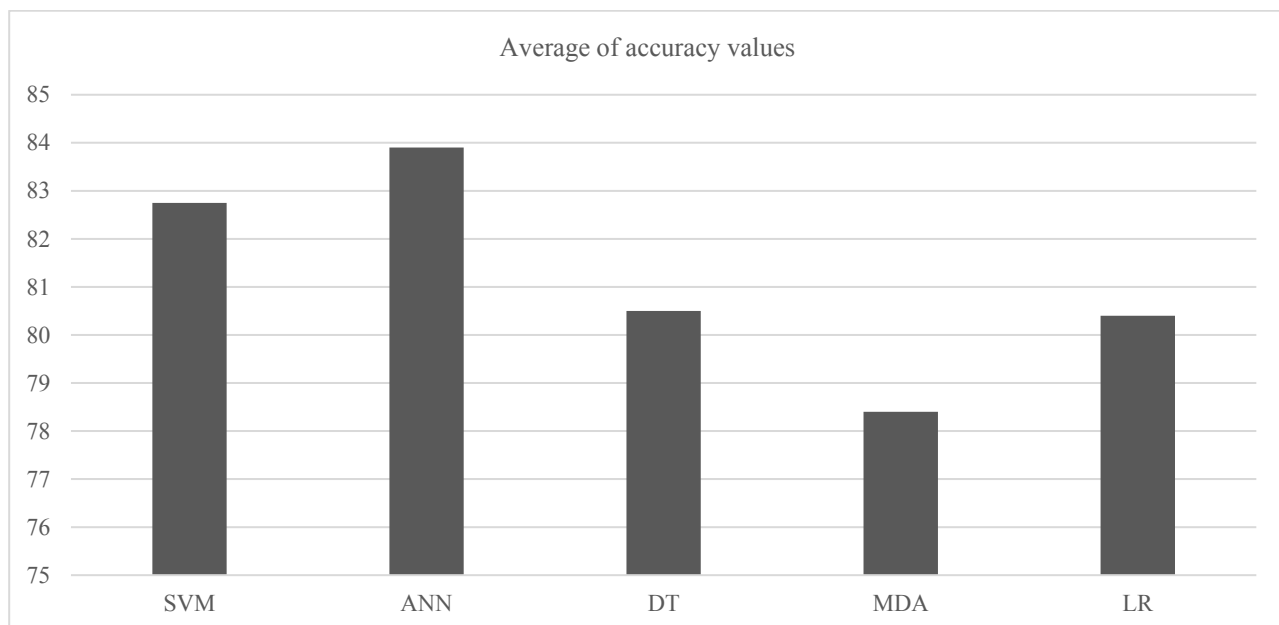
Source: compiled from Alaka et al. (2017)

Fig.2. **Alaka et al. (2017) bankruptcy prediction techniques' accuracy chart**

Kirkos (2015) in his study "Assessing methodologies for intelligent bankruptcy prediction" underlined that majority of the studies achieved accuracy rates between 81 and 90% (Figure 3), twenty nine percent of the studies achieved accuracy beyond 91%. Kirkos findings were that studies with higher accuracy rates used rather small data sets and researcher suggested that model with accuracy rate between 81 and 90% would reflect a realistic average performance of the model.

Accuracy performance

21%

29%

50%

■91%-100%   ■81%-90%   □71%-80%
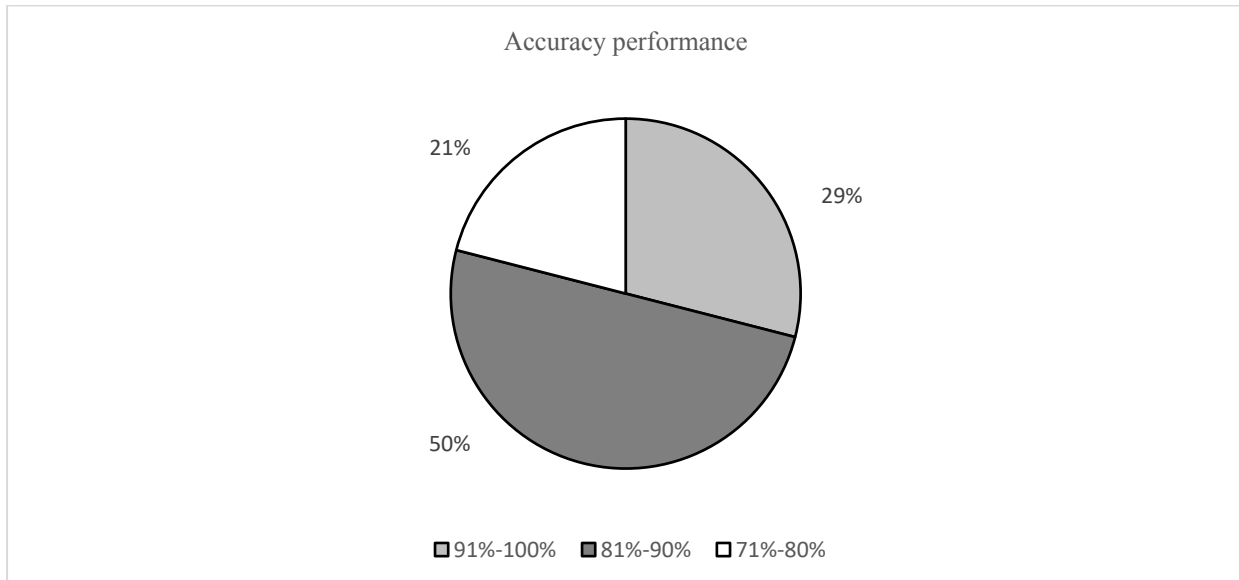
Source: compiled from Kirkos (2015)

Fig.3. **Kirkos (2015) Distribution of best accuracy performances**

Taffler (1983) suggested that a built model should be tested on separate data apart from that which was used to build it. This practice has become a norm for model developers with the separate data referred to as test or validation data. The data is pre-divided usually between 80-20 or 70-30, where the biggest part is used for training the model and the smaller part is used for validation.

The statistical based models: Multivariate discriminant analysis and Logistic regression are behind Artificial intelligence based models, apart Support vector machines and Artificial neural networks, which in some cases underperform, despite being known as very accurate Artificial Intelligence techniques (Liang, Tsai, Wu 2015, Yen, Chi, Lin, 2014). One of the reasons of underperformance is that ANN and SVM have inability to handle qualitative variables as all studies proving high accuracy uses only quantitative variables. ANN and SVM can use qualitative variables converted to qualitative variables using means as the Likert scale (Alaka et al. 2017). Decision tress method for building bankruptcy prediction model allows using both the quantitative and qualitative variables, keeping model accuracy over 90%. Also MDA can use only quantitative variables (Altman, 1968, Taffler 1982). LR can use both – quantitative and qualitative variables (Ohlson, 1980).

All methods, statistical and artificial intelligence have their advantages and disadvantages. Before choosing which method to use, it is better not to follow the most popular or commonly used but to evaluate what variables and data size is available. What further steps should be done – is it only result or more analysis with following actions need.

Many extant researches in bankruptcy prediction have been done but most of them are designated to manufacturing and constructing industries, agriculture has not been the most common bankruptcy prediction model industry. Several studies contribute bankruptcy prediction of agriculture business, Klepac and Hampel (2017) studied financial distress of 250 agricultural companies in EU. They used Logistic regression, Support vector machines, Decision trees and Adaptive

boosting, the findings of this study is that Decision tress and Adaptive boosting offer a better accuracy as well as Decision tree gives better visualization of the results. The superiority of Decision tree is discussed in Bielikova et al. (2014) paper where authors examined the potential of developing a new bankruptcy prediction model for agriculture business testing Discriminant analysis, Logistic regression and Decision trees. The importance of using Artificial intelligence techniques, especially Decision tree for bankruptcy prediction is set by the method's simplicity, easy visualization and interpretation.

Agriculture as an industry has its specifications, therefore standard bankruptcy prediction models might be improved or changed fundamentally to achieve the most accurate and precise result. Agriculture depends on natural and weather conditions that may affect the harvest and the financial result of the companies. Time discrepancy, production process, and seasonality influences inventory circulation and cash flow. One of the most specific tools are subsidies and they are crucial as well as for big as well as for small agribusinesses.

The importance of building specific bankruptcy predicting model for agriculture companies is discussed in Karras, Reznakova and Pokorny (2017) paper "Predicting bankruptcy of agriculture companies: validating selected models". The findings show that 4 analysed bankruptcy prediction models based on the methods of Logistic regression and Discriminant analysis applied for agriculture companies showed significantly lower accuracy than original models, for example, Z-score model's for non-listed companies accuracy is 68%, but for agriculture companies only 37.9%.

For further practical researches in developing bankruptcy prediction model, author has designed setup frame (Fig. 4). As the first step – variable selection, quantitative and qualitative variables. The author has developed theoretical model, discussed in previous study (Rozenbaha, 2017) and has included not only financial ratios but also non –financial such as payment behaviour, size and age of the company, tax liabilities. Decision trees is one of the method discussed in this paper suitable for bankruptcy prediction model for agriculture companies using both variables as well as easy to visualize. High rate of accuracy is crucial; it should be tested in further researches. To compare the methods, Logistic regression is recommended as other option as the result is easier to analyse and both variables are suitable for this method.
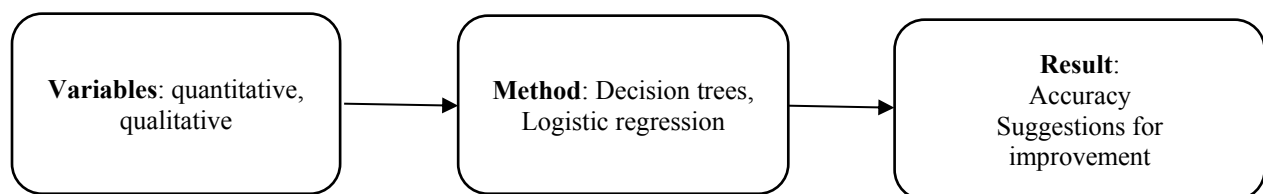
Source: author's construction on bankruptcy prediction model's setup frame

Fig.4. **Bankruptcy prediction model's setup frame**

The choice of the selected method made by popularity should be avoided, as the main "target" is model end user's requirements. Owner of the company wants to know if not only there is potential threat of insolvency but also what causes the problems, what can be done to improve the situation. Results should lead to recommendations and suggestions of the existing situation.

Conclusions, proposals, recommendations

Bankruptcy prediction has a great history in the scientific literature. Since the works of Beaver (1966) and Altman (1968), many studies attempt to develop bankruptcy prediction models. Models are usually designed using financial ratios calculated with data from balance sheets and income statements. However, companies may go distressed by unprofessional management decisions, government political decisions etc., which can be classified as non-financial and added as variables to the model.

Each technique has its strengths and weaknesses that make it more suitable than others do, however some industries as agriculture may have some specific features that should be implemented in the model to get the result accuracy. Current study leads to the following conclusions:

1. Statistical models based on the Logistic regression and Discriminant analysis applied for agriculture companies show significantly lower accuracy than original models. Not all models give same accuracy rate in all industries.

2. Bankruptcy prediction model should be tested on separate data apart from that which was used to build it. It is referred as test or validation data.

3. Support vector machines and Artificial neural network appear to be the most accurate methods, however, results are inexplicable, therefore for these methods could be difficult to understand and explained for everyday user (owner, accountants, investors).

4. Genetic algorithms, Support vector machines better deal with small data sets, Decision trees, Logistic regression, Multivariate discriminant analysis and Artificial neural network has no problems dealing with large data. When building a model, sample size should be taken into account.

5. Multivariate discriminant analysis has inability to handle qualitative variables. Artificial neural network and Support vector machines can use qualitative variables converted to qualitative variables using means as the Likert scale, however accuracy is lower when quantitative data is added to the model. Decision trees method for building bankruptcy prediction model allows to use both the quantitative and qualitative variables, keeping model accuracy over 90%. As the accuracy of the model is the key point, variable selection quantitate or qualitative is recommended to evaluate before selecting the method.

6. Extant researches on bankruptcy prediction performs using financial ratios as the primary data resource. Despite the proven accuracy and usefulness of financial ratios, the employment of alternative data like non-financial ratios or macroeconomic indices should be explored in future studies using methods highly tolerating quantitative data.

The conducted analysis leads to the conclusion that special bankruptcy prediction model for agriculture companies is vital as researches show that industry has some specifications that influences existing models and adaptation or improvement is needed. For development of the bankruptcy prediction model for the agriculture companies in Latvia it would be wise to use Artificial intelligent techniques like Decision trees as this method deals with quantitative and qualitative variables as well as has high (up to 90%) model accuracy and results are interpretable. Analysed papers show that Decision trees shows higher accuracy than Multivariate discriminant or Support vector machines. Decision trees results are easy to interpret and visualize compared to Artificial neural network or Support vector machines and Multivariate discriminant analysis. The author thinks this characteristic of the method is crucial as the aim of the model is not only to give a figure as a status "good" or "failed" but model should be developed in the way to highlight the weak points and to make the action steps in further proceedings to avoid companies insolvency.

Suggestions for further researches – agriculture companies in Latvia (Lursoft data base) should be tested with Logistic regression and Decision trees for accuracy comparison as well as variable selection as different methods not always use same variables. Variable significance should be tested in next research.

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PRODUCTIVITY OF ICT SECTOR AS A DRIVING FACTOR OF COUNTRY'S ECONOMIC COMPETITIVENESS

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Abstract. Already since mid-1990 empirical literature points that the growth in productivity in the EU is relatively slow. The modest level of productivity in Europe means that this can lead to loss of competitiveness. Development of ICT sector is one of ways how to achieve better performance of economy. Purpose of the paper is to analyse and verify how productivity level in ICT sector impacts the economic competitiveness of different European countries. As measurement for competitiveness Global Competitiveness Index (rank and value) data from World Bank databank is used and is attributed to the apparent labour productivity in 1000 EUR for Information and communication sector from Eurostat. Research results indicate statistically significant correlation between Information and Communication (J) sector apparent labour productivity and Global Competitiveness Index (rank and value) data for year 2015. Additionally, a panel data investigation of Granger causality between ICT sector productivity, economic growth and competitiveness for EU countries is realized. As result there is found bidirectional Granger causality between ICT productivity and economic growth, ICT productivity and competitiveness level. Thereby could be stated that higher will be ICT sector productivity that higher will be the country's economic competitiveness.

Key words: *ICT sector, productivity, European Union, panel data analysis, competitiveness*

Introduction

Already since mid-1990 empirical literature points that the growth in productivity in the EU is relatively slow. The modest level of productivity in Europe means that this can lead to loss of competitiveness. Development of ICT sector is one of ways how to achieve better performance of economy. The digital economy now permeates countless aspects of the world economy, impacting sectors as varied as banking, retail, energy, transportation, education, publishing, media or health (OECD Digital Economy Outlook 2015). The enormous growth of digital economy along with the rapid development of information and technology (IT) is having a profound impact on the world economy (Sung,2009). Many researches have proved (Kijek 2018; Skorupinska and Torrent-Sellens 2014, Arvanitis and Loukis 2009, Stare 2006) that investments in information and communication technology are a source of competitive advantage at company level.

It must be admitted that the core of the digital economy is the ICT sector. Ismail Seki asserts that "the power of economic competitiveness of a country depends on the productivity of its ICT sector" (Seki, 2008). The World Economic Forum, which has been measuring competitiveness among countries since 1979, defines economic competitiveness as "the set of institutions, policies and factors that determine the level of productivity of a country" (The Global Competitiveness Report 2017–2018). The interconnection between ICT sector productivity level and economic competitiveness could be based on assumptions that economic competitiveness depends on its productivity level. Nowadays when we speak about digitalized world and the knowledge economy, it could be also predicted that importance of ICT sector has direct impact on the productivity level of country.

Purpose of the paper is to analyse and verify how productivity level in ICT sector impacts the economic competitiveness of different European countries. As measurement for competitiveness Global Competitiveness Index (rank and value) data from World Bank databank is used and is attributed to the following data from Eurostat for Information and communication sector: wage adjusted labour in % and apparent labour productivity in 1 000 EUR.

Additionally, we exploited quarterly data for EU28 countries for an investigation of long-run and short-run Granger causality between ICT sector productivity and economic growth, and annual data for evaluation of relationship between ICT sector productivity and competitiveness. There are a lot of papers that use cross-country regression techniques to assess the causality effects of ICT on economic growth and/or competitiveness (for instance, (Ayoub, 2015)), but question about causal relationship between productivity of the ICT sector and competitiveness of a country in the EU is still open. It is clear that ICT, like electricity, is a general purpose technology and influence all sectors of economy. Then it is more a question about adoption of ICT, not a production. But we would like to test whether this high productivity sector can boost economic growth and stimulate increase of competitiveness level of a country.

Competitiveness of countries

According to the European Commission (2009) at the level of the economy, competitiveness refers to the capacity of a nation or region to provide its citizens with a sustained increase in living standards with jobs available for those willing to work represents. At sectorial level, EU industry's competitiveness refers to sales performance (market share and comparative advantage) of this industry in EU and world markets (European competitiveness report 2009). The annual Global Competitiveness Reports of World Economic Forum accomplish an analysis concerning the factors highlighting the national competitiveness. It defines competitiveness "as the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the economy can achieve" (World Economic Forum, 2018) or by other words analyze the factors that determine the level of productivity. The level of productivity sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. It could be concluded that more competitive economy is one that is likely to grow faster over time. The World Economic Forum has substantiated its competitiveness analysis on the Global Competitiveness Index (GCI), which measures the microeconomic and macroeconomic fundamental elements of national competitiveness using 12 pillars: Institutions, Infrastructure, Macroeconomic environment, Health and primary education, Higher education and training, Goods market efficiency, Labor market efficiency, Financial market development, Technological readiness. Market size, Business sophistication and Innovation.

According to the Global Competitiveness Index 2017-2018, the EU countries are ranked from the 4th to the 83rd position, from 137 economies. As revealed by Figure 1 the top performers are Netherlands, Germany, Sweden, UK, Finland, Norway and Denmark, acknowledging that they are the most competitive economies in the EU. At the other extreme, the weak performers are Cyprus, Croatia and Hungary.
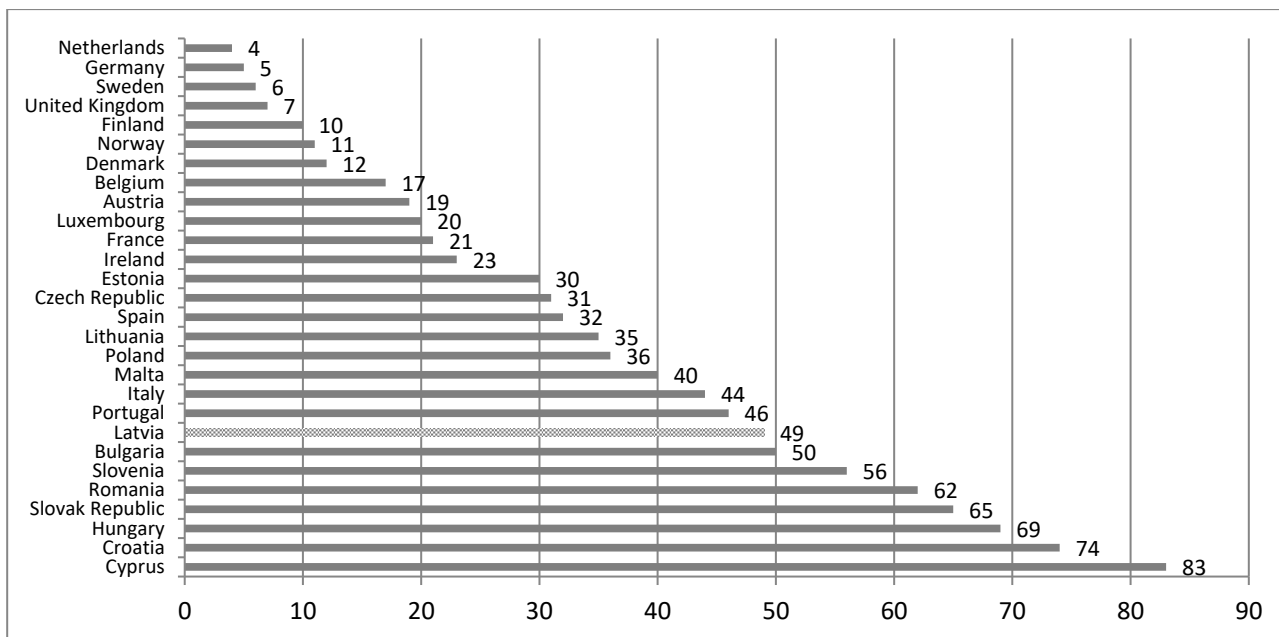
Source: author's construction based on World Economic Forum GCI data

Fig. 1. **Global Competitiveness Index rank (2017)**

Latvia has achieved the highest rank in years 2014-2015 but in the recent years the rank is dropping by the values of rank. The lowest ranks Latvia has received among others in subcategories Availability of scientists and engineers, Capacity to attract and retain talents, Gov't procurement of advanced technology products. Highest rank Latvia has achieved in indicator of "Flexibility of wage determination", "Secondary education enrollment gross %", "Legal rights index", "Internet bandwidth". Performance overview by pillars the competitiveness archives highest rank in Macroeconomic environment and Technological readiness but the lowest Innovations and Institutions.
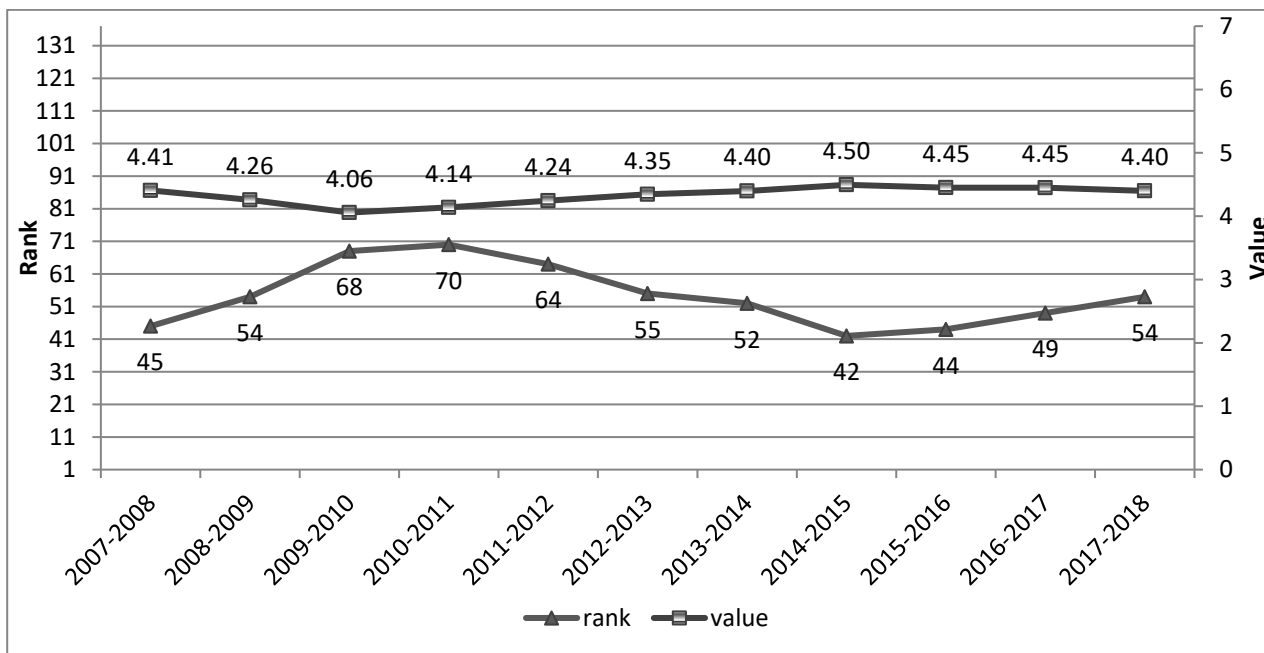
Source: author's construction based on World Economic Forum GCI data

Fig. 2. **Dynamic of Global Competitiveness Index rank for Latvia**

If by index value the recent years the numbers is stable the rank is going down because of other countries performance.

Productivity of ICT industry

Information and communication technology industry comprises combination of activities that manufacture and ensure services that capture, transmit and display data and information electronically. There is stated that a country's economy benefits of ICT in two ways (Savulescu, 2015):

- as ICT producer, ICT sector generates economic growth, productivity and innovation;

- as ICT user, it enhances the efficiency of production processes and it facilitates innovation.

Thus, ICT represents a fundamental factor, with several effects on productivity, innovation, competitiveness and economic growth.

Apparent labor productivity is defined as value added at factor costs divided by the number of persons employed that is presented in thousands of euros per person employed (Eurostat). The ICT sector is the fourth most productive sector of economy in average EU28. It is overcoming only by sectors of electricity, gas, steam and air-conditioning supply, mining and quarrying sector, real estate activities (it must be mentioned that in Eurostat has not the data of financial and insurance activities included). But if first two sectors depict the shrinking tendencies to the productivity growth the Information and Communication sector has an increasing trend in recent years.
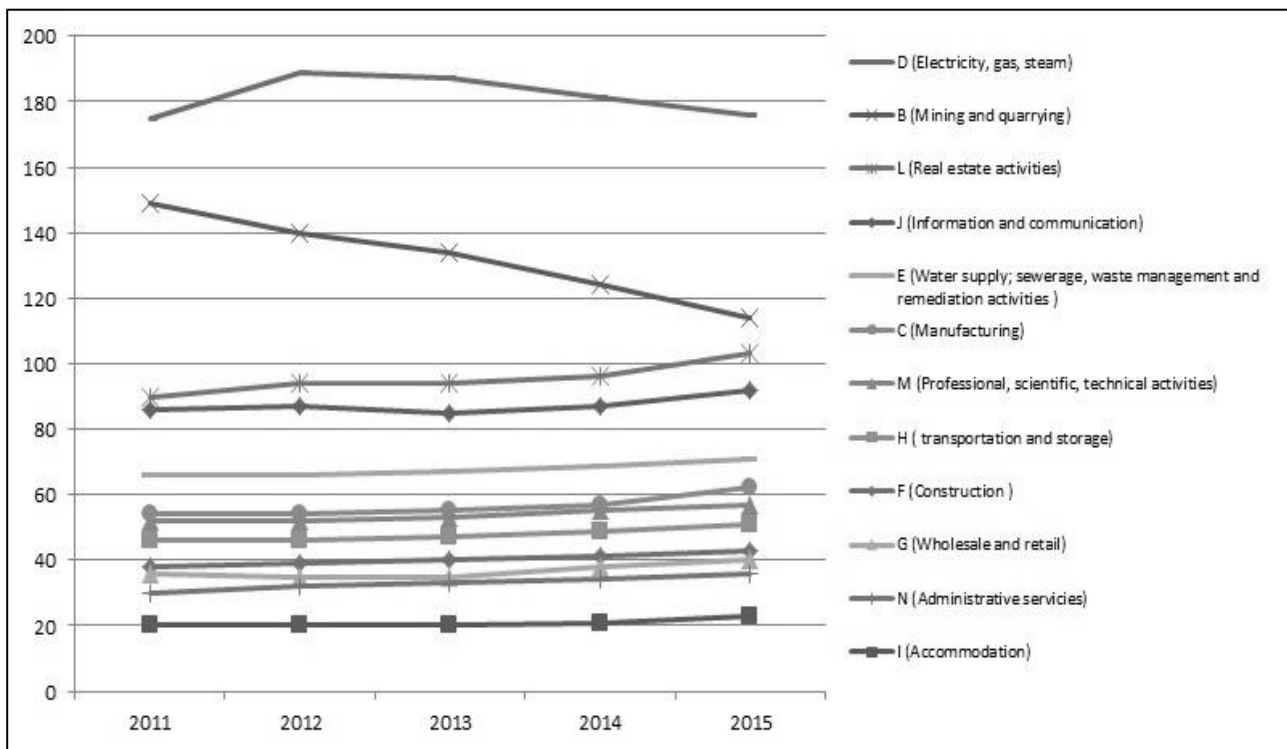
Source: author's construction based on Eurostat

Fig. 3. **Apparent labour productivity by NACE Rev.2**

The productivity of different sectors in Latvia reaches only 30% in average of the EU28. The best performing sector is Transportation and storage. Information and communication sector performance is behind the average number.
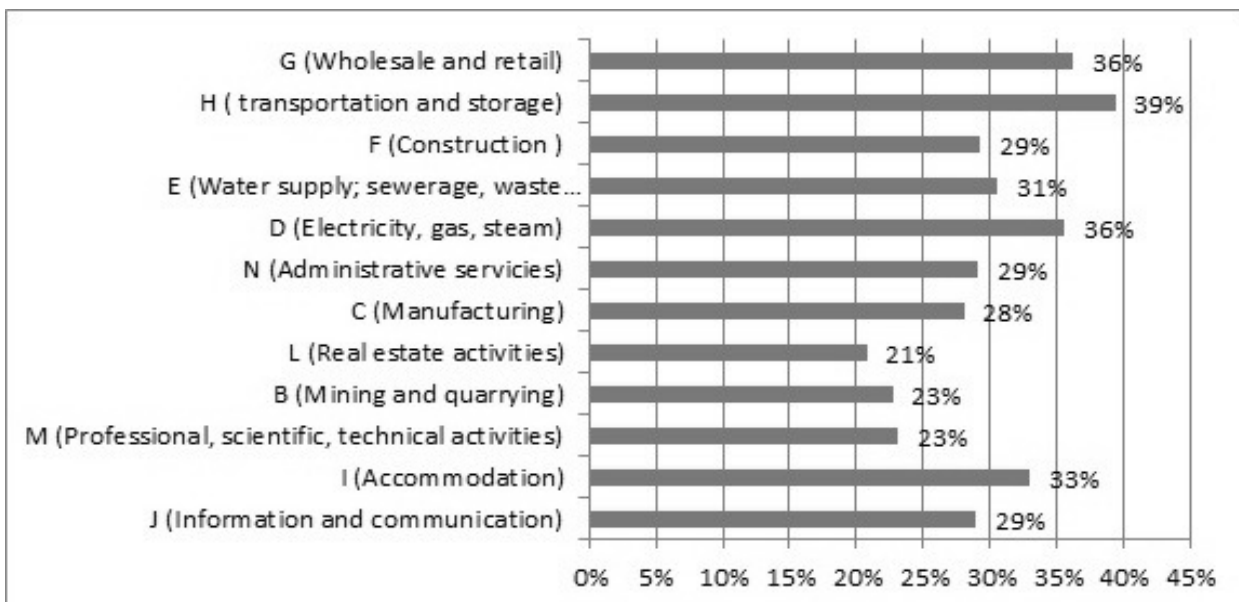
Source: author's construction based on Eurostat

Fig. 4. **Apparent labour productivity in Latvia (2015) in comparison to EU28 average**

Although there could be seen steady growth of ICT industry in Latvia by number of enterprise and employees, turnover and value added the productivity is still low. Moreover, ICT sector productivity is one of lowest among the different Europe countries in year 2015. Behind is left only Bulgaria.
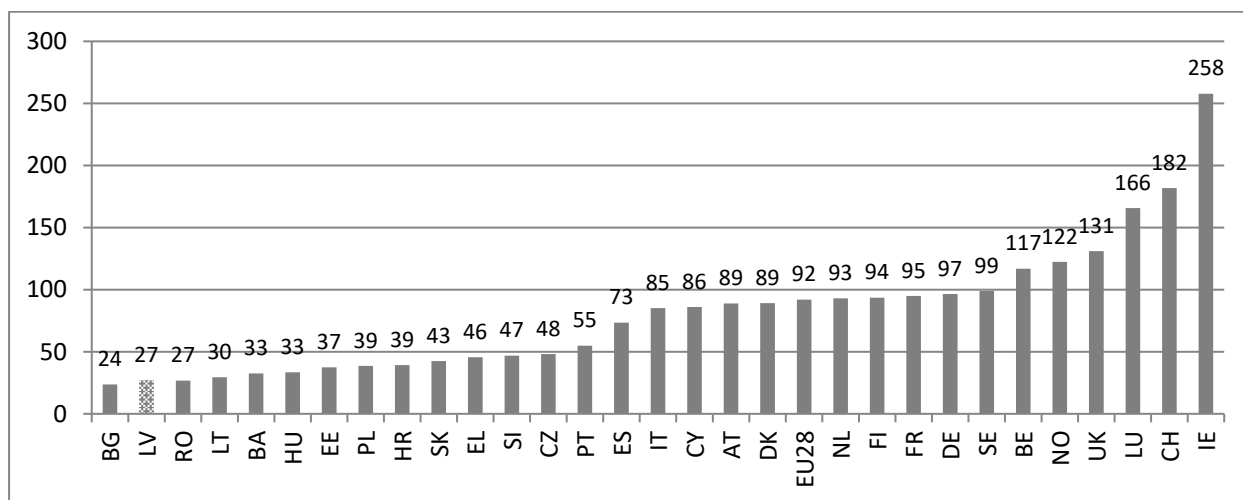
Source: author's construction based on Eurostat data

Fig. 5. **Apparent labour productivity in EU countries (2015)**

Thereby could be argued that Latvia is behind to use the ICT sector advantages to increase the competitiveness of the country.

Productivity ICT industry and competitiveness of countries

It must be admitted that the core of the digital economy is the ICT sector. Ismail Seki asserts that "the power of economic competitiveness of a country depends on the productivity of its ICT sector" (Seki, 2008)

To investigate this statement, the correlation analysis was conducted. As result the data depicts negative correlation between country productivity data of ICT sector and GCI rank data and positive correlation between productivity data of ICT sector and GCI value data.
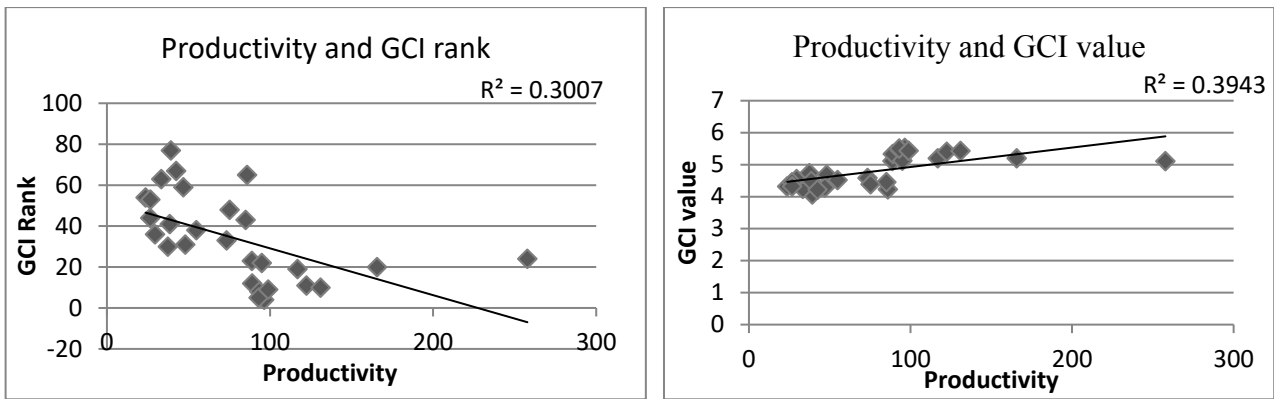
Source: author's construction based on Eurostat and GCI data

Fig. 6. **Apparent labour productivity and GCI value and rank data correlation for EU countries (2015)**

As a next stage of an analysis we undertake a panel data investigation of Granger causality between labour productivity in the ICT sector and growth in real GDP for panel 27 EU countries. We use data from 2000Q1 till 2017Q4. As a measure of the productivity in ICT sector a gross value added in information and communication sector, measured in million euros in chain linked volumes of 2005, divided by total employment in this sector is used. Economic growth was measured as change in real gross domestic product values.

To avoid spurious regression possibility, it is necessary to test variables for stationarity. Both variables were tested for unit roots with ADF Fisher's test. As ICT sector productivity was found to contain unit root, it was differenced.

Panel Granger test results for a sample of 27 EU countries is presented in the Table 1.

Table 1

Panel Granger causality results for panel of 27 EU countries

Hypothesis	Number of lags	F statistic	p-value
Labour productivity in ICT sector does not Granger cause economic growth	2	21.57	0.000
Economic growth does no Granger cause labour productivity in ICT sector.	2	80.37	0.000
Labour productivity in ICT sector does not Granger cause economic growth	3	24.76	0.000
Economic growth does no Granger cause labour productivity in ICT sector.	3	9.42	0.000
Labour productivity in ICT sector does not Granger cause economic growth	4	1.34	0.250
Economic growth does no Granger cause labour productivity in ICT sector.	4	20.90	0.000

Source: author's calculations based on .Eurostat,

If p-value in the test is small, the H_0 can be rejected. As it can be seen in Table 1, there is bidirectional relationship between productivity in ICT sector and economic growth till 3 lags. Weakness of the previous analysis is high

heterogeneity between panel observations, so repeated tests for panel of EU countries joined to the union in 2004 and later. We denoted the group as EU12 (no data about GVA for Malta, therefore it was excluded)

Testing pairwise panel causality for EU12, Dumitrescu and Hurlin (2012) version of a Granger panel causality test was exploited. Main difference is a possibility to use individual coefficients for each country. Results are presented in the Table 2.

Table 2

Panel Granger causality results for panel of 12 EU countries

Hypothesis	Number of lags	Zbar-stat.	p-value
Labour productivity in ICT sector does not homogeneously cause economic growth	2	71.2	0.000
Economic growth does not homogeneously cause labour productivity in ICT sector.	2	46.4	0.000
Labour productivity in ICT sector does not homogeneously cause economic growth	3	15.8	0.000
Economic growth does no homogeneously cause labour productivity in ICT sector.	3	23.4	0.000
Labour productivity in ICT sector does not homogeneously cause economic growth	4	0.30	0.766
Economic growth does not homogeneously cause labour productivity in ICT sector.	4	12.4	0.000

Source: author's calculations based on .Eurostat.

Like in the case of all EU countries, EU12 results confirm bivariate causal relationship between productivity in ICT sector and economic growth up to 3 lags. According to EU Commission findings, the digital economy is a major source of growth and innovation. (EU Commission, 2011) ICT as a general purpose technology is used in all business functions (production, marketing, logistics etc.) and allow to increase productivity in other sectors of economy. However, ICT sector's productivity as a source of economic growth is not so obvious. Policies with aim to increase both ICT production and development of ICT services can be successful in stimulating economic growth.

Conclusions

In the EU the ICT sector is one of those with fastest growth, with high productivity levels (above the average level), high average salaries and therefore very attractive for young people. This is the sector with future. The ICT sector plays an important role, in particular by promoting rapid technological progress and productivity growth. New technologies and their implementation change the economic structure and contribute to productivity growth, competitiveness and overall wealth level.

Research results indicate statistically significant positive correlation between Information and Communication (J) sector apparent labour productivity and Global Competitiveness Index (rank and value) data. There are several channels how ICT impacts competitiveness: production of competitive ICT goods and services, declining prices for ICT goods and services and increased use of ICTs. According to the results of correlation analysis, EU companies have a competitive advantage with regard to pricing and IT workers' skills. A panel Granger causality test also confirms substantial positive

relationship with bidirectional causation between the variables of interest. Application of the test revealed that there is bidirectional Granger causality from ICT sector's labor productivity and economic growth. Thereby could be stated that higher will be ICT sector productivity, higher will be the country's economic competitiveness.

To enhance productivity growth and competitiveness of EU it is necessary to invest in ICT, in ICT based organisation optimization, in skills and in increasing computer/internet literacy of the population. Latvia's economic policy must be oriented to projects that foster ICT innovation support and promote IT education. Furthermore, research results depict the future growth possibilities of ICT sector in Latvia and its impact to the national economy.

In order to improve the productivity of the ICT sector, thereby increase the competitiveness of the country accordingly possibilities resources reallocation have to be researched and its impact evaluated.

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THE DETERMINANTS OF BANK'S STABILITY: EVIDENCE FROM LATVIA'S BANKING INDUSTRY

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Abstract. Banking industry is facing huge challenges: technology-enabled innovation, changes in customer preferences, bank de-risking and new regulatory initiatives are resulting in unprecedented changes of banks' business models. The present study contributes to the empirical literature by identifying the determinants of banks' stability in the Latvian Banking Industry. This study covers both banks specific (endogenous) factors and macroeconomic (exogenous) factors that impact the banks' stability. The data used in this study is the annual financial statements of Latvian banks operated in the period 2008-2016. Using panel data analysis technique, we found evidence that credit risk and liquidity risk have a significant negative impact on banks' stability. These findings are consistent with the expected results, by confirming examined Z- score model: the higher the liquidity and credit risk, the lower the stability of the banking system. The size of the bank and the inflation rate have significant positive impact on banks' stability, as a result, large banks are more stable compared to smaller banks. Similarly, when interest rates are adjusted according to the expected inflation, the inflation effect on the stability of the banks is positive. We do not find a significant impact of GDP Growth, Efficiency of Banks Operations and Profitability on banks' stability. The current study will provide valuable policy implications to the Latvian banking industry and stakeholders in general.

Key words: *bank's stability, credit risk, liquidity risk*

JEL code: G01, G21

Introduction

In the developed economies of the world, banks play a vibrant role in wealth management and asset allocation. Bank stability is always a matter of prime concern around the world due to its impact on the overall economic structure (Rupeika-Apoga.R. and Danovi A., 2015). Thus a stable and well organized banking system is considered as a vital ingredient of economic development. Considering the significance of topic, a broad body of literature is directed towards investigation of the factors that affect the bank stability. The identification of the significant factors effecting the bank stability helps in mitigating the risks that impend the stabilization of banking sector.

This study empirically investigates the determinants of bank stability in Latvian Banking Industry. Latvia has well-organized banking system, providing a wide range of services to local and international customers. Latvia is an open economy, thus its financial institution are relatively more exposed to external factors. Thus, determining the elements that stabilize the banking sector is a matter of great concern. In order to address the objective of the study both banks' specific and macroeconomic factors are included in the analysis. Bank size, profitability, credit risk, liquidity risk and efficiency of bank operations are studied as bank specific variables, whereas annual GDP growth rate and annual inflation rate are included as macroeconomic variables.

The findings of this study will provide useful insights for regulators, practitioners, policy makers and researches. The main contribution is the analysis of bank stability which is the major concern of the regulators in their pursuit of economic development. The banks' stability models of the large European economies are significantly different from small

European economies. The banks in Latvia operate in a different regulatory & legal environment and have unique institutional and market infrastructure as compared to other European banks which are analyzed in the foreign literature for bank stability. There is considerable research in the area of Latvian banking industry, however the previous literature investigated different aspects including bank profitability, stability, competition, and banking crisis in different perspective. There is a considerable gap in this area given the underlying foundation for this study. This study focuses on finding the factors that determine bank stability for 16 banks of Latvia by incorporating a sample period from 2008-2016. Therefore, this study is a temporal and contextual extension in the body of knowledge. The second contribution of this study is to analyze the factors which determine stability of Latvian banking sector. For policy makers and bank management it will be useful to control those factors that can destabilize the banking system.

The remaining paper is organized as follows: Section II consists of literature review and finding of different studies which are conducted on bank stability across the world. In Section III methodological approach, sample, data collection and research model is discussed. Empirical findings of the study are presented in Section IV. Section V is comprised of conclusion and recommendations.

Literature Review

A sizeable literature on identifying the indicators of bank stability has been developed in the past decade. In several studies the researchers have attempted to investigate the factors which can be restrained for a sustainable bank stability. Many empirical studies consider macroeconomic and bank specific factors as a precursor for bank stability. Claire (2004), for instance, explores the macroeconomic determinants of bank stability for the local banks of Singapore. Multiple regression analysis suggests that unemployment rate, exchange rate, aggregate demand and interest rate have significant impact on bank stability. The same results are supported by Shijaku (2016) for Albanian banking system. Principal component approach and simple average are applied to analyse the impact of bank specific, market specific and macroeconomic indicators on the stability of 16 banks of Albania for a period of 2008-2015. Results suggest that bank specific and macroeconomic factors are found to effect bank stability in a more consistent manner as compared to market specific factors. Likewise, Madi (2016) examines the relationship of a set of micro-economic and macro-economic variables with bank stability. The OLS technique is used for analysis to compare two separate periods i.e. pre-crisis 2005-2007 and during crisis 2008-2010 for UK Plc banks. The researcher finds different magnitude and direction of impact of the variables on banks' stability before and during crisis. Rupeika-Apoga and Nedovis R. (2014) stated that foreign exchange exposure in Latvia plays important role.

A few studies have examined risk management as an indicator of bank stability. Adusei (2015) for instance, investigates the impact of funding risk and bank size on bank stability for the rural banking industry in Ghana on quarterly data over the period of 2009-2013. Credit risk, liquidity risk, diversification in business model, profitability, GDP and inflation rate are included in analysis as controlled variables. Employing panel data analysis, the author concludes that bank size and funding risk have positive impact on bank stability. Thus bank stability can be increased by scaling up the operations of rural banking industry in Ghana. In the same manner, Buston (2016) investigates the net impact of active risk management on bank stability. Evidence from United States banks supports that banks with active risk management are relatively less exposed to instability during the period of financial crisis. On the other hand, Ghenimi et al. (2017) examine the main determinants of bank stability in 49 banks of Middle East and North African (MENA) region over the period 2006-2013. Credit risk and liquidity risk is selected as the determinants and Z-score is used as a measure of bank stability. Panel data analysis reveals that interaction of the two risks has significant and negative impact on bank stability.

Some researchers have developed frameworks which comprise of certain non-conventional variables as determinants of bank stability. For example, Nier (2005) studies whether disclosure of the information regarding banks' risk profile in annual reports has any impact on bank stability. A disclosure index is constructed including 17 categories of banks specific risk factors to identify the relationship between transparency and bank stability. The author finds that banks with more transparency and information disclosure are more stable and are less likely to confront with financial crisis. On another note, Mirzaei et al. (2013) analyse the impact of market structure of bank on bank stability. Panel data analysis is used to study 23 emerging economies of Eastern Europe and Middle Eastern countries and 17 Western European countries from 1999-2008. The findings suggest that more concentrated banking structure is more vulnerable to instability. On the other hand, Kisel Avoka and Kisel Ak (2013) analyse the indicators affecting bank stability by focusing the banking industry of Slovakia for a span of ten years 2001-2010. Multiple regression analysis represents that efficient management of liquidity and interest policy along with quality assets has positive impact on bank stability. Similarly, Kohler (2015) studies the impact of non- deposit funding and non-interest income on bank stability for 15 EU countries for the period 2002-2011. Using Z-Score as a measure of bank stability, the results indicate that due to different business models across the countries, non-deposit funding and non-interest income has different effect on the bank stability for different countries. Titko et al. (2015) in a different perspective, study stability-competition relationship for 16 Latvian commercial banks for the period 2007-2013. Multiple regression analysis is conducted to test the relationship between Z-score (measure of bank stability) and Lerner Index & Boone Indicator (measure of competition). The researchers found no evidence of the impact of competition on bank stability. Sakonova (2013, 2014) found that net interest margin and asset structure affect bank stability in Latvia. Grima et al. (2017) argued that financial derivatives effect banking activities.

Evidences of comparative analysis are also found in the literature. In this vein, Diaconu and Oanea (2014) aim to identify whether there is difference in the determinants of bank stability for commercial vs cooperative banks. 14 Romanian banks are selected for analysis. GDP, inflation rate, interbank offering rate and financial market situation is regressed on Z-score. It was found that GDP and interbank offering rate have significant positive impact on bank stability for cooperative banks. The authors found no evidence of the significant relationship of any variable on bank stability for commercial banks. Similarly, Karim (2016) performed a comparative analysis of 58 commercial banks, 5 Islamic banks and overall banking industry of Indonesia for a period 1999-2013. The effect of macroeconomic variables including GDP, interest rate and inflation rate on bank stability (Z-score) was investigated. It is found that there is a significant relationship between macroeconomic variables and bank stability for commercial banks and overall banking industry of Indonesia. Whereas for the Islamic banks the researcher find no evidence of relationship between Z-score and macroeconomic variables. Similarly, Fang et al. (2014) discuss the relationship between institutional development and bank stability. The analysis is made on 434 commercial banks from 15 Eastern European countries. The examination of the impact of institutional reforms in the form of banking liberalization and corporate governance on banks stability is conducted for domestic vs foreign banks. The results reveal that domestic banks acquire more stability from institutional development than foreign banks.

In the following section, we attempt to find the behaviour of banking industry of Latvia with regards to the determinants of bank stability.

Methodology

Data and Sample Selection: The sample of the study is comprised of 16 commercial banks of Latvia and the sample period is 2008-2016. The data on banks' specific variables are collected from the banks' annual reports, whereas, the data on macroeconomic variables are extracted from the International Financial Statistics Database of IMF.

Data Analysis Technique: The study is conducted to investigate the determinants of bank stability in Latvia. As a prerequisite for data analysis, Augmented Dickey-Fuller Unit Root Test is applied to check the data stationarity of all the variables. The results reveal that all the variables are stationary at level. Thus, the series is random, and no pattern has been observed in data. In order to find the degree of association between dependent and independent variables Pearson Correlation Test is applied. Panel Data Analysis technique which is used to analyze the time series in each cross section of the data set is applied for data analysis.

Econometric Model: The following econometric model is applied to accomplish the objectives of the study:

$$\text{Z-Score} = C + \beta_1 S + \beta_2 P + \beta_3 LR + \beta_4 CR + \beta_5 ER + \beta_6 IR + \beta_7 GR,$$

(formula 1)

where

Z-Score = Measure of bank stability

S = Size of bank

P = Profitability of bank

LR = Liquidity Risk

CR = Credit Risk

ER = Efficiency Ratio

IR = Annual Inflation Rate

GR = Annual Growth Rate

Measurement of Bank Stability and its Determinants: Z-Score is considered as a standard measure of bank stability (Fang et al., 2014; Diaconu and Oanea, 2014; Adusei, 2015; Karim, 2016; Ghenimi et al., 2017). The bank stability is competed through following equation:

$$\text{Z-Score} = \frac{\text{ROA} + (\text{E/A})}{\sigma \text{ROA}},$$

(formula 2)

where ROA is the return on assets ratio of the bank, E/A is the equity to assets ratio and σROA is the standard deviation of return on assets.

Bank size is measured by taking natural log of the total assets of the bank (Amidu and Wolfe, 2013; Adusei, 2015). Profitability is computed through ROE (Return on Equity) (Mollah and Zaman, 2015; Ghenimi et al., 2017). Ratio of total loans to total assets is used as a measure of credit risk (Curak at al., 2012), whereas, ratio of cost to income is taken as a proxy of bank efficiency (Petria et al., 2015; Madi, 2016). Liquidity risk is measured by the ratio of loans to deposits (Curak at al., 2012). Annual inflation rate and annual GDP growth is included to measure the impact of macroeconomic variables on bank stability (Clair, 2004; Nier, 2005; Monnin and Jokipii, 2010; Kisel, 2013; Diaconu and Oanea, 2014).

Results and Discussion

The descriptive statistics have shown that value of Z-score ranges from -5.830 to 14.205 with an average score of 1.193 for Latvian banks. Z-score is the measure of distance of bank from the insolvency, thus higher value reveals higher bank stability.

Table 1

Descriptive Statistics

	Z-Score	Size	Profitability	Credit Risk	Efficiency Ratio	GDP Growth	Inflation	Liquidity Risk
Mean	1.193	20.599	0.008	0.419	0.391	-0.186	2.767	0.404
Median	0.629	20.624	0.057	0.433	0.340	2.076	1.100	0.379
Maximum	14.205	22.724	1.319	1.021	1.758	6.381	15.431	0.957
Minimum	-5.830	16.781	-7.794	0.00006	0.108	-14.402	-1.071	0.00008
Std. Dev.	2.956	1.280	0.792	0.285	0.222	5.912	4.556	0.279

There is a considerable deviation in the selected banks in terms of profitability with an average of 0.82% return on equity. On average the efficiency ratio is 0.391, which means that the banks in Latvia are managing their operations efficiently as a low efficiency ratio is always desirable. Whereas the mean of credit risk and liquidity risk is showing 0.419 and 0.404 risk respectively. On average inflation rate and GDP growth rate remain 2.767 and – 0.186 respectively during the period of study.

Table 2

Pearson Correlation Analysis

	Z-Score	Size	Profitability	Liquidity Risk	Credit Risk	Efficiency Ratio	Inflation	GDP Growth
Z-Score	1.000	0.185	0.262	-0.294	-0.54	-0.141	0.051	0.106
Size	0.185	1.000	0.029	-0.262	0.439	-0.291	0.018	0.059
Profitability	0.262	0.029	1.000	-0.044	-0.305	-0.057	0.005	0.031
Liquidity Risk	-0.294	-0.262	-0.044	1.000	-0.098	-0.112	-0.175	0.154
Credit Risk	-0.54	0.439	-0.305	-0.098	1.000	0.011	0.129	-0.112
Efficiency Ratio	-0.141	-0.291	-0.057	-0.112	0.011	1.000	0.096	-0.226
Inflation Rate	0.051	0.018	0.005	-0.175	0.129	0.096	1.000	-0.19
GDP Growth	0.106	0.059	0.031	0.154	-0.112	-0.226	-0.19	1.000

Correlation test is performed to identify the degree of association between dependent and independent variables. Size and profitability is found to have positive association with bank stability. Which implies that large and profitable banks are less exposed to instability. The analysis is also depicting a positive relationship between GDP growth and bank stability. Which supports the fact that a growing economy always provide a conducive environment for the development of a stable financial system. Credit risk and liquidity risk is negatively associated with bank stability. Evidence from recent financial crisis have revealed that mostly those banks were failed which had confronted with the joint occurrence of credit and liquidity risk (Imbierowicz and Rauch, 2013).

Panel Data Analysis:

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Table 3

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Redundant Fixed Effects-Likelihood Ratio

Effects Test	Statistic	d.f.	Prob.
Cross-section F	19.44946	(15,97)	0.000
Cross-section Chi-square	166.5845	15	0.000

Redundant Fixed Effects-Likelihood Ratio

Redundant fixed effects test is applied to choose the suitable model for panel data analysis among common effect model and fixed effect model. The results of F value and Chi-square are significant suggesting that fixed effect model is appropriate for this panel data analysis.

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Table 4

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Correlated Random Effect-Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	32.001479	7	0.000

Correlated Random Effect-Hausman Test: Correlated Random Effect-Hausman Test is applied to choose the suitable model for panel data analysis among fixed effect test and random effect test. The results of F value and Chi-square are significant suggesting that fixed effect model is appropriate for this panel data analysis.

From the results of both the above stated tests, we find that fixed effect test is the most suitable test for analysis of the current study.

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Table 5

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Fixed Effect Model

Variable	Coefficient	t-Statistic	Prob.
C	-17.568002	-4.164722	0.000100
Size	1.524589	5.790943	0.000000
Profitability	0.000094	0.000398	0.999700
Liquidity Risk	-3.245873	-3.685693	0.000400
Credit Risk	-8.524890	-10.28290	0.000000
Efficiency Ratio	-0.254689	-0.458573	0.647400
Inflation	0.084125	1.751292	0.082600
GDP Growth	0.045801	0.710348	0.479000
R-squared	0.598746		
Adjusted R-squared	0.562543		
F-statistic	23.48571		
Prob(F-statistic)	0.000		

The study is an attempt to identify the determinants of banks' stability in Latvia. The findings from the research model are presented in Table 5. The results reveal a positive and significant relationship between size and bank stability. This implies that large banks are more stable as compared to small banks. Credit risk and liquidity risk are found to be negatively related with bank stability. These findings are consistent with the previous evidence from the financial crisis. The banks with substandard credit and liquidity shortfall suffered the most during financial crisis. We found a positive and significant relationship between inflation and bank stability. The findings are consistent with the view that when interest rates are adjusted according to the expected inflation, the inflation effect on the stability of the banks is positive. We do not find a significant impact of GDP Growth, Efficiency of Banks Operations and Profitability on banks' stability. The value of R^2 is 59.8% which indicates that about 60% variation in the dependent variable is explained by the independent variables. The value of F-statistic is 23.48 which shows that model is a good fit.

Conclusions, proposals, recommendations

Banking sector is the backbone of financial structure of a country. The stability of banking system is one of the most crucial elements of a country's economic development. This study explores the main determinants of banks' stability using panel data analysis of 16 banks operating in Latvia over the period 2008-2016. We find evidence that credit risk, liquidity risk and size of the bank are the main bank specific determinants of banks' stability in Latvia. The results also highlighted the significant role of inflation (macroeconomic variable) in explaining banks' stability. The empirical findings have useful implications for the regulators and policy makers. Overall the results suggest that both bank specific and macroeconomic variables are important for the stability of banking sector. For policy makers and bank management it will be useful to control those factors that can destabilize the banking system.

Beyond the scope of this study, future research can be conducted on the following foundations:

1. The future research can be conducted by using more determinants of bank stability.
2. The future research can develop an advance mechanism to compute bank stability.
3. The future research can be conducted as a comparative analysis on different set of banks based on their ownership structure.
4. The scope of the study can be extended over a longer period and for other countries of the world.

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SOME ASPECTS OF ENSURING THE STABILITY OF THE COMMERCIAL BANKING SYSTEM – THE CASE OF LATVIA

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Abstract. Latvian economic history counts several severe crisis episodes in the banking system over the past 25 years. Reaching and sustaining the stability of commercial banks and the banking system required a large amount of work in enhancing liquidity, profitability and asset management. How to do this is a highly relevant topic not only in Latvia, but also in the euro area overall, where many banks continue to struggle with the legacies of the crisis.

The aim of this paper is to characterize the contours of the optimal stability strategy for banks with an emphasis on banks operating in Latvia. Because the development of an effective asset management strategy is an essential part of the stability strategy of any commercial bank, the second aim of this paper is to provide a way of summarising information about the quality and profitability of bank assets as well as to propose some strategies for effective asset management.

The authors used both quantitative and qualitative economic methods of including comparative analysis and synthesis, graphical illustration methods, as well as quantitative methods to analyse commercial bank profitability, liquidity, and asset quality.

As a result of the empirical analysis, the authors conclude that active liquidity and profitability management allows banks to increase their overall stability and lower the influence of external factors on their performance. A successful asset management strategy should control both for the structure and profitability of assets as well as liabilities (sources of financing).

Key words: *commercial bank stability, profitability, liquidity, strategy*

JEL code: G21

Introduction

The banking system plays the decisive role in the financial system and its stability may have a direct impact on the financial system as a whole and, consequently, on the welfare of the country and its people. Taking into account that the issue of the system stability is of undisputable importance, it has been at the centre of attention since the financial crisis of 2008 both from the bank supervisory bodies as well as regarding the regulation of commercial bank operations. The recent developments in the banking system of Latvia (the situation with the ABLV Bank) highlighted the issues related to the quality of risk management and search for further strategic development directions.

The security of individual banks is a necessary precondition for the stability of the commercial banking system. The aim of this paper is to characterize the contours of the optimal stability strategy for banks with an emphasis on banks operating in Latvia. Because the development of an effective asset management strategy is an essential part of the stability strategy of any commercial bank, the second aim of this paper is to provide a way of summarising information about the profitability of bank assets as well as to propose some strategies for effective asset management.

The authors used both quantitative and qualitative economic methods of including comparative analysis and synthesis, graphical illustration methods, as well as quantitative methods to analyse commercial bank profitability, liquidity, and asset quality.

Research results and discussion

1. Literature Review

The banking crisis of 2008 was just another reminder about the significance of a stable and well-regulated banking system. In the long term, bank crises have a negative effect on GDP, flow of investments, state budget and labour market. This is why the provision for the stability of the banking system as well as the analysis of their development are the issues that have been under increasingly more attention.

Over the time, the interpretations of stability have been modified and transformed. In the dictionary, we can find the following explanation of the word "stable": enduring, resistant to change, consistent (Latviešu valodas skaidrojošā vārdnīca). A similar explanation can also be found in the Dictionary of Finance and Credit — "stable is resistant to change, consistent and fixed at a certain level, unaltering" (Финансово-кредитный словарь). The definitions provided above must be specified if they are to be used in the economic process, as the authors believe that they interpret stability as a statistical category and disregard the time factor. Stability must be discussed in its dynamics as time is an important factor in the integrated system. Time, both as the future or past, represents an external category. The system exists in the real time. The suggested approach would allow for defining stability as the potential of a system to maintain balance under the influence of external and internal factors.

The condition of stability, according to G. Schinasi (G. Schinasi, 2004), provides for the capacity of the banking system to implement its functions in raising investments, distribution of resources, risk insurance and provision for economic development. The financial instability, system risk or money circulation disturbance, however, may be considered a financial collapse, i.e., the inability of the system to perform settlements and raise loans for the real economy sector.

In 1984 in the meeting of the American Bankers Association Todd Conover, the former chairman of the Office of the Controller of the Currency (OCC) offered the following formula for the stability of the banking system:

A stable banking system = New opportunities + Strict supervision (1.1.)

By the new opportunities Tedd Conover mainly meant deregulation which means cancelling restrictions on the geographical distribution and introduction of new products and services. On the other hand, he also meant introduction of strict supervision and fines for incompliance with the regulatory acts.

The authors believe that the stability of the banking system is the ability of the system to function both in the internal and external environment by retaining its structure, unwavering balance and security in a long term (Solovjova, 2011). In other words, two important qualities must be present in the banking system for it to be stable: the unwavering balance and security (see fig. 1.)
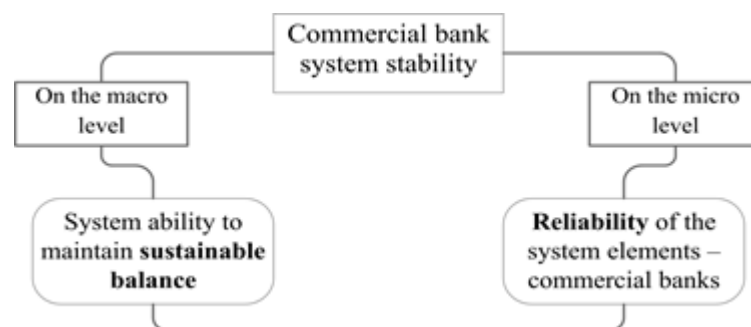
Fig. 1. Schematic depiction of commercial bank system stability condition

Balance is an equilibrium state that can be analysed in the comparative statistics when two or more states of equilibrium are compared. If in the balanced state there are changes due to the disturbance of equilibrium, balance cannot be considered stable. The disturbance of the dynamically developed equilibrium is called the crisis. Crisis is an integral part of the life cycle of any self-regulating system. On the one hand, crisis is an important element in the self-regulating system as it reveals the development limit. On the other hand, it provides an impulse for the development by performing the stimulation function in the transition to a new condition. The unwavering balance determines that the system finds itself in an equilibrium condition that cannot be disturbed by either internal or external factors. Thus the unwavering balance is a constituent part of stability. The unwavering balance of the banking system can be defined as an ability of the system to perform certain functions and operations under the conditions of the system integrity and security of its elements that provides for returning to the equilibrium condition after the influence of external factors. This definition emphasizes the dynamic character of the term 'unwavering balance'.

One of the descriptors of the banking system stability is the security of commercial banks. In the economic literature, the security of commercial banks has different explanations. Some researchers (Фетисов, 1999) offer using the security concept from the customer's perspective and the unwavering balance concept from the macroeconomic perspective. The authors believe that the security of commercial banks represents a description of a specific commercial bank in qualitative and quantitative terms that must be interpreted from the perspective of the commercial bank customers, the commercial bank itself and society. This stability attribute of the banking system, however, concerns only the elements of the banking system – commercial banks.

The explanation of the term 'stability' in the financial context can be found in the Financial Stability Review of the European Central Bank. Initially ECB was defining stability as a condition in which the financial system – financial intermediaries, market and market infrastructure, can endure disturbances and recover from financial instability by decreasing the likelihood of disturbances in the financial intermediation process that might considerably worsen the raising of investments for profitable investment opportunities (Agresti, 2008). Now, however, ECB is defining financial stability as a state "whereby the build-up of systemic risk is prevented" (Makroprudenciālās uzraudzības politika). According to the ECB, "Systemic risk can best be described as the risk that the provision of necessary financial products and services by the financial system will be impaired to a point where economic growth and welfare may be materially affected" (Makroprudenciālās uzraudzības politika).

Stability is also defined in the handbook "Financial Sector Assessment" of the International Bank of Reconstruction and Development and the International Monetary Fund, where the stability of the financial system describes both the prevention of the collapse of a large number of institutions and prevention of serious disturbances in performing the functions of the financial system intermediation (Financial Sector Assessment, 2005).

The history of the development of the banking system suggests that for achieving and maintaining stability a certain regulation and management are needed, i.e. stability management (Saksonova, Solovjova, 2012). The stability management of the banking system is a set of functions, methods and measures implemented by the government, Central Bank, supervisory institutions and commercial banks in order to provide for the conditions for stable functioning and development of the system.
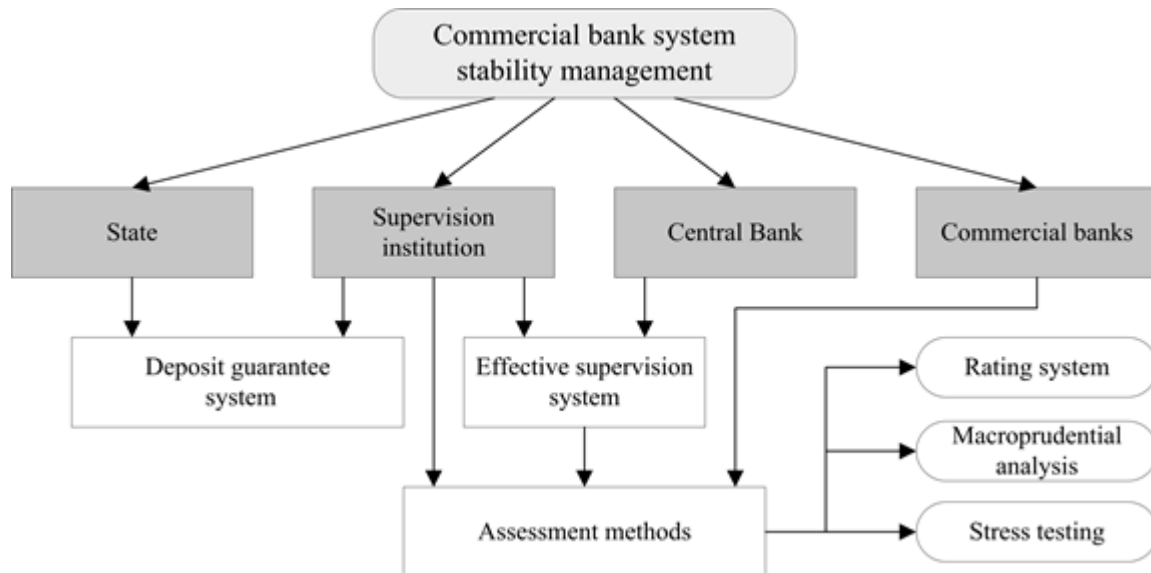
Source: author's construction

Fig. 2. **Schematic depiction of the commercial bank system stability management**

The crisis of 2008 proved and showed flaws in the stability management system, which particularly concerned the supervision framework. In order to resolve the problem, the European Commission initiated the creation of the Banking Union that would provide for a more integrated approach and would add to the single currency zone and single market. That was done and now the banking union covers the single supervisory mechanism (SSM) and single resolution mechanism (SRM) as well as the European deposit insurance scheme (DIS).

One of the most important ingredients of the management of the stability of commercial banks is the correctly chosen strategy under constantly changing economic environment. The authors of this paper define the strategy of commercial bank as a long-term development strategy, which defines a sphere of operation, its means and forms and which is directed towards achieving stability (Saksonova, Solovjova, 2012). Designing the strategy allows to analyse the future of a bank, and to plan the objectives, spheres, scales and possible results of its operation by relating them to the sources and costs of resources. A modern commercial bank without a strategy is merely a collection of assets, which is encumbered with liabilities (Никонова,2004).
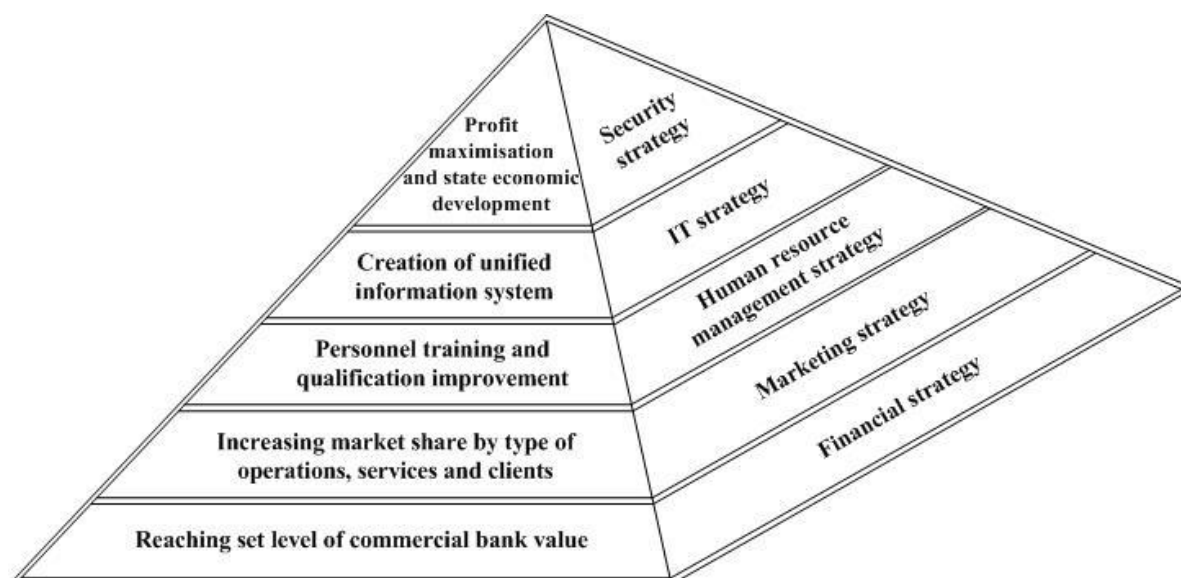
Source: author's construction

Fig. 3. **Components of commercial bank strategy**

In order to relate the management of stability of commercial banks to other, more familiar elements of financial management, one can define a set of strategies (Saksonova, Solovjova, 2012), which includes:

➢ A financial strategy, which is aimed at achieving a certain level of value for the bank, improving indicators such as return on equity or assets, increasing shareholder value, etc.);

➢ A marketing or market operations strategy, usually directed to increasing the market share in operations, services or clients;

➢ A personnel management strategy;

➢ An information technology management strategy.

A bank can also develop and implement the stability strategy by unifying economic and social targets in its operation. One can describe the main economic objective of a bank's operation is maximising profit in the interests of shareholders, who are investing money in bank's capital in order to receive a constant stream of income in the form of dividends. However, such an objective is not directed towards the long-term functioning of the bank.

A better approach is to direct bank management towards maximising the value of the bank, which includes a variety of elements, such as obtaining profits, potential volume increase of commercial bank's operations, increase in the shareholder value and stable dividends (Лаврушин, 2002).

The social target of bank management is related to the increase in the spectrum of bank services in order to fully satisfy clients and an improvement of customer service culture. The social aspect can also express itself as the bank fulfilling a role in the development of a country's economy by investing resources in different spheres of the economy. Implementation of the social aspect need not conflict with profitability of the bank, indeed it is an essential element in sustaining it.

The above-mentioned targets determine the main quantitative aspects of stability management of the bank:

➢ Achieving a certain level of profitability, taking into account the acceptable level of risks. This objective necessitates the creation of the system for managing revenues, expenses and profit as well as the volume of assets and liabilities;

➢ Maintaining banks' liquidity, by optimising cash flow and the structure of assets and liabilities. In this case the tasks of bank management are managing the cash flow, improving the structure and quality of assets and

liabilities, controlling liquid assets and forecasting the liquidity position of a bank;

➢ Maintaining the quality of banks' asset portfolios by analyzing their structure, profitability;

Thus, by developing and implementing stability strategies, which unite economic and social objectives, commercial banks can strengthen the stability of the banking system at the level of an individual institution as well as in aggregate.

The stability of the banking system depends on how successfully commercial banks manage profitability and liquidity parameters and implement their asset management strategies. If the management of these aspects does not give preferable or, at least, acceptable results, individual banks or the banking industry as a whole may be seriously threatened. As shown by Saksonova and Koļeda (2017) this, in turn, can have negative consequences for economic growth. Furthermore, Rupeika-Apoga (2014) showed that a well-functioning financial sector (of which banks are a cornerstone) can provide the capital needed for economic development.

The modern concept of asset management and creation has been continuously refined throughout several centuries. Economists were already researching the economic concept of assets, when the role of the banking system as a financial intermediary became more prominent.

Broadly, there are three main theories that underlie the accepted understanding of asset allocation and management. First, there is the modified neoclassical theory (developed among others by Bischoff (1971)) describing the dependence of investment on past prices of capital and output. Second, portfolio theory of investment, pioneered by Markowitz (1952) related asset portfolio optimization to the notion of portfolio returns. Third, the monetary theory, emphasized the role of adjustment costs in determining the persistence of investment behaviour (see e.g. Mussa (1977)).

Financial management and business science focus on the question of optimizing bank assets and controlling risks. There is, for example, a substantial literature on credit ratings and the consequences of the Basel Regulatory framework for banks (see e.g. Catarineu-Rabell (2005), Jacques (2008)). Evaluating the quality of assets and taking management measures towards improving it is the key to developing a successful asset management strategy.

In this paper the authors analyse asset liquidity, as well as profitability indicators (return on assets and equity) aiming to show that active liquidity and profitability management allows banks to increase their overall stability and lower the influence of external factors on their performance, as well as that successful asset management strategy controls both for the structure and profitability of assets as well as liabilities – sources of financing. This is relevant not only for individual banks, but also for supervisors, for whom it is important to apply a macro perspective to the prudential supervision of financial intermediaries to assist in identifying, analysing and taking pre-emptive actions to address systemic risk (Rupeika-Apoga, 2013). The importance of the quality and nature of liabilities is especially important for the Latvian banking sector, which is characterized by the significant amount of non-resident liabilities. The crisis related to the ABLV bank in the beginning of 2018 confirms that poor risk control over the quality of liabilities can be as damaging for the bank as poor control over the quality of assets.

Profitability of Latvian banks has been previously analysed by Bojare and Romanova (2017), who show that it is affected mostly by factors such as the economic environment, inflation, interest rates (spread), competition in the banking sector as well as individual bank overall effectiveness.

When the economic environment is constantly changing, developing and implementing a long-term strategy will be difficult for commercial bank management. The need for a strategy arises when macroeconomic and political situation stabilises, that is when it is possible to more precisely forecast economic developments. On the other hand, the growing competition in the banking system, indicates a need for the development of a strategy aiming at a consistent increase in competitiveness.

In a changing economic environment bank operations and development strategy become the primary object of

management. When implementing a stability strategy, which unites economic and social goals, a bank is required to set short-term and long-term goals regarding asset and liability management. In the short-term perspective it is necessary to pay specific attention to the changes in the bank's internal and external environment. In other words, it is necessary to ensure that variables characterising bank operations (ROE, ROA, capital adequacy, liquidity, net interest margin, etc) achieve certain levels in an environment with fluctuating assets, liabilities, prices and costs. The most important goal for managers is to find an equilibrium between risk and profitability. In the long-term it is very important to maximise the bank's market value putting most effort not on minimising the risk but on effective risk management.

When implementing asset and liability management strategy, in the short-term it is possible to rely on financial ratios that have been calculated using the information that has been included in commercial bank financial statements to analyse current operations. A very important element of the management strategy is the assessment of the profitability level, which involves analysing the levels and dynamics of traditional profitability indicators (return on equity, assets, etc.).

2. Analysis of Return on Assets of Latvian Commercial Bank System

The competition in Latvian banking system as well as the banking systems of other countries is currently intensifying, which may result in a decrease in the profitability of some banking operations (e.g. lending). The return on assets is one of the most important criteria for the successful management of commercial banks' assets. The Latvian banking system could adapt to a decline in the profitability of its operations in two ways.

First, one can seek to minimize the speed of the decline in the profitability by controlling costs and optimizing assets. This can be achieved by a reduction of relative expenditure via creating the resource base (increasing own equity share or lowering the price of attracted financing), as well as with the help of a relative increase in the efficiency of asset utilization by quickly reallocating assets to areas where an acceptable rate of return is assured together with the correspondingly low levels of risk.

Second, one can maximize profits: a bank has to assess the maximum potential profit of asset operations, given its own development strategy and taking into account management constraints such as: the need to fulfil Financial Capital and Market Commission (FCMC) regulations, maintaining a necessary level of liquidity throughout the year, maintaining a necessary standard of financial stability throughout the year, etc. (Saksonova, 2013).

Just as with the quality of assets, it is possible to assess the profitability of assets with the aid of a rating system (according to the CAMEL system). The profitability (return) of assets is defined as the ratio of net profit relative to the average total value of assets (ROA ratio). Since the ROA does not always provide an adequate representation of profitability, a quantitative evaluation should be enhanced by the analysis of the quality of profits. Otherwise it is not possible to judge whether observed returns are of a regular nature, or whether they are a result of large, but one-time operations. As a result of the evaluation profitability ratings can be assigned.

The best rating is obtained, when the net profit ratio to the average asset value (ROA) is greater than 1 percent and the amount of profits used in the calculation of profitability is sufficient to fully cover possible losses as well as to ensure a certain increase in capital. The worst rating is obtained when ROA is lower than 0.25 percent, denoting the situation, when the viability of a bank is threatened and it is operating with losses. Intermediate ratings are assigned based on equal intervals between the best and the worst ratings.
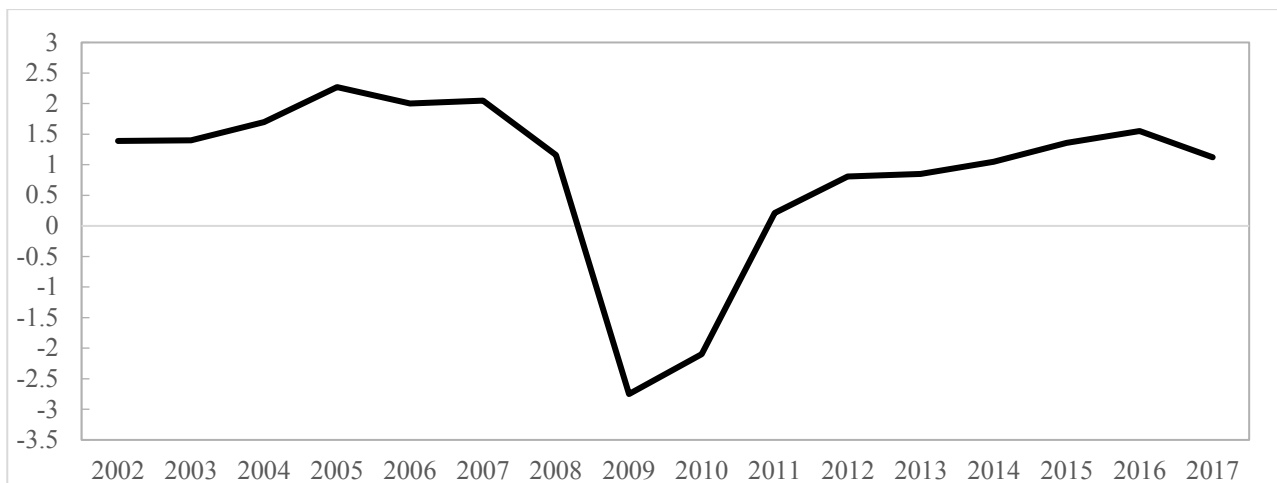
Fig. 4. **Return on Assets in Latvian Commercial Bank System (2002-2017, percent)**

Source: Authors' calculations based on FCMC data, every year is the average of four quarterly returns on assets

As one can see in Figure 4 and Table 1, return on assets was virtually constant in 2002-2003. After 2004, when Latvia entered the European Union, there were significant foreign capital inflows in Latvian banks began rapidly increasing their assets by increasing the amount of loans. The average return on assets was relatively high in 2005-2007. The effects of the global financial crisis began to be felt in 2008, with Latvian banks making loses in 2009 and 2010 (resulting in the negative return on assets and the worst performance rating. After balancing their lending policy and strictly controlling risks, the banking industry had managed to increase its asset profitability in 2011 and it had increased relative to the previous year, though banks were still making losses. It is striking that it took the banking sector a long time to recover with the return on assets reaching pre-crisis levels only in 2015-2016 with another slight deterioration in 2017.

Table 1

Return on Assets for Latvian Commercial Bank System 2002-2017, average in four quarters, percent

Year	Return on Assets (ROA)	Rating	Year	Return on Assets (ROA)	Rating
2002	1,39	1	2010	-2,10	5
2003	1,40	1	2011	0,21	5
2004	1,70	1	2012	0,81	2
2005	2,27	1	2013	0,85	2
2006	2,00	1	2014	1,05	1
2007	2,05	1	2015	1,36	1
2008	1,16	1	2016	1,55	1
2009	-2,75	5	2017	1,12	1

Source: Authors' calculations based on FCMC data

3. Analysis of Return on Equity and Liquidity of Latvian Commercial Bank System

A very important element of stability management strategy is assessment of profitability level. When analysing the return on equity (ROE ratio), it has to be taken into account that the ratio for the commercial bank system in Latvia as a whole (see Figure 5) in the period from year 2000 to 2007 was above 15%. Especially positively the ratio was affected by Latvia joining the EU. The situation started to change rapidly in 2008. When expenses increased for provisions for doubtful debts as well as increased prices for resources and the growth rate of lending decreased, the bank ROE ratios significantly decreased and in the end of 2008 reached 3.63%. The decrease in the ROE was mainly due to a rapid drop in the profit margin. That was caused by the significant increase in expenses for provisions for doubtful debts and

liabilities substantially decreasing profit before tax. All other components had less impact on the changes in ROE. The only thing that positively affected ROE was an increase in the coefficient of borrowed resources due to a decrease in equity and reserves. The ROE ratio of commercial bank system in year 2009 was negative: -41.61 percent. The decrease of net interest income and rapid increase in expense for provisions (by 1,323 million EUR during the year reaching 1,801 million EUR at the end of 2009) determined the losses for participants of the banking system. Commercial banks ended the year 2010 with losses, however, compared to the previous year the losses had significantly decreased due to changes in the required provisions. Total losses of the banking system in the year 2010 were 513.3 million EUR. Expenses for provisions for doubtful debts and liabilities (main reason for losses in year 2010) significantly decreased (to 1,034.6 million EUR). When the losses of the banking system decreased, ROE ratio improved but remained negative: – 20.4 percent. In 2011 the ROE improvement confirmed the improvement of the conditions in the banking system. A large part of Latvia's commercial banks finished the year with profit but the ROE of the system overall is still negative: -11.17 percent.
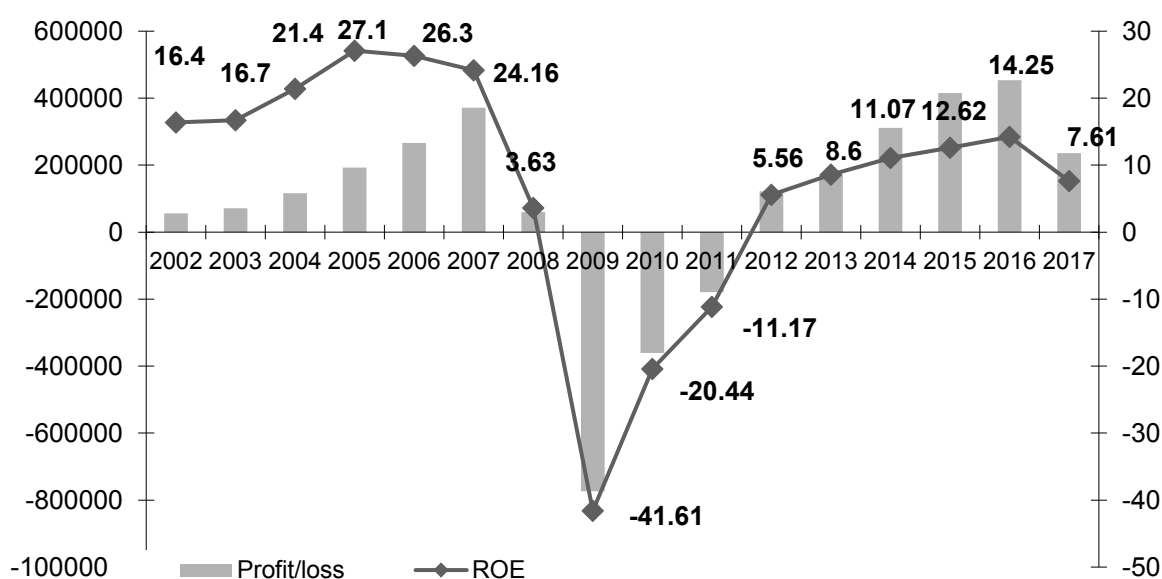
Fig. 5. **Profits (thousand EUR, lhs), and Return on Equity (percent, rhs) of Latvian Commercial Bank System, 2002 – 2017**

Source: Authors' calculations based on FCMC data

The situation began to improve starting from year 2012 when the mean ROE of the banking system of Latvia turned positive (2012 – 5.56 percent) and started gradually moving upward. The analysis of the revenue/expense structure of the commercial banks for years 2012 and 2013 suggests a declining trend of the interest income due to the slow lending and optimization of administrative expenses. In 2014, the participants of the banking system of Latvia operated with a profit of 311.4 million euros (i.e., 26.5 percent more than in the respective period of the previous year when the profit accounted for 246.2 million euros). Although, compared to the previous year, in 2014 the revenue of the banks decreased by 16.3 percent (mainly due to the decrease in interest income), there was an even bigger fall in expenses, i.e., by 23.5 percent. The growth in profit was still aided by the gain in net income from commissions (by 8.3 percent) as well as decrease in the expenses for the provisions for bad debts and in administrative costs (respectively by almost 48 percent and 7 percent). The return-on-equity indicator (ROE) of the banking system accounted for 11.07 percent.

In 2015 Latvian banking system made a profit of 415.9 mln euros (an increase of 33.6 percent to the previous year). The main factors influencing the rise in profit were the growth in the net operating incomes for the provisions for bad debts that suggested the stabilization of the loan portfolio. The ROE indicator of the banking system reached 12.62 percent

at the end of 2015. In 2016 the commercial banks of Latvia operated with a profit of 453.8 million euros. Consequently, the only factor influencing the profit growth in the accounting year was the purchase of the stocks of VISA EUROPE owned by the commercial banks of Latvia. This compensated both for the reduction in the income entries of the commercial banks (over a year the net interest income shrunk by around 4 percent or 20 million euros, net commission income by around 3 percent or 9 million euros) and the increased provisions for bad debts (by 26 percent or around 61 million euros). The ROE indicator of the banking system of Latvia accounted for 14.25 percent. As shown in Figure 5, in 2017 the ROE indicator dropped by a half (7.61 percent).

From Figure 5 we can also see that in the accounting period the ROE indicator of the banking system of Latvia features sharp fluctuations. The authors believe that they suggest certain problems in the management of asset operations, i.e., they suggest increasing risks in asset transactions.

Another very important component of stability management strategy is liquidity. The liquidity of commercial banks unarguably is a prerequisite of commercial bank security and factor affecting the stability of the commercial bank system. It is difficult to provide a comprehensive liquidity assessment using coefficients. Liquidity coefficients are used to evaluate commercial bank operations; in different countries the higher margins of the coefficients have been set differently (Ларионова, 2003). The margin is used to control financial state of commercial banks as well as protect interest of their clients.
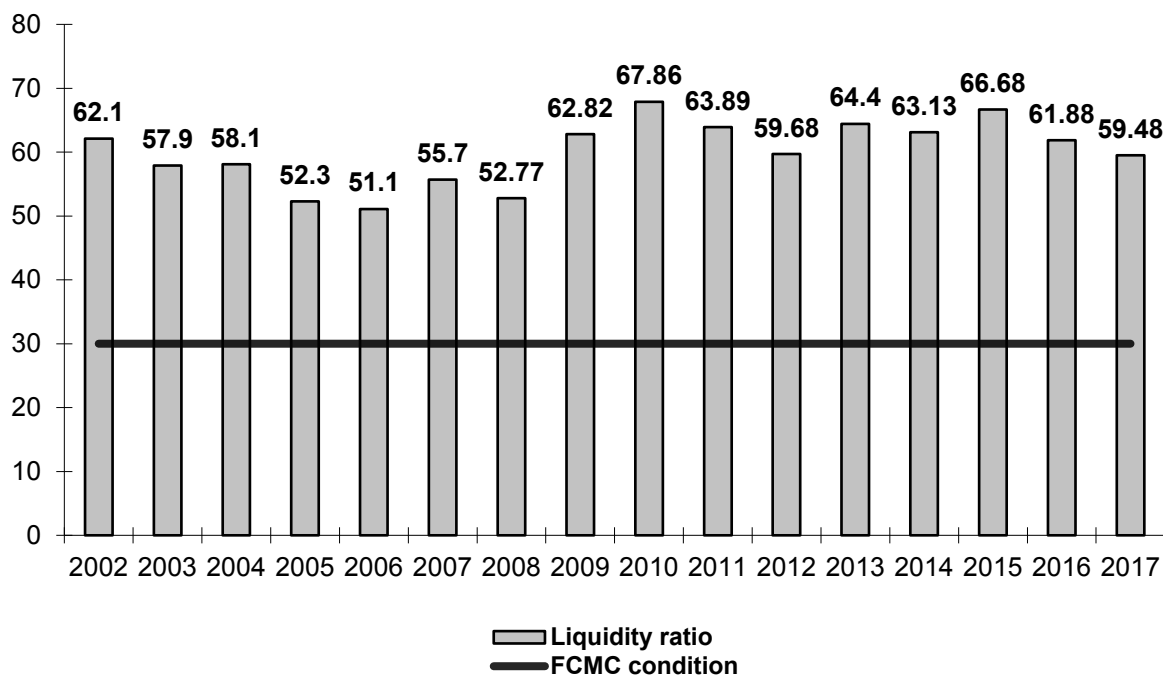
Fig. 6. **Liquidity ratio of Latvia's Commercial Bank System (years 2002 – 2017), percent (FCMC data)**

Source: Authors' calculations based on FCMC data

According to the Regulations on Fulfilling Liquidity Requirements (Likviditātes prasību, to izpildes kārtības un likviditātes riska pārvaldīšanas normatīvie noteikumu, 2009) commercial banks have to keep liquid assets in an amount to cover their liabilities at a satisfactory level but not less than 30 percent from the total sum of bank's current liabilities (liquidity ratio). Current liabilities are liabilities on demand and liabilities with term not exceeding 30 days. As shown by the data in Figure 6 in the accounting period the liquidity parameter of Latvia's commercial bank system is within the acceptable limits but it has a tendency to fluctuate. Due to continuing instability and tense liquidity situation in the world financial market in years 2008 – 2009, continuing decrease in deposits and worsening the macroeconomic situation in Latvia, the liquidity risk of commercial banks increased, especially in the short term. In the end of year 2008 the

commercial bank liquidity situation was worsened by the outflow of deposits that was caused by the rapidly growing unpredictability of the future of Latvia's national economy, lower growth of depositor income, lower availability of credit resources for financing business activities and using the created provisions for covering loans for which client cash inflow is not sufficient. Despite the outflow of deposits during the fourth quarter of the year 2008, the FCMC denoted liquidity ratio remained high and in the end of the year was 52.85 – just a little lower than at the end of year 2007 (55.7 percent). Note that the FCMC denoted liquidity ratio had a tendency to increase during years 2009 – 2011, when bank profitability decreased (ROE, ROA ratios). In March 2013 FCMC introduced individualized increased liquidity requirements depending on the non-resident deposit amounts in the total assets of the banks. Consequently, the banks servicing the international segment had much higher liquidity requirements than those servicing the local segment. Having survived the crises, the commercial banks of Latvia changed the structure of their liquid assets (the claims against monetary financial institutions decreased and the volumes of the held financial instruments increased) and ratios. The liquidity indicator, however, has been considerably higher in the period between 2012 and 2017 than the prudential indicator.

Ideally bank's asset structure is determined taking into account the goals of stable profitability for different assets, increased efficiency of capital utilization, the increase in liquidity and stability and the diversification of the bank's portfolio of assets. A bank can create different asset portfolios: conservative, moderate, speculative, etc.

In this paper, the accepted terminology "conservative", "speculative" etc., when discussing portfolios, is used considering not only the profitability and terms of the assets themselves, but mainly the time stability of liabilities that are transformed into the assets. The time stability of liabilities does not exclusively depend on the time profile of the claim. A part of long term liabilities (long term deposits) as well as stable liabilities on demand or attracted short-term interbank loans can also have high time stability.

Therefore the degree of the time stability of the liabilities can be described with the probability that a given volume of liabilities will be preserved for a certain time. It is clear that classifying time stability as high, medium or low is quite subjective; therefore it has to be implemented with care. Throughout their operation banks must constantly perform asset transformations, increasing their manoeuvring ability and preserving assets and their profitability.

It is possible to distinguish three types of asset transformations, which banks use in the process of their operation: quantitative, qualitative and time. A quantitative transformation is transforming comparatively small deposits into significant amounts of money (assets), which is necessary to finance large enterprises via loans. A qualitative transformation is used to decrease asset risks. Resources attracted by the bank (liabilities) are placed using diversified asset portfolios, which means increased safety both for the assets and the liabilities. Apart from that banks perform constant monitoring of the borrowers, which also lowers the risk of losing the assets.

In context of creating an optimum asset portfolio, the time asset transformation has a special meaning. Generally, time asset transformation is transforming short-term deposits into medium and long-term loans. By its nature the time transformation adversely affects the liquidity of the bank. This risk can be partially decreased, using short-term interbank loans and derivatives (swaps, futures etc.). Effective time asset transformation occurs, when the assets being placed are fully backed with liabilities with corresponding time stability. Apart from that, the interest rate, which a bank is paying for attracting liabilities, is connected with the interest rate, which it gets from its assets.

Asset transformation can also appear, when the profitability of certain financial markets has a tendency to decrease, the moderate asset portfolio, which has a larger profitability than conservative asset portfolio, can be increased using conservative asset portfolio. On the other hand, if certain financial markets' profitability tends to grow, the bank can reallocate a part of the moderate portfolio into a conservative asset portfolio. It is important to mention, that the concept of optimum asset portfolio provides that the size of conservative portfolio can be increased only when balanced by liabilities with high time stability, whereas the moderate asset portfolio can be increased using liabilities with high or

medium time stability. In that way asset transformation can occur with different asset portfolios, which are funded by liabilities with high or medium time stability.

Banks have to follow changes in real liabilities with different time stability closely (ideally – every day), in order to implement timely measures of their asset portfolio transformation to maintain current liquidity. If there is a decrease in liabilities with high time stability, banks can lower financing for their borrowers, firstly, by lowering the clients' unused credit lines, and in that way decreasing their external obligations. If the decrease in the profitability of asset portfolio occurs because of the increase in the costs of liabilities, banks can, for example, increase the amount of loans issued with floating interest rates. For example, in case of the increase in the interest rate for the attracted deposits and liabilities on demand, banks are frequently able to increase the floating loan interest rates for the use of the credit line.

The management policy for attracting liabilities also has to be in agreement with the banks' ability to adequately and efficiently use attracted resources. The price policy on the market of attracted resources and therefore banks' expenditure is defined using the strategy chosen by the bank, and depends on the cost of the operation and the chosen strategy.

Finally, large institutions are able to offer services with lower costs than smaller ones. The cost minimization strategy leads to an increase in the market share. The advantage for a bank is the growth of its client base, because clients are attracted by a relatively low price of a product or a service. Directly or indirectly that leads to an increase in banks' assets.

Conclusions, proposals, recommendations

This paper aimed to analyse the stability of the commercial banking system from both macro and micro level. On a micro level the stability of commercial banks is a precondition for the stability of the system. Therefore, the authors described the optimal stability strategy for commercial banks in Latvia. History shows that maintaining stability for commercial banks involves the development of a good asset management strategy. In the years prior to the crisis of 2008 asset structure of Latvian commercial banks had been mismanaged and had become progressively skewed towards mortgage loans. The rapid capital inflows have led to a misallocation of assets in the banking system. It has taken the sector a long time to recover with return on assets reaching their pre-crisis levels only after 2015.

The authors used return on assets and other profitability indicators to summarize information about the dynamics of bank asset profitability. They showed that segmenting assets as well as potentially liabilities into different portfolio can be a cornerstone of an effective asset management strategy. A successful asset management strategy should control both for the structure and profitability of assets as well as liabilities (sources of financing). It should also control for the time stability of liabilities funding the assets, and, as recent banking developments have shown, their risk profile. Implementing such a strategy is a crucial step for ensuring the stability of the banking system.

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INTERIM MANAGERS IN THE CFO ROLE IN MEDIUM-SIZED COMPANIES: COOPERATION BETWEEN CEO AND CFO, ROLES AND SUCCESS FACTORS

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Abstract. The ideal CFO is either seen as a glorified "bean counter" or as a Yeti. Expectations are high and seem to be overwhelming. CFO should manage an efficient finance organisation and give business insights to manage performance and strategy. Those heroes are given the name "Value Integrators" or "Performance Accelerators" as they outperform in optimise performance, provide calculable insights, cover risk management and support rational decision-making. Working as an Interim CFO inside a medium-sized company will create much pressure as it is "Management with a constrained duration, in which a manager is appointed from outside the organisation to perform an assignment for a limited period, after which the manager will leave the organisation." The effect of the strategic partnership between CEO and CFO has been tested. The demographic similarity in tenure and educational level have an indirect positive influence on the company's financial performance. Age and gender similarities have no significant impact. The paper seeks to identify the characteristics of the successful corporation between CEO and CFO when the CFO is an Interim Manager in medium-sized companies.

A literature review looks into Interim Management, the roles, duties, traits, and success factors of CEO, CFO, and Top Management Teams. Within that context, theories on interim management and the upper echelon theory are reflected.

The successful corporation between CEO and CFO is dependent on the fit of the working couple, which is influenced by the characteristics of each of them. The current situation of the organisation, the top management team characteristics and the level of necessity to change the organisation's culture determines which characteristics of the Interim CFO fit best.

Future research should consider the Interim CFO fit with the CEO and the Top management team to evaluate the contributions an interim CFO can make, rather than merely comparing the organisation's performance before and after the interim Assignment.

The paper would be of value for Interim Managers in the CFO role and those charged with the responsibility for the selection and development of Interim CFOs.

Introduction

The ideal CFO is either seen as a glorified "bean counter" (Rohit Sharma, 2010) or as a Yeti (Foeller, 2010). Expectations are high and seem to be overwhelming. CFO should manage an efficient finance organisation and give business insights to manage performance and strategy. (IBM Global Business Services, 2010, p. 20). Those heroes are given the name "Value Integrators" or "Performance Accelerators" as they outperform in optimise performance, provide calculable insights, cover risk management and support rational decision-making. (IBM Global Business Services, 2010; Fuessler, 2014). Working as an Interim CFO inside a medium-sized company will create much pressure as it is "Management with a constrained duration, in which a manager is appointed from outside the organisation to perform an

assignment for a limited period, after which the manager will leave the organisation." (Joop Vorst, 2009, p. 50). The question is what valuable contributions can be made within the limited time or how one researcher phrased it, in "… little more than a blip on the timeline (of changes) of the organisation." (Joop Vorst, 2009, p. 96). The effect of the strategic partnership between CEO and CFO has been tested. The demographic similarity in tenure and educational level have an indirect positive influence on the company's financial performance. Age and gender similarities have no significant impact (Han, Zhang, and Han 2015, p. 71). This paper covers a literature overview on the Roles and Traits of Top Management Teams, the CEO and the CFO. It looks at the Success Factors of the cooperation between the CEO and the CFO and seeks to identify the characteristics of the successful corporation between CEO and CFO when the CFO is an Interim Manager.

Interim Management

„In interim management, self-employed interim managers work for a defined period (usually 3-18 months) usually in entrepreneurial responsibility in a company in a leadership position of the first and second level. Interim managers are used in different situations and tasks, e.g., for bridging unpredictable vacancies in the event of management failure, for restructuring, in project management, for the introduction of new programs or in the establishment, transfer or sale of companies. The interim managers are distributed via a personal network or an interim provider, a company (or even an individual), which connect Interim Managers professionally. (Springer Gabler Verlag)." Interim Management is the temporary transfer of management tasks to external self-employed persons (Uffmann 2015; Tiberius 2004). Interim Management is a company-related and knowledge-based service provided by the manager himself (Uffmann 2015, p. 95). The essence of interim management is operational management and change management. (Reijniers 2003, p. 5). Whereas in the 1980s interim management was connected to crisis management, nowadays interim management does cover not only executive positions but also interim personnel on the 2nd or third management level (Groß, Bohnert 2007, p. 2). Interim Managers can take over unlimited roles. They cover project-driven tasks, special tasks, daily business tasks and coaching tasks. He acts as a specialist who has the specific know how, as a project manager in various business areas or as a crisis manager (Groß, Bohnert 2007, p. 10). "It should be noted at this point that in principle any management position can be filled by an Interim Manager (Ribbert 1995, p. 22)". Interim Management is used to cover vacancies, during crisis situations and within a project context (Ribbert 1995, p. 5). "Interim managers are particularly suitable for tasks, in which external knowledge is taken into the company, the fulfilment of the task is measurable, and the task rarely occurs or only once." (Dahl, Bach 2008, p. 87). Based on the companies knowledge about reason, problem, objective and results which should be achieved at the time, the interim manager is chosen (Groß, Bohnert 2007, p. 212). In general, an interim manager in a project starts with a situation analysis. He uses the methods applied in the management consultancy profession (Reijniers 2003, p. 56). Based on the findings he sets up a plan on how to achieve the necessary change to get the desired results (Reijniers 2003, p. 57). Within his management role, the interim manager uses his authority to act to give (disciplinary and professional) instructions to the subordinates. Acting as a specialist or as a project manager the Interim Manager has no power to act. (Uffmann 2015, pp. 91–92). Interim Management is the answer to the increased short-term economically driven management. (Tiberius 2004, p. 37; Hommel et al. 2012). If a job is unoccupied many problems come up: overworked, demotivated employees, projects are postponed, development is inhibited. There are plenty of negative consequences (Faber et al. 2017). Deficits in management are the real reasons for the corporate crisis. (Dahl, Bach 2008, p. 17). Interim Management facilitates to procure Management know-how when there is demand. (Uffmann 2015, p. 453). The main difference between permanent and Interim Managers is that the relationship between the Manager and the enterprise is intended to be temporal restricted (Bruns 2006, p. 30). The main success factors of an interim assignment lie within the capabilities of the interim manager and the company. What capabilities have the Interim Manager based on personality, Skills, experience, and motivation? What is the ability of the organisation based on

personal resources, organisational structure, strategy, company culture, information, and communication structure and financial resources? The shaping of those determinants in the specific situation is the main success factors (Ribbert 1995, pp. 100–135). The ideal interim manager, with plenty of hands-on experience at senior levels, is overqualified for the position in which he is placed. This enables him to make an immediate contribution to the business without having to go through a learning curve (David Goss, 1998, p. 39). The interim management role itself is bisected into two parts, on the one hand epitomising the knowledge and commitment of an insider with the novel perspective and political distance of an outsider (David Goss, 1998, p. 46). Monitoring and reporting are used to control the performance of an interim manager (Heinrich 2017, p. 175). An additional factor to define the success is the sustainability of what was achieved during the Interim Management deployment. Sustainability is achieved when the organisation uses the know-how to improve its capability to solve problems (Mestwerdt, p. 236). Interim Management is "Management with a constrained duration, in which a manager is appointed from outside the organisation to perform an assignment for a limited period, after which the manager will leave the organisation." (Joop Vorst 2009, p. 50). Interim Management can be used in a range that ranges from a simple, over a formal to a sophisticated mode. In a simple mode, the usage is connected with stopgap or instrumental resourcing and a manager's role similar to conventional forms of temporary work. In a formal mode, the usage is connected to a functional resource need and a technical specialist role. In a sophisticated mode, the usage is connected with transitional stopgap needs and a managerial role that is transformational: the ability to get beyond the problems of an organisation, to get it on a novel track (David Goss, 1998, p. 40)

Type of IM	Supply side – characteristics of individual		POTENTIAL MISMATCH	Demand side – organisational requirements	
	Motive	Capability		Need	Role
Simple	Route to permanent job	Operational and supervisory competencies		Instrumental stopgap	Managerial temp
Formal	Best present option	High level functional specialism		Functional stopgap	Applied consultant
Sophisticated	Commitment to interim management career	Strategic, entrepreneurial competencies and executive experience		Transitional stopgap	Transformational leader

Figure 1: interim management typology (David Goss, 1998, p. 41)

Each Interim type comprises of a supply-side and a demand-side. On the supply-side, motivation and capability are attributes of the interim manager. Motivation to work as an interim manager can range from negative (no choice) through ambivalent (best option right now) to positive (preferred career choice). This will probably correlate with the capability. Capability refers to the managerial experience, which could range from middle management to senior executive. On the demand side are the organisational need and the resultant managerial role. (David Goss, 1998, p. 40). The adoption and ultimate success of an interim assignment need to reflect the interactions that may take place between the types and their potential to cause a mismatch of supply-side and demand-side expectations (David Goss, 1998, p. 41).

Top Management Teams

CEO and CFO are part of the Top Management Team. "The core of upper echelon theory has two interconnected parts: (1) executives act on the basis of their personalized interpretations of the strategic situations they face, and (2) these personalized construals are a function of the executives' experiences, values, and personalities" (DONALD C. HAMBRICK, 2007, p. 334). The characteristics of the Top Management Team (TMT) instead explain organisational

success than the conventional view of one individual executive. (DONALD C. HAMBRICK, 2007, p. 334). Leaders that give their TMT members a role as co-members of the leadership team are more likely able to improve the group processes that build team potency and result in superior organisations performance. The effectiveness of the TMT indicates the performance of the Leader (Carmeli, Schaubroeck and Tishler, 2011, p. 408; Ling et al., 2015; Havaleschka, 1999). Managerial skills of the TMT have a strong influence on the organisation's performance, That effect is higher than the effect of industry sector, firm size and age, and environmental uncertainty. Skills to manage people are more important than intellectual abilities (Stashevsky, Carmeli and Tishler, 2006, p. 9).

CEO

CEO role

The CEO is in charge of the whole organisation. He gives the direction and defines the goals which determine its development. He sets the standards for the companies behaviour (Edersheim, 2007, pp. 239–255) The Chief Executive Officer (CEO) is the highest-ranking executive. He is responsible for implementing strategic plans on an operational basis. He is responsible for the success and failure of an organisation. Usually, the CEO is supported by subordinated executives, who run the different operations. The CEO reports to the board of directors. (Wibowo and Kleiner, 2005, pp. 88–89) McNamara names five critical roles of a CEO:

Leader - As a leader of the organisation he advises the Board, promotes a change of the organisation related to organisation's mission, and supports the motivation of employees in the organisation's products/programs and operations.

Visionary / Information Bringer - The CEO ensures that staff and Board have sufficient and up-to-date information, uses his foresight for opportunities for development and acts as an Interface between Board and employees, and between organisation and stakeholders.

Decision Maker - As a Decision Maker the CEO elaborates policies and planning recommendations to the Board, and decides or leads courses of action in operations by staff.

Manager - As a Manager, the CEO monitors the operations of the organisation, Implements plans, navigates the human resources of the organisation, and accept responsibility for the financial and physical resources.

Board Developer - As a Board developer the CEO makes recommendations, supports Board during orientation and self-evaluation. (Carter McNamara, MBA, PhD, Authenticity Consulting, LLC.)

Duties of the CEO

The CEO decides on how to achieve the organisation's goals. The CEO creates the vision that gives meaning to what the organisation is striving for. The CEO adjusts the strategy to win customers and to keep them. He enhances the company's products and services to match the needs of the market; The CEO communicates the strategy to employees, customers, and investors. The CEO sets the tone of the organisation's culture. In creating an open and respectful climate, where creative employees can make contributions he enables successful teamwork and creates an attractive environment to work in. The CEO sets targets and sponsors projects that positively contribute to the company's profit. The CEO takes into account the essential spendings and evaluates that asset investments deliver the promised benefits and that operations deliver the required performance. (Wibowo and Kleiner, 2005, p. 96) "It is the top leader who chooses his closest collaborators - and the better he is at that, the better results the company will obtain" (Havaleschka, 1999, p. 115). As the CEO, based on his characteristics, makes critical decisions on strategic and operational actions, he shapes the organisation's culture. They constitute the shared values and suppositions of the culture (Giberson et al., 2009, p. 125)

Characteristics of successful CEO's and why they can fail

Successful CEO's have specific characteristics: a humanistic approach, an achievement orientation, a positive outlook, a sense of integrity, inclusiveness and learning and self-awareness (Wood and Vilkinas, 2007, pp. 221–222). In a survey on high-performance CEOs of banks it was found out the among the four behaviours dominance, influence, steadiness, and conscientiousness the combination of high-dominance and high-conscientiousness was rated most favourable. The Dominance type of behaviour is bottom line driven, results-oriented and wants to get things done. This type is best in crisis situations. Influence is a people-oriented behaviour that persuades others to accomplish results, with a too optimistic view of people. In Conflict situations, people are brought together. This type fits best under favourable conditions. The Steadiness type works hard but is slow when change is required. Conflicts are avoided. Conscientiousness works with precision, detail, and accuracy, even in unfavourable conditions. (G. R. Forehand, 2016, p. 8) Korn Ferry investigated factors which predict long tenure and high-financial performance of CEOs. They found out that especially four factors have a strong correlation with long tenure. Those CEOs manage complexity, align execution, engage and excite employees, and inspire trust. High-financial performance correlates strongly with the ability to manage complexity, to align execution, a strategic vision, and financial acumen. A good CEO needs to match to the extraordinary demands of an organisation at a particular time. Expansions into new markets are different to developments within the core market, for example (Jane Edison Stevenson and Stuart S. Crandell, 2016, pp. 44–45). Russell Reynolds compared sixty attributes of CEOs which differentiate them from other executives. Those who were different could be categorised as Forward Thinking, Intrepid, and Team Building. Forward thinking is the ability to plan for the future. Intrepid describes the skill to achieve in complex and challenging settings efficiently. Team Building is the ability to reach success through others. CEOs know when to use one capability over another, to achieve the desired outcome (Russel Reynolds Associates, 2012, pp. 1–2). In there 2016 research Russell Reynolds stated the essence of a CEO as "Courageous and fast-paced," they seek challenges and are not intimidated. The best-performing CEOs have a passionate urgency, a lack of pretension, and the ability to see the big picture of the strategy. They always want to make progress. (Russell Reynolds, 2016, pp. 6–8). Burson-Marsteller (2001) investigated the reasons, why CEO's fail (Gaines-Ross, 2002).

Why CEOs Fail

	CEOs	Top Executives	Financial Analysts	Media	Government	Average
			Respondents			
Lack of strategic vision	46	44	40	33	33	39
Does not exectue well	41	41	61	36	23	40
Loss of credibility	36	30	47	20	23	31
Poor earnings	35	33	24	31	46	34
Failure to adopt to change	26	30	34	22	30	28
Poor match with company culture	23	23	24	33	23	25

Source: Burson-Marsteller, "Building CEO Capital ™ "2001, Average added by author

Figure 2: Why CEOs Fail (Gaines-Ross, 2002, p. 20)

40% of the respondents believe that CEOs fail because they do not execute well. 39% believe that there is a lack of strategic vision. 34% of failure is attributed to weak earnings. 31% to a loss of credibility, 28% to the failure to adapt to change, and 25% believe that the reason for failure is because the CEO does not match with the company culture. These issues lead to the loss of the CEOs reputation. When the CEO does not fit the most pressing circumstances a company needs to handle, he will not be successful. As every organisation has a distinct pivot, there are two or three core capabilities the CEO should have. In respect to other capabilities, imperfections are allowed. (Ram Charan, 2016, pp. 54–55). Fit can be evaluated against three aspects. Fit with the job - It should be clear what the responsibilities are. Fit with the Leader -

the must-have qualities a candidate should have. Fit with others - how will the candidate interact with others. Those different Fit aspects need to be reflected not only from the team that evaluates candidates but also from the candidate himself. When a change in the organisation is needed, candidates that do not fit with the current organisational culture can be the best fit to improve the organisation (2012, p. 5). Team fit as a factor looks at the fit between candidates and operational environment, and colleagues he needs to work with. A team fit analysis (conducted with a personality test like Extended DISC) provides a statement about the distribution of competences in a working team, compares selected competence clusters, shows potential conflicts in the cooperation between them, explains Strengths and weaknesses of the team, looks a white spots in the competences, and offers ideas for the distribution of team roles (Heiden, 2009, pp. 528–531).

CFO

CFO Role

A lot of CFO research is carried out and published by significant auditing and consulting companies (Deloitte (Deloitte & Touche, 2013; Deloitte LLP, 2012a; Deloitte Development LLC., 2005, 2014; Deloitte LLP, 2012b,), Capgemini (Tony Kelly, Christopher J. Stancombe, 2008), KPMG (KPMG LLP, 2016, 2011; KPMG and ICAA, 2007; KPMG Austria GmbH, 2010), Ernst & Young (EY) (Ernst & Young LLP, 2008, 2008)(EY, 2016), Accenture (Accenture, 2014, 2017)), associations and professional organizations like CAEW (Institute of Chartered Accountants in England and Wales), CIMA (Chartered Institute of Management Accountants) (CIMA, 2009, 2011; Pitcher, 2015, 2015), ACCA (Association of Chartered Certified Accountants) (KPMG LLP, 2016) or IMA (Institute of Management Accountants). In 2011 the ICAEW paper analysed 261 studies regarding the finance function (ICAEW: Dr. Philip Smith, Rick Payne, 2011). They consolidated the findings of the studies, relating to the role of the finance department. The activities, where the finance function's tasks got rated 'high importance' are shown in the following figure.
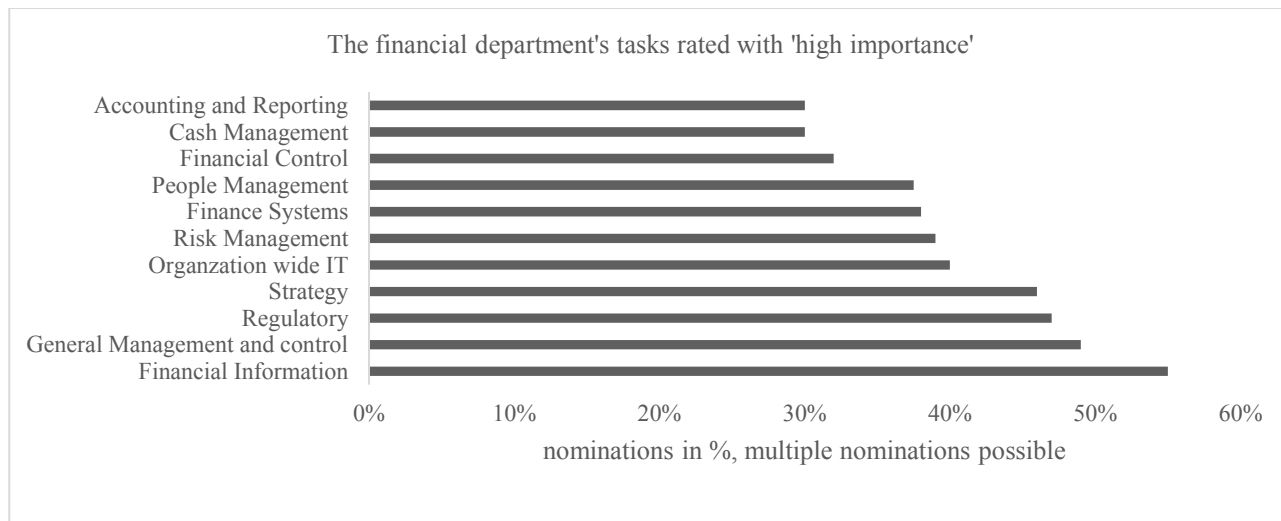
Figure 2: "high importance" results for finance activity subcategories excluding single responses (ICAEW: Dr. Philip Smith, Rick Payne, 2011, p. 44) adopted by the author

Financial Information, General Management and control, Regulatory and Strategy got the highest ratings for 'high importance.' Other issues like Risk Management, Organization wide IT, Finance Systems and People Management follow. Other tasks like Tax, Transaction processing, Mergers and acquisition, internal auditing, investor relations, legal, investment appraisal were rated less critical. The tasks give an overview based on averages. In the specific situation, the priorities can somewhat be different, especially when we look into medium-sized businesses. The role of the CFO has changed in recent years. More often he takes care of control and strategy. He has a role as the CEO's business partner. In

the past, he was more focused on accounting and completion of accounts (Rapp and Wullenkord, 2014). "CFOs have become more strategic, reflecting enhanced opportunities to impact a company's program for delivering shareholder value (Nolop, 2012). "CFOs increasingly involve themselves in all areas of business management including strategy selection and operation. (Hommel et al., 2012)"."CFO's need to be strategists, leaders, and advisors (Dergel, 2014). "CFOs act as strategists when they make business decisions and prepare plans of action based on their companies' strategies." (Dergel, 2014, p. 3). "A successful CFO is looked at by the CEO as a fellow leader within the company." (Dergel, 2014, p. 3) Being able to act as an Advisor to the CEO and the other executives, he needs to know the business, an understanding of the numbers and experience of successes and failures. (Dergel, 2014, pp. 3–4). "The aim and the core requirement of the CFO is, therefore, to set up in such a way that the CEO searches for the discussions with him. Nevertheless, the CFO should discuss hard and question the arguments of the management again competently. (Weber, 2009, p. 12)". Following Stephen M. Bragg the responsibilities of a CFO, targets varying by the company, include the following tasks:

- Pursue shareholder value
- Understand and mitigate risk
- Encourage efficiency improvements everywhere
- Install shared services
- Allocate resources
- Construct reliable control systems
- Link performance measures to strategy
- Clean up the accounting and finance functions
- Examine outsourcing possibilities
- Encourage innovation (Bragg, 2011)

These different tasks can be summarised into four groups: the Financial statements and accounting expert, the Controlling and Reporting expert, the Finance and Capital market expert and the Governance and Administration expert (Rapp and Wullenkord, 2014). All CFOs need to make permanent improvements to the organisation (Parmenter, 2011).

CFO Role in medium-sized businesses

Figure 3: professional requirements for the CFO (Deloitte & Touche GmbH Wirtschaftsprüfungsgesellschaft, 2009) S. 11 translated by the author

In medium-sized businesses basic business knowledge, controlling knowledge and completed university studies are the most crucial profession requirements for the CFO. Accounting skills and IT skills matter least. As the CFO needs to

interact with different departments, it is essential for his acceptance to understand the business the company is doing and how value is created.

The most important tasks of a CFO in medium-sized companies

Controlling — 52%
— 50%
Strategy and planning — 48%
— 38%
Human Resource management — 33%
— 29%
Coordination and interface tasks — 29%

0% 10% 20% 30% 40% 50% 60%
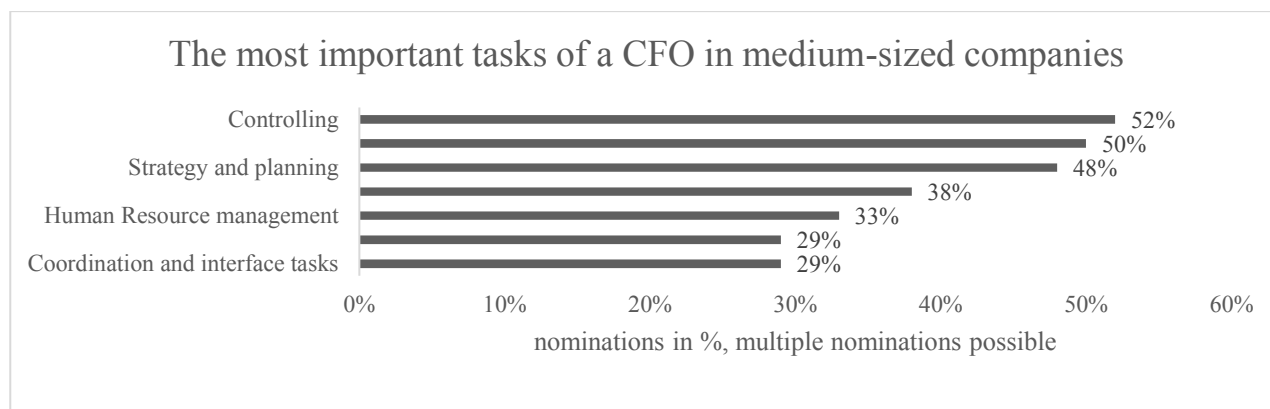
nominations in %, multiple nominations possible

Figure 4: The most important tasks of a CFO in medium-sized companies (Deloitte & Touche GmbH Wirtschaftsprüfungsgesellschaft, 2009) S. 16 translated by the author

In medium sized businesses controlling, financing, and strategy and planning are the most critical tasks of a CFO.

CFOs need to enable the organisation to produce an outstanding performance to achieve a competitive advantage. They allow a higher return on capital without increasing risk. During the crisis, they navigate safely through the rough sea. Their main tasks are to strive for profit, to control risks and to assure compliance (Zehetner, 2013). In medium sized businesses the primary functions of a CFO are controlling, financing, strategy and planning, accounting, human resources, information technology, and coordination and interface functions. (Becker et al., 2010, p. 64). In Germany, the CFO increasingly is a member of the senior management with a dominant controlling role (Becker, Baltzer 2010).

Interim CFO

The challenges for an Interim CFO are are the same as those of other Interim Managers: "Roll up your sleeves," "Leadership by example" and "You may not want to overpower people." (Reiner Nagel, Managing Partner, Atreus, an advisory company specialised in Interim Management, in the interview)   (Anne-Kathrin Meves, 2014) The Interim Manager knows the right tools to fix the problem within organisations. He needs to have a good picture of the organisation to see where the levers are and which structures need to be questioned. He needs to get in contact with the people within the organisations quickly, to see who can be helpful to give the necessary information to be successful (Glamsch, pp. 142–175). Roughly about 23 percent of the projects are related to finance, controlling and accounting. 16% are in the General Management area. When used in Small and Medium-sized Companies, which represents 60% of all projects, additional difficulties are arising because of the current deficits in the CFO area:

- The financial sector often has a poor image in the management committee.
- The CFO sees himself as a victim of the high level of organisational complexity.
- The expectations of the CFO rise. The CFO area does not get developed, due to high expenditures in resources.
- The demands on the professional expertise of the CFO grow, for example, in the field of financing and financial transactions.
- The controlling function is underdeveloped in many SMB, and the relevant information for decision support is often confusing to retrieve, too.
- Delegation is underdeveloped
- operational processes require a too high proportion of the time budget of the CFO.
- Personal development has a low priority in the financial sector (Deloitte & Touche GmbH Wirtschaftsprüfungsgesellschaft, 2009, p. 19).

Success Factors of the cooperation between CEO and CFO

Personal and organisational aspects of the cooperation between CFO and CEO create the environment, which leads to a successful implementation of the corporate strategy and the success of the company. The CFO shall develop the business model to be viable in the future. His role could be to generate growth initiatives or cost-cutting measures. He acts as a counterpart to the CEO and the management team. He is involved in the measures and must at least deliver financial transparency to maintain the successful implementation of the measures. Sometimes he, himself is responsible for realisation. The CFO needs to state strategies and goals and inform what has been achieved. The integrity of the information he delivers must be ensured. The CFO needs to act as the most important change agent of the CEO and needs to improve processes, employees and company standards. No issue is more important than the fact that CEO and CFO use the same language and understand each other as is not possible to solve differences on that personal level through organisational measures. The CEO-CFO relationship affects the whole organisation. (Göseke, 2008, pp. 383–384) In Germany, the CEO, followed by the CFO lead the strategic planning process (Hiebl, Martin R. W. and Neubauer, Herbert and Duller, Christine, 2013, p. 84). If a top manager wants to affect the organisation's strategy he needs to have the power to be influential. Strategy making is influenced by the distribution of power (SYDNEY FINKELSTEIN, 1992, p. 531). Besides the more technical skills of the job, new CFOs must fit the organisation's CEO, management team, and organisational culture. The CFO needs to achieve that the CEO leans on him for strategic insight (Joseph Danel McCool, 2010, p. 32). Egon Zehnder in a survey identified three key competencies for successful CFO's. "The ability to influence and collaborate with the CEO." Influence is gained with credibility to investors and the internal management team. Objectivity and independence to safeguard good business practices and manage the risks of corporate strategies. Moreover, CFO's need to deliver results. (Egon Zehnder) CFO's can develop a good relationship with their CEO when they possess several character traits: "integrity, good judgment, competence, and strong communication skills, including the ability to disagree where appropriate." (IRA BIRNS, 2010, p. 338) The relationship to the CEO "can make or break" the CFO's job. (Mary Beth Findlay, 2013, p. 5) In a survey of 100 CFOs at leading U.S. companies, it was found out, that for those CFOs, who reported a solid CEO relationship, it was only a slight difference whether the tenure of the CFO was below two years or above two years. The difference, whether the CFO was internally promoted or externally hired also played no major role. (Jenna Fisher, 2017, p. 3) So from this perspective, an Interim CFO has no disadvantage. Different personality types of CEOs require different personality types of CFOs. Foeller distinguishes the Efficiency Optimizer with core competence in cost optimisation; the Enabler, with his network of investors; the Good Conscience does the checks and balances; the Salesman reflects the view of the financial markets and the Powerful with a dominant role inside the organisation. Depending on the strengths/weaknesses of the CEO, some CFO personalities fit better than others. (Foeller 2010, pp. 22–24). The CFOs participation in the development of the company strategy supports the CEOs understanding of the business and his decisions improving it. Sharing strategic decisions between CEO and CFO leads to improvements in the result of the organisation. Similarities in education level and tenure improve their strategic partnership as it allows common skills and a shared understanding of the organization. Functional differences are softened (Han, Zhang, and Han, 2015, pp. 70–71). When the relationship is strong, the CEO informs the CFO, and they are strategically aligned. Major issues are discussed between them and can be challenged from the CFO. Healthy debates are a sign that the CFO is accepted as a member of the enterprise-leadership team (Jenna Fisher, 2017, p. 4). Besides the CEO, the CFO is one of the few who has a complete overview of the organization. The CEO must be able to rely on that he receives all important information first. The CFO needs to know what is on the CEO's agenda to separate important from less important information. CEO and CFO need to have the same idea of the level of risk that triggers the information flow. When the CFO talks to external parties, it is essential to tell the same story as the CEO. It is the CFO's role to stress business risks and to sometimes have conflicts with the CEO in specific subjects (Göseke, 2008, pp. 384–385). CEO and

CFO should share a common view on leadership as it creates the role model for the management. How to work together with employees, how to handle mistakes or how to solve problems, which values drive their behavior (Göseke, 2008, p. 385). The CEO needs a CFO who understands his needs and wants, one he can trust and delivers valuable information (Mary Beth Findlay, 2013, p. 33). In a classical constellation, the CEO focuses more on external issues, like customers and the CFO more on internal issues, depending on his responsibilities (i.e., IT, HR, Legal). To get trust from the CEO, the CFO needs to make significant contributions to specific projects and subjects. The CFO needs to force the members of the finance team to work closely with the different business areas to be supportive (Göseke, 2008, p. 386). Typically, the CEO is the number one and the CFO the number two in the organization. Tulmeri and Banai propose the CEO and CFO to be equal co-leaders of the organization. The CEO "the eternal optimist pushing ahead in full speed, sometimes with rose-colored glasses" and the CFO "urging caution and wary risk". They argue that businesses are approaching a more consensus model of management. Leadership needs to be shared, to be more balanced. Each of both will have individual responsibilities but will take joint decisions in important issues to cover different views, perspectives and expertise (TULIMIERI and BANAI, 2010, pp. 243–244). The CEO and the CFO are allies in value creation (EY, 2015, p. 3). Partners need to complement each other and support one another where on has less skills. No competition shall be between them and contributions will be valued. Public will see their strong personal bond (TULIMIERI and BANAI, 2010, p. 244). The proposed solution will not work in every business, but has the advantage bringing different skills together to create a complementary whole (TULIMIERI and BANAI, 2010, p. 245). A Consultant described the danger zones of a CEO-CFO relationship in a classical setup and how to avoid them, seen from the CEO's perspective:

- Space and Structure: Have regular open discussions about what is valuable or destructive for the business, talk about roles and boundaries for decision making
- Care and Confidence: share the visions and goals, explore issues together, but use the CFO as a resource and tool
- Discipline and Distance: encourage the CFO to be a strong copilot and to be the bad guy, follow the rules and be a good example. (David Worrell, 2015)

The CFO is responsible for internal control, attestation, and financial reporting decisions, He can use accruals and real earnings management to influence reported outcomes (HAM et al., 2017, p. 5). As the CEO has no hands-on access to financial records, he seeks assistance from the CFO in case he asks or directs adjustments. Such pressure increases the CFOs' willingness to revise an accounting estimate. When the CFO has more years of accounting or is acting in good faith for the organisation are less likely to revise their initial adjustment (Bishop, 2013, p. 65). The influence of CFO narcissism on financial reporting has been tested. CFO Narcissism is associated with a tendency for greater accruals and real earnings management, lower conditional conservatism, weaker internal control quality, and an increased likelihood of restatements (HAM et al., 2017, p. 35). Especially when the CEO receives high equity incentives, he tries to influence the CFOs' financial reporting decisions. The CFO needs to be the watchdog over financial reports and resist the pressure from the CEO (Feng et al., 2011, p. 35). As an Interim Manager usually has a lot of accounting experience, remains only for a limited time, he is more independent in his judgments. This helps to reduce financial misstatement. As the Interim Manager typically inherits the necessary power sources like Employability Relationships/networks, Competence/reputation, Communication skills, and the ability for Proactive problem-solving, he can resist pressure to act unethical (UHL-BIEN and CARSTEN, 2007, p. 196). "CFOs may be in a unique position to "Just Say No" and contribute to the monitoring function from the inside by offering thoughtful dissent" (Bishop, 2013, p. 66). AIMP stated that in 50% of Interim Projects the managing director or the board are negotiating partners of the interim assignment. Only in 4% of the cases, the advisory council is involved. (p. 17). For an Interim Manager in the CFO role that can make a huge

difference. When the CEO is the one who hired the Interim CFO his power to confront the CEO with "unpleasant truths" is weaker, compared to a situation where the advisory board is the contracting authority.

Trust in the Relationship

The basis for a stable relationship is trust. How the CFO makes promises to the CEO and keeps them, directly affects the ability to build trust (Jack Warlock, 2010, p. 62). "Trust is the positive assessment of another's sincerity, competence and reliability that enables one to interact well with another" (Jack Warlock, 2010, p. 61) Trust in a Leader is built out of honesty. To enable a robust CFO-CEO relationship, the CFO expects complete transparency, the CEO no surprises and excellent communication, credibility and both of them an openness to constructive criticism (Jenna Fisher, 2017, pp. 5–6). The CFO should have a clear understanding of what the CEO expects from him (Jack Warlock, 2010, p. 62). "The mood of trust is generated when group members act in ways that create safety among members such as: Keeping confidences, speaking from personal experiences, making clear requests and keeping promises; making legitimate, specific complaints to the person involved when promises are not kept; and celebrating one another for keeping commitments and for outstanding work" (Jack Warlock, 2010, p. 62).

Conclusion

An Interim CFO needs to build an excellent working couple with the CEO. When the task is to make cultural changes in the organisation, and the Interim CFO has enough power sources, i. e. if the board hired him, his characteristics might not fit the CEO's, but to the challenge of his assignment. More normally his characteristics, similarity in age and educational level should fit the CEO. As it is the CEO, who is in charge for the whole organisation, he is responsible for choosing the right members of the Top management team. Hence he chooses the CFO. To avoid a mismatch, the CEO should reflect which role the Interim CFO should have, his motivation and capability. The more sophisticated the task, that the Interim CFO should cover, the higher is the role of adequate leadership capability of the Interim Manager. To establish a trustful partnership between them, the CEO should make clear how he sees the CFO's role, ranging from the CFO as an equal co-leader to the CFO as a resource and tool, taking the bad guy role. The CEO needs to clarify what is on his agenda, helping the CFO to know which information is essential to him. They should use the same language to understand each other. To get trust from the CEO, the CFO needs to make promises he can keep. The successful corporation between CEO and CFO is dependent on the fit of the working couple, which is influenced by the characteristics of each of them. The current situation of the organisation, the top management team characteristics and the level of necessity to change the organization's culture determines which characteristics of the Interim CFO fit best.

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TOWARDS MODELING THE INFLUENCES OF WAGE DISPERSION ON TEAM PERFORMANCE

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Abstract. The influences of wage differentials are an often-discussed topic in the field of compensation research. This conference paper describes substantial literature which investigated the influence of wage dispersion on team performance (productivity). The literature focusing on these effects offers a broad variety of different results. They cover the whole spectrum from a not significant to a significant non-linear relationship. When evaluating these findings, no definite conclusion can be drawn on the question if wage dispersion is beneficial to team performance or not. Future research has to be done to shed more light on this field of research.

The majority of the discussed papers use sports research settings to explain the effects of wage dispersion. In sports, performance statistics are published in detail, and the wages are often publicly disclosed. These circumstances found in sports datasets are beneficial for the research on the influences of wage dispersion.

The presented literature is compared regarding their explanatory variables. This paper emphasizes on three issues for further investigations on the effects of wage dispersion on team performance. Different measures of wage dispersion, as well as the explained dispersion in pay and the possibility of non-linear effects, will be discussed. The discussion results in suggestions for further research.

Key words: *wage dispersion, performance, compensation*

JEL code: M52

Introduction

Gupta and Shaw (2014) state that there is a relative scarcity of research done on employee compensation. However, the importance of the compensation scheme is also stressed out by the authors. "In virtually every aspect of organizational functioning, compensation can shape employee behavior and organizational effectiveness" (Gupta & Shaw, 2014, p. 1). Even if the research on compensation in total is scarce, research on the influences of wage dispersion is a topic of great interest in the organizational and management literature (Shaw, 2014; Trevor, Reilly, & Gerhart, 2012).

Many researchers have used secondary data taken from sports settings. Data from different sports was used to take a closer look at the influences of wage dispersion on performance. So far, the studies focused on US sports leagues, dominated by the Major League Baseball (Franck & Nüesch, 2011). The advantages of sports as a research setting is pointed out in the study of Kahn (2000). "There is no research setting other than sports where we know the name, face, and life history of every production worker and supervisor in the industry. Total compensation packages and performance statistics for each individual are widely available, and we have a complete data set of worker-employer matches over the career of each production worker and supervisor in the industry" (Kahn, 2000, p. 75). The advantages of a sports data set are often also named as their disadvantages. The results of such a research setting might be different in a setting in which performance is not as easy to observe (Harder, 1992). For interpreting the results, the specialties of professional sports have to be considered. The occupation is a typical pay-for-performance context, and the average salary is comparatively

high (Franck & Nüesch, 2011; Harder, 1992). A pay-for-performance context is given when payment is based on performance factors (Conroy & Gupta, 2016).

Table 1

Study	dataset	Performance measure	Dispersion measure	Effect of wage dispersion on performance	Non-linear effects
Coates et al. (2016)	Football; North America	points per game	Gini coefficient / coefficient of variation	Gini not significant / coefficient of variation coefficient negatively significant	Gini squared negatively significant (jointly with Gini) / coefficient squared positively significant (jointly with Gini)
Bloom (1999)	Baseball; North America	winning percentage	Gini coefficient	Gini negatively significant	not discussed
Franck & Nuesch (2011)	Football; Germany	winning percentage / league standing	Gini coefficient / coefficient of variation	Gini negatively significant / coefficient of variation coefficient negatively significant	Gini squared positively significant / coefficient squared positively significant
Mondello & Maxcy (2009)	American Football; North America	winning percentage	coefficient of variation	coefficient of variation coefficient negatively significant	not tested
Shaw et al. (2002) study 2	Concrete pipe industry; North America	Labor hours per ton / Lost-time accidents / perceptual performance	high minus low / Gini coefficient / coefficient of variation	mixed results (not significant or significantly positively)	not tested
DeBrock et al. (2004)	Baseball; North America	Won-lost ratio	Herfindahl index	Herfindahl expected negatively significant / Herfindahl residual not significant	not tested
Simmons & Berri (2011)	Basketball; North America	winning percentage	Gini coefficient	Gini predicted positively significant / Gini residual not significant	not tested
Trevor et al. (2012)	Ice hockey; North America	points / round	pay variance	variance predicted positively significant / variance residual not significant	variance predicted squared negatively significant
Grund & Westergaard-Nielsen (2008)	Several industries; Denmark	value added (net revenue)	coefficient of variation	coefficient of variation coefficient not significant	not significant

There are also numerous research papers written based on data which was taken from corporate settings. The short overview in table 1 shows that research results offer a variety of different outcomes explaining the consequences of wage dispersion. The results differ not only between different types of sports but also for the same sport were different consequences found. "Despite an increasing number of studies, research evidence on the effects of pay dispersion has not yet been consistent" (Downes & Choi, 2014, p. 53). As it will be discussed later, there are also researchers who found support of non-linear effects of wage dispersion on performance.

The theoretical background will not be discussed in detail in this literature review. Grund and Westergaard-Nielsen (2004, 2008) summarize the theories supporting an egalitarian wage structure as fairness approaches. These theories like equity theory (Adams, 1963) or fairness theory (Akerlof & Yellen, 1990) state that differences would demotivate or lead employees to reduce effort. On the other hand, there is Lazear and Rosen's tournament theory (1981) which supports a positive relation between dispersion and individual effort. Consequently, tournament theory proposes a more hierarchical wage structure.

This review only discusses studies which were examining horizontal wage dispersion. This implies differentials between a group of employees of the same organizational level. Vertical inequity, between different organizational levels, will not be reconsidered. Shaw and his co-authors even concluded, "that intraclass dispersion evokes stronger employee reactions than interclass dispersion" (Shaw, Gupta, & Delery, 2002, p. 492). "Horizontal pay distributions hold constant many potentially confounding factors (e.g., differences in status, social class, job titles) that could reasonably explain variations in pay levels. They highlight performance, justice, and legitimacy issues among relevant comparison individual" (Shaw et al., 2002, p. 509).

Discussion

Table 1 summarizes the studies which are discussed in this conference paper. The focus of this literature review lies on the explanatory variable, the measurement of wage dispersion. The substantial literature which investigated the influences of wage dispersion on team performance will be approached regarding major issues. Three issues in the field will be identified and described. Firstly, different measures of dispersion, secondly, explained wage dispersion and lastly, possible non-linear effects.

The depended variable, team performance, will only be touched briefly. Some studies with data taken from a sports setting include financial measures and sportive performance measures. However, the use of financial performance variables in such settings is contested in literature. Bloom (1999) tests in his paper both the influences of wage dispersion on corporate performance measures (media income, total income or franchise value) and on sportive performance measures (winning percentage). On account of the low correlation between the financial and the on-field performance, Bloom sees potential support for the assumption that these measures are divergent performance goals. Trevor and his co-authors (2012) even state that the linkage between non-sportive performance measures and pay strategies in a sports setting is distal. Anyhow, the studies with a sportive background, shown in table 1, use mainly the winning percentage (wins/games played) as their performance measure (Bloom, 1999; Franck & Nüesch, 2011; Mondello & Maxcy, 2009; Simmons & Berri, 2011). The other used measures are points per game (Coates, Frick, & Jewell, 2016), league standing (Franck & Nüesch, 2011), won-lost ratio (Debrock, Hendricks, & Koenker, 2004), points and round[*] (Trevor et al., 2012). Grund and Westergaard-Nielsen (2008), as well as Shaw et al. (2002), use a corporate research setting. Therefore, they use corporate performance measures (e.g. value added).

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[*] The measure depends on the final position and ranges from 0 (for non-playoff teams) to 5 (the championship team).

Measures of dispersion

The scales of wage dispersion measure the distribution of wages. "More dispersed pay structures concentrate pay among fewer employees at the top of the pay structure, thereby providing relatively rich rewards for these employees and relatively poor rewards for the rest" (Bloom & Michel, 2002, p. 33). As shown in table 1 researchers use a variety of scales to measure the concentration of pay. In the short overview we have five different dimensions, pay variance, Gini coefficient, Herfindahl index, the coefficient of variation and high minus low.

Allison (1978) suggests using the coefficient of variation, the Gini coefficient or Theil's measure. He states that the Gini coefficient is the most popular rate but that it would not have any particular advantages compared to the other two mentioned dimensions. In contrast, the Gini coefficient would be the most difficult to compute. Allison (1978) also suggests the use of Theil's measure because it would be especially desirable for measuring inequality of income. To the author's knowledge, Theil's measure was not used in any significant study to measure wage dispersion.

The Gini coefficient (G) is according to Allison (1978) given by the following equation:

$$G = \frac{\frac{1}{n^2}\sum_{i=1}^{n}\sum_{j=1}^{n}|x_i - x_j|}{2\mu}$$

It can be expressed in several ways (Pyatt, 1976) but the given expression makes it clear that the Gini is a measure of dispersion divided by twice the mean μ (Allison, 1978). The coefficient of variation (CV) is given by the standard deviation σ divided by the mean μ:

$$CV = \frac{\sigma}{\mu}$$

Harrison and Klein (2007) suppose that researchers might favor the Gini over the coefficient of variation because it follows a comment metric. The Gini coefficient varies from 0 -illustrating equally distributed wages- to (nearly) 1 - illustrating totally unequal distributed wages. The CV value is large if the wages concentrate on a few persons at the top and more persons at the bottom (Harrison & Klein, 2007). The maximum value of both, the Gini and the coefficient of variation, depends on the sample size n but in the case of the Gini, it should be less of a limiting factor (Harrison & Klein, 2007). "Because the maximum CV is sensitive to sample size, highly dispersed units with fewer members likely would be regarded as having less disparity than those with more members" (Harrison & Klein, 2007, p. 1212). Both measures are scale invariant which means that they decline if a positive constant to every wage is added (Allison, 1978).

Most of the discussed papers use at least one of the two described and recommended measures, CV and Gini coefficient. Only two papers of the short overview, presented in table 1, do not use at least one of them. DeBrock and his co-authors (2004) took the Herfindahl index to measure the concentration of pay. The potential range of the Herfindahl or Herfindahl-Hirschman-Index depends on the number of observations and therefore is affected by a team's roster size (Franck & Nüesch, 2011; Kelly, 1981). The authors also calculated the correlation of the Gini, the CV and the Herfindahl index in their sample. As well, Trevor et al. (2012) use the high correlation between the two popular measures and their measure (pay variance) to evaluate its quality. Shaw et al. (2002) state that the high correlation between his measure low minus high, CV, and Gini provides evidence of the construct validity.

In their paper, Trevor et al. (2012) criticize all studies using the Gini and the coefficient of variation because they factor out the mean. The mean is their measure for testing the moderating influence of the pay level, using a dispersion measure which uses the mean would be a partialing out of this effect.

However, other authors use several measures, to analyze whether the results differ with the measure of inequality. Grund and Westergaard-Nielsen (2008) state that using either Gini or CV does not change the results of their study.

Whereas Coates et al. (2016) only had a statistically significant CV and a not significant Gini coefficient. The suggested measures for inequality in pay CV and Gini (Allison, 1978; Harrison & Klein, 2007) are also the most common measures in pay dispersion research (Trevor et al., 2012). There are only a few exceptional studies which are neither using the CV or the Gini. These studies use the correlation between their measure and the suggested measures to qualify them. Further research should, therefore, include the Gini coefficient, as well as the coefficient of variation to document the influence of wage dispersion on team performance. Future studies could even include the so far neglected instrument Theil's measure.

Explained wage dispersion

The existence of wage dispersion can be a sign for a pay-for-performance context but is not necessarily a signal for the compensation strategy. Dispersion in pay can also result from favoritism, discrimination, politics, random decisions (Trevor et al., 2012) or even a seniority-based pay scheme (Shaw, 2014). Many studies have been criticized for removing the influence of legitimate employee inputs with control variables. The controlling with variables for talent or pay-levels would only leave the residual for unexplained wage dispersion (Shaw, 2014; Trevor et al., 2012). Simmons and Berri (2011) use the term justified inequality for differences in wages that could be expected by performance differences between employees. The unjustified inequality, in contrast, is unexplained by the performance of the individual. Following this argumentation, only three, in table 1, presented studies overcame these limitations.

In the study of DeBrock et al. (2004) the authors estimate an expected salary for each player in their dataset including performance and experience variables. The difference between the estimated salaries and the actual salaries is the residual which is not predicted by their estimation. The authors measure the dispersion of the expected wage and the residual wage. The Herfindahl index of the expected wage has a significantly negative impact on their team performance measure. This indicates that teams with a more compressed wage structure would have an advantage.

Simmons and Berri (2011) also estimated a predicted wage of each player in their sample. As DeBrock et al. (2004) the authors state that it cannot be distinguished whether the wage differences of the residual arise from unobserved quality or reflect overpaid or underpaid players. The Gini coefficient of the expected wage has a significantly positive impact on their team performance measure. The author's finding is the total opposite of the results derived by DeBrock et al. (2004).

Trevor and his co-authors (2012) tested especially the effect of the control variables for pay level strategy, pay-for-performance and productivity relevant performance on the team performance. They conclude that controlling for these influences would only leave the unexplained effects of wage dispersion which would result in a negative effect. In their model, the predicted wage dispersion has a significant positive influence on their team performance measure.

In all three studies, the term of the unexplained effects of wage dispersion has no significant influence on team performance. As Shaw (2014) summarizes, these papers add insights to the growing list of studies that explore the influence of legitimate pay differences. On the other hand, the results of the studies still differ and offer no unified answer. The advantages of a sports data set are coming to play when calculating the explained wage dispersion because performance is relatively easy to measure and the performance history of every athlete is also available. These two circumstances allow the exploration of the influence of explained wage dispersion.

When it comes to discussions of the different results regarding the influences of wage dispersion, work interdependencies are often used as an explanation (Shaw et al., 2002). It is often assumed that a higher work interdependency needs a more compressed wage structure to ensure collaboration in teams (Shaw et al., 2002). Keidel (1987) differentiated between pooled (baseball), sequential (American football) and reciprocal interdependencies (Basketball). The differences between the results derived from the baseball setting (Debrock et al., 2004) and the

basketball setting (Simmons & Berri, 2011) stand in contrast to the assumption that a higher work interdependency is detrimental to team performance. Trevor et al. (2012) state that the common characterization of interdependent work as unwarranted unless it addresses the unexplained wage dispersion.

Shaw (2014) argues the evidence of explained pay dispersion would suggest that it is positively related to team performance. Further research should take the estimation of explained wage dispersion into account and manifest this evidence. Future studies should also discuss the influences of the evidence of explained pay dispersion regarding the common assumptions of interdependent work settings.

Non-linear effects

"The existing empirical literature on the link between wage dispersion and team performance largely concentrates on linear effects" (Franck & Nüesch, 2011, p. 3037). As already briefly mentioned in the introduction there are theories suggesting a higher wage dispersion and others suggesting a lower wage dispersion in a team's compensation structure.

Grund and Westergaard-Nielsen (2004) summarized the theories patronizing a compressed wage structure as fairness approaches (e.g., Adams, 1963). Differences in pay demotivate or lead employees to reduce effort which would be detrimental to team performance. In contrast, we have theories which state that wage differences are beneficial to team performance. The disparity would create individual incentives to exert more effort (e.g., Lazear & Rosen, 1981). Therefore, a hierarchical wage structure would be preferable for higher team performance.

"Both effects are likely to be relevant in common corporate compensation policies" (Grund & Westergaard-Nielsen, 2004, p. 9). The interrelation of both effects is displayed by the measure of wage dispersion and its square term. "[...] The effects of pay dispersion may be non-linear, as individuals could perceive that the differences in pay are too large to justify extra effort" (Downes & Choi, 2014, p. 64). Frank and Nüesch (2011) even state that the effects are very unlikely to be linear.

Frank and Nüesch (2011) model the non-linear effects based on a suggested model of Grund and Westergaard-Nielsen (2004). In this parameterization team performance (TP) is a function of the team's wage dispersion (x). In their model the measure of wage dispersion is given by the intra-team Gini coefficient $(0 > x > 1)$. The positive influences of a hierarchical pay structure are indicated by the term $TP_{HP}(x) = ax^r$. On the contrary, the negative impact of the theories in favor of a compressed wage structure is given by the term $TP_{WC}(x) = - bx^t$ (b and t are positive). The overall effect is given as the sum of both effects and the intercept (α):

$$TP(x) = \alpha + ax^r - bx^t$$

In figure 1 are the possible shapes of the function illustrated. The shape depends on the values of the parameters a, b, r, and t. "Since theory does not provide arguments in favor of only one of the illustrations, the nature of the relationship between wage dispersion and team performance remains an empirical question" (Franck & Nüesch, 2011, p. 3039). Four studies displayed in table 1 tested for non-linear effects of wage dispersion on team performance. The results of Frank and Nüesch's study (2011) indicate a u-shaped relationship between wage dispersion and team performance with a data set taken from German football.

Grund and Westergaard-Nielsen (2008) themselves find neither a linear nor a non-linear statistical significant influence of wage dispersion on performance in their data of Danish industries.

Also, Coates et al. (2016) tested for non-linear effects in their data set taken from North-American football. The authors conclude that there would be some evidence that their performance measure is non-linear in wage dispersion. However, the inflection point of their regression would not be realistic to attain.

Out of the presented studies Trevor et al. (2012) also tested for non-linear effects. They interpret their findings as supportive of curvilinearity. The positive effects of predicted wage dispersion on team performance would diminish with increases in the dispersion.

"Future research into the generalizability of this curvilinear DEP [dispersion in explained pay] effect is needed, as is an exploration of the effect's explanation, which we speculated to be inequity perceptions or limitations in organizational capabilities to manage valued resources" (Trevor et al., 2012, p. 605).

Figure 1
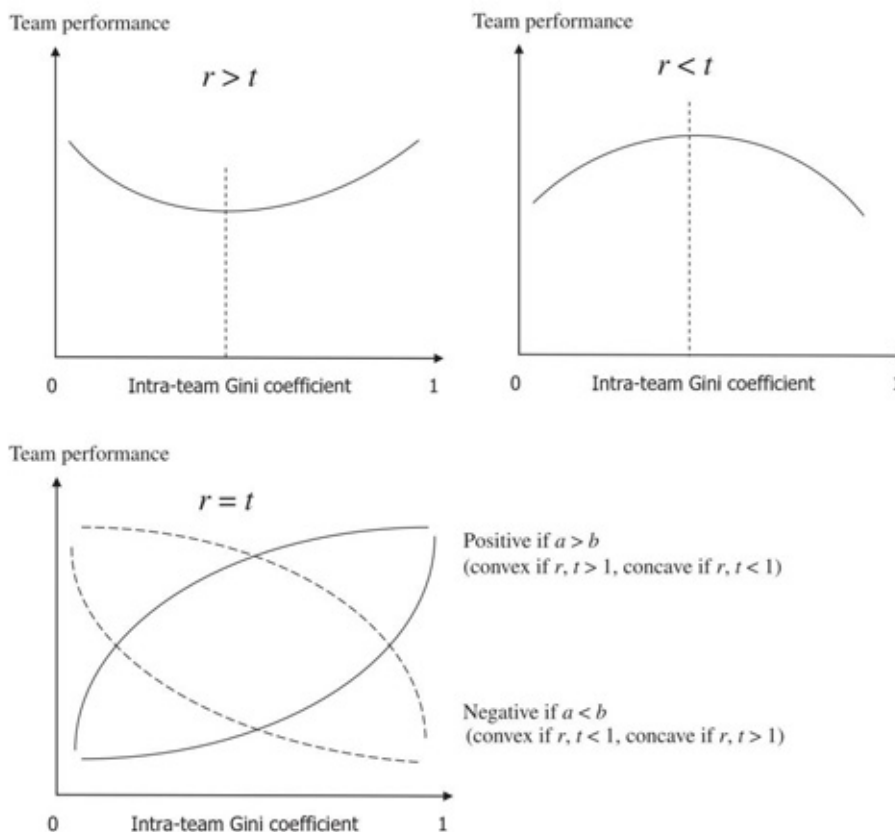
Source: (Franck & Nüesch, 2011, p. 3039)

Conclusions

"When evaluating the findings from the literature in toto, it is clear that there is not a well-defined conceptual or observed empirical relationship between the overall dispersion of pay—either horizontal, dispersed within job or organizational levels, or vertical, across jobs and organizational levels—and the performance of organizations, teams, or individuals" (Shaw, 2014, p. 534). This conference paper addressed three main issues in the literature discussing the influences of wage dispersion on team performance.

Future research is needed to generalize the non-linear effects of wage dispersion on team performance. Several studies found evidence for non-linear effects, but no unified answers are found so far. In combination with the explained wage dispersion, only one study, testing non-linear effects, was found for the composition of this literature review.

The literature on explained wage dispersion adds essential new insights towards understanding the influences of wage dispersion on team performance. Further research should manifest the assumption that explained wage is positively related to team performance. Future studies should also discuss the influences of explained pay dispersion regarding the prevailing assumptions of interdependent work. A focus was laid on studies using a sports data set because such a setting

offers great chances to explore the effects of explained wage dispersion. The available performance measures and histories allow calculating the explained wage dispersion.

Researchers should include the Gini coefficient, as well as the coefficient of variation to document the influence of wage dispersion on team performance. The influence of the measure of wage dispersion is not often discussed in the existing literature. The use of both measures will qualify the research findings because it can be ruled out that each measure leads to different research results. Future studies could even include the so far neglected instrument Theil's measure.

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BUSINESS PRODUCTIVITY AND DATA ANALYSIS IN THE AUSTRIAN SUPERMARKET SECTOR

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Abstract. Productivity is widely said to be the main key factor to increased prosperity by ensuring efficient use of resources. Efficiency in organizations is attracting considerable interest due to globalization and increased competition. Austria has the highest retail density within European retail, with 1,67m² Floor Size per capita. Whilst, omnichannel retailing is an opportunity, threat and the future on the one hand, stationary efficiency is the mission, purpose and the presence on the other hand.

With reference to the future in Austria's retail, one of the main challenges is the creation of new competitive advantages that are associated with investments in the latest technologies, innovation, research, human capital. With reference to the presence, knowledge on performance and productivity growth is needed to improve competitiveness.

Many hypotheses regarding efficiency in outlets in general and supermarket outlets in detail appear not well grounded with respect to the involvement of middle management. Still, middle management in many companies, are the experts with important tasks and topics such as; adopting best practices, strategic resource-allocation decisions and evaluation of personnel and shop performance.

This paper will discuss on economic and management challenges. The area of research is the Austrian supermarket sector. The methodology is based on the estimation of a newly developed non-parametric model. The empirical analyses applied to panel data on a sample of supermarket outlets. The variables are elaborated with the contribution of the middle management of the firm. The input variables used cover: Floor Size (m²), Customers, Labor Costs. Total Turnover is used for output in the model.

The aim of the research is to assess the potential for productivity growth to improve competitiveness of Austrian supermarkets by identifying the primary areas of improvement in outlets of large, multi-store multi-market chain operation.

Research methods used in this research: Literature review on productivity and efficiency, empirical analysis of data.

The results of this paper contribute to theoretical and practical research in management science as the performance of several retailers is sub-optimal, suggesting the potential for significant improvements.

Key words: *Austria, Benchmarking, Data Analysis, Productivity, Retail*

1   Introduction

Efficiency in organizations is attracting considerable interest, both in the research in management science and by organizations and their practitioners, due to globalization and increased competition. In fact, the competitive pressures in retail are relatively commonplace in all European countries (Barros, 2006). Retail organizations are structured with hierarchical levels and contracts between managers (principals) an employees (agents). Thus, it is necessary to have a

clear understanding of the variables needed to become efficient, additionally for both sides to have the same view and understanding of the fulfilment of their contract. Following the thoughts of Hortacsu et al. (Hortacsu & Syverson, 2015) E-Commerce has had its impact in stationary retail (music and videos, books and magazines, electronics, sporting goods etc.) as corporations like Amazon have changed the buying behavior of people. Thirdly, the performance measurement dilemma, where productivity, efficiency and benchmarking in terms of a research issue as well as a clear, easy-to-use and concrete guidance to organizations and managers has become critical. Performance measurement, especially in operative productive efficiency, has its difficulty as the know-how of tasks and routines and the adaption to unplanned incidents lies with the agent whilst the responsibility for the company and evaluation of the agent lies with the principal. The topic is as important to economists, managers, as well as to researchers. Productivity/Efficiency has its importance on micro level as well as on macro level. Within the last few years Data Envelopment Analysis (DEA) has become significant in this field. Between 1987 and 2007 more than 4000 papers have been published on efficiency related research based on Data Envelopment Analysis (Emrouznejad, Parker, & Tavares, 2008). However, previous work has mostly focused on the efficiency of companies in a market, in common parlance, the meta-analysis. In accordance to (Thomas, Barr, Cron, & Slocum, 1998) there is a paucity of research on the measurement and evaluation of individual store productivity within a large, multi-store multi-market chain operation, in this thesis referred to as organizational productive efficiency. However, store efficiency will be needed to further understand the characteristics of efficiency in depth and to address new hypotheses in the field of efficiency. Furthermore, to aid principals and agents to collaborate and clearly evaluate on efficiency. Many hypotheses regarding efficiency in outlets in general and supermarket outlets in detail appear not well grounded with respect to the involvement of principals and agents. In this dissertation the middle management (agent) plays an important role, due to the above-mentioned connections and the contractual relationship. However, middle management in many companies, are the experts with important tasks and topics such as; adopting best practices, strategic resource-allocation decisions and evaluation of personnel and shop performance. Considering the importance of efficiency to middle management and organizations in general, research based and statistically proven solutions to measure efficiency and to overcome the information asymmetry dilemma, are needed.

A main point of the newly developed efficiency model is the focus on relative efficiencies, in other words the benchmarking against achieved values just as Farrell quotes already in 1957 "to compare performances with the best actually achieved than with some unattainable ideal". (Farrell, 1957)

The absolute **novelty** of the topic lies in the newly developed "Efficiency Model". A model to be used for information on efficiency, in the role of a principal as well as in the role of an agent. This model is developed qualitatively by executing a Delphi study involving members of the middle management to incorporate know how on the variables on productive efficiency. The model is confirmed and tested quantitatively with statistical analysis, such as a correlation of the variables and plausibility of the outcome. The aim of the participation of middle management in the variable selection process is to determine all variables from an agent point of view. The Model is tested on a sample of N=912 outlets to quantitively and statistically test the structure of the model. The sample size is representative as it covers more than 30% of the population.

The **research object** is organizational productive efficiency. It is used as a keyword to describe structural elements and their function in a retail chain system of a for-profit organization.

The **research subject** is retail outlets. Retail outlets are decision making entities and will be used as a sample for the model testing.

The **aim of research** is to develop an operative efficiency model for for-profit organizations in retail. Furthermore, to broaden the current knowledge on productive efficiency and the associated variables for principals, agents and all involved organizational parties simultaneous. To formulate a single efficiency score for a multi input and multi output setting.

Following **tasks** are executed to achieve the necessary knowledge theoretically and empirically and to elaborate the novelty of this research:

• An extensive literature review of the theories in Management Science and the relevant subfields such as Organizational Theory, Organizational Design, Principal-Agent Theory and Data Envelopment Analysis is to be conducted.

• A measuring instrument (efficiency model) for productive efficiency in the supermarket context is to be developed. Existing measures and their variables must be validated and, if needed, adapted to suit the research purpose.

• Based on the qualitative research approach and the quantitative research results, the research questions and hypotheses are to be discussed. The research hypotheses will be accepted or rejected based on scientific guidelines.

Following **research questions** will be the basis for this paper:

• What are the distinct features of Austrian supermarkets?

• Which are the variables impacting the efficiency in the Austrian supermarket?

Following **hypotheses** will be the basis for this paper:

• Ho1: *The total turnover of a supermarket outlet has a positive effect on its technical efficiency.*

• Hi1: *The number of customers of a supermarket outlet has a positive effect on its technical efficiency.*

• Hi2: *The shop size measured in square meter of selling area of a supermarket outlet has a positive effect on its technical efficiency.*

• Hi3: *The total labor costs of a supermarket measured in Euro has a positive effect on its technical efficiency.*

This paper faces several **limitations**. The main limitation of the study stems from the fact that the analysis is based on one retail chain, which makes it a sole case study. Therefore, the generalization of the conclusions for other firms or for other periods of analysis or with other variables should be made cautiously.

With this paper several **information sources** have been used

• *Scientific papers and books*: The main part of the relevant publications is available in scientific papers. Especially the discussion of relevant theories is mainly based on papers as this serves the process of published the current ideas to discussion. Books, teaching books and very rarely handbooks are used besides scientific papers to.

• *Sources in English language, sources in German language:* The main part of the used sources are written in English language. Researchers in the fields of organizational theory, agency theory and data envelopment analysis are mainly international and therefore published their efforts in English language.

2 Research results and discussion

Sub-part 1 Sample

Retail, can be broken down into several sub-categories or branches, such as e.g. food retail, retail with furniture, retail with textiles, hardware stores, retail with electronics etc. Within this dissertation, retail outlets – more precise the supermarket sector will be the subject of analysis. The geographical area of interest is Austria. All Retail generates around EUR 65 Billion and employs around 329.000 people. Out of the EUR 65 Billion, EUR 19 Billion are generated in food retail. The Top 6 retail companies of all branches consist of 4 companies in food retail (accounting for ranks 1,2,3,4), 1 company in retail with furniture (accounting for rank 5) and 1 company in retail with electronics (accounting for rank 6). Additionally, 14 food retail companies are within the Top 100 of all retail companies. Austria has a market situation of

few companies having a high market share; Rewe with around EUR 6,47 Billion; Spar with around EUR 6,42 Billion; Hofer with around EUR 4,00 Billion and Lidl with around EUR 1,36 Billion. Thus, 4 companies make over 91% of the total revenue in food retail. In this cluster, Rewe operates with 3 brands, Billa for the supermarket sector and EUR 3,57 Billion turnover, Merkur for Hypermarkets and EUR 2,00 Billion turnover and Penny for Discount stores with EUR 906 Mio turnover. The Austrian food retail is segmented to outlets which cover a (typical) food assortment including Non-Food articles. Excluded from the food retail population are: Specialty Shops such as BIO Supermarkets, Ethnical Shops, Liquor Stores, Butcher Stores etc. as well as wholesale and Cash & Carry. The Austrian food retail will primarily be segmented by store type. The store type is generally a selling space-oriented cluster. To allow a comparison how country specific such segmentations are and how for e.g. hypermarket sector, supermarket sector etc. in different countries can stand for different things, we shall look at the research of Askenazy et al. who used the profile of food stores in France and USA, using Rapport de branche (FCD,2008) and US Census Bureau data. The differences, which underline that given two studies on supermarkets, one must consider the average m² for clustering, are also shown in below descriptions. Askenazy et al. refers to all large food retail had a total of 66,1% (FR,2007) and 81,5% (US,2002) of total food sales. The average square feet on all large food retailers were 18.900 (FR) and 16.500 (US), which equals 1756m² (FR) and 1532m² (US) (Askenazy, Berry, Carre, Prunier-Poulmaire, & Tilly, 2012). As will be explained in more detail within the next paragraphs, the Austrian sector has smaller outlets. The second category in Austrian food retail is Supermarkets: Supermarket

Supermarkets in Austrian food retail are defined as outlets with a selling space from 400m² to 999m². By 2015 there were a total of 2737 supermarket outlet in Austria. Based on the total number of 5508 food retail outlet we can conclude an outlet-based market share of 50%. Additionally, the figures in Table 2.1 illustrate that the supermarket sector increased by 121 outlets since 2009, which accounts for a variation of total share since 2009 of 4,8 per cent. One must consider, that Rewe and Spar have consequently reduced their outlets in the large and small food retail outlet format – outlets below 400m² and reopened wherever possible new outlets in the supermarket selling space format. Thus, one must not misinterpret the increase in supermarkets combined with the decrease in the small and large food retail segment by repression of family businesses. Which is, a different issue within Austria. Rather acknowledge that these numbers occurred due to store closings and reopening's in more competitive and suitable locations of bigger size. If we consider the market share based on turnover, we can see that the supermarket sector has a share of 43% which equals EUR 8,39 Billion. To illustrate to the interested reader of similar studies in food retail one should consider the average square feet per Supermarket, in France and US were around 11.700 (FR, 2007) and 11.800 (US, 2002). Which equals, 1087m² (FR) and 1096m² (US). Average annual sales (converted with an exchange rate of usd/eur of 0,84) was EUR 10.239.000 (FR) and EUR 5.070.683 (US) (Askenazy, Berry, Carre, Prunier-Poulmaire, & Tilly, 2012). The sales of an Austrian supermarket is on average EUR 3,06 Million.

	Number of Outlets per store type									
	2009	2010	2011	2012	2013	2014	2015	Variation 09/15	Total Share 2015	Variaton Total Share 09/15
Hypermarkets ≥ 2500 m²	74	79	79	82	83	84	86	12	2%	0,3%
Hypermarkets 1000 - 2499 m²	286	289	289	297	308	308	308	22	6%	0,7%
Supermarkets 400 - 999 m²	2616	2612	2636	2672	2716	2725	2737	121	50%	4,8%
Large food retail outlet 250 - 399 m²	685	657	633	630	605	593	585	-100	11%	-1,1%
Small food retail outlet up to 249 m²	1553	1461	1377	1305	1240	1168	1128	-425	20%	-6,1%
Hofer / Lidl	619	628	638	640	646	655	664	45	12%	1,4%
Total	5833	5726	5652	5626	5598	5533	5508	-325	100%	

Table 2.1 - Number of outlets per store type 2009 – 2015

From Table 2.1 the following conclusions can be drawn. First that the Austrian market has declined in absolute outlets from 2009 till 2015 by – 325 stores, however the store size ranging from 400 – 999 m²has undergone the highest absolute increase by 121 outlets within 7 years and secondly that the total share of this outlet format is by far the most widespread.

	Turnover in Mio. € per store type										
	2009	2010	2011	2012	2013	2014	2015	Variation 09/15	Variation % 09/15	Total Share 2015	Variaton Total Share 09/15
Hypermarkets ≥ 2500 m²	1558,5	1649,1	1715,6	1735,6	1782,5	1802,2	1824,2	265,7	17%	9%	0,2%
Hypermarkets 1000 - 2499 m²	2434,6	2519,3	2598,4	2714	2815,4	2849,7	2927,6	493	20%	15%	0,7%
Supermarkets 400 - 999 m²	7082,2	7255,8	7559,5	7856,8	8129,4	8215,2	8397,7	1315,5	19%	43%	1,3%
Large food retail outlet 250 - 399 m²	1074,3	1013,6	991	986,7	964,2	931	922,5	-151,8	-14%	5%	-1,6%
Small food retail outlet up to 249 m²	822,4	776,9	751,6	724,6	713,4	682,2	683,5	-138,9	-17%	4%	-1,3%
Hofer / Lidl	4005	4020	4100	4115	4290,2	4388,7	4757	752	19%	24%	0,8%
Total	16977	17234,7	17716,1	18132,7	18695,1	18869,0	19512,5	2535,5	15%	100%	

Table 2.2 - Turnover in Mio € per store type 2009 - 2015

The focus on the supermarket sector is furthermore underlined by the total turnover share of 52% of the market and the absolute increase of 1.024,8 Mio € within the last 7 years. From a macroeconomic view the productive efficiency within this sector will have the highest impact on the total sector productivity.

Sub-part 2   The Model

The Model has a focus on the measurement and evaluation of individual outlet productivity within a large chain operation. As seen in above chapter the large chain – supermarket – operation, accounts for almost 50% of overall sales in the sector. DEA is a nonparametric approach for describing the efficiency of individual units, referred to as decision making units (DMUs). This is done by calculation of the minimum possible inputs needed for producing the referenced outputs or by calculation of the maximum outputs from given inputs. Furthermore, each DMU is compared to the efficient DMU´s – which lie on the efficiency frontier that envelopes all other DMUs – what will generate relative efficiency score for each DMU. Additional, for each inefficient DMU the analysis indicates the reference set, the efficient DMUs for direct comparison. Regarding analytical modelling, Meredith found a growing emphasis on the application of DEA (Meredith & Roth, 1998). Gauri et al. express that standardizing performance expectations across different outlets within a chain, differing in their individual features, consumers, nature of competition, can be an onerous task (Gauri, Pauler, & Trivedi, 2009).

The choice of input/output variables for the DEA model is crucial. Results of two researchers may vary according to the variables chosen. It is widely acknowledged, in the literature of retail efficiency, (Sellers-Rubio & Mas-Ruiz, 2006) (Perrigot & Barros, 2008) (Mostafa, 2010) that the choice of input and output variables is controversial. Obviously, it depends on the objectives of the analysis.

There were 3 input and 1 output variables identified during the data collection stage. They include, Customers, Floor Size (m²), Labor Costs. Output variables include the total Turnover.

Description of Output Variable 1 – Total Turnover

Thurik divides the output in their study to value of annual food sales, and value of annual non-food sales (Thurik, 1984). This separation into relevant departments is not used for this paper, instead the total turnover is used. As technical efficiency is based on the capacity to generate output, one can assume that more input creates more output leading to the below Hypotheses:

Ho1: The total turnover of a supermarket outlet has a positive effect on its technical efficiency.

Descriptive Statistical Description of Output Variable 1 – Total Turnover

Variable	Min	Max	Range	Mean	SD	Median	N
Total Turnover	922.320,07	7.413.883,62	6.491.563,55	2.854.330,87	891.948,77	2.780.854,50	912,00

Table 2.3 - Output – Total Turnover

The variable total turnover have a mean of EUR 2.854.330,87 and a median of EUR 2.780.854,50. The standard deviation of EUR 891.948,77 shows that the probability of cases is around 68 percent for samples to be within EUR 1.962.382,10 and EUR 3.746.279,64 total turnover. As the period of analysis covers around 275 selling days, the mean of total turnover is around EUR 10.379,38 per day per outlet. The minimum number of total turnover is EUR 922.320,07 whilst the maximum number of total turnover is EUR 7.413.883,62.

Description of Input Variable 1 – Customers

Customers is a scale interval number of people buying in a supermarket. The number of customers depend on the location. A supermarket next to a school or a public building is expected to have more customers than a supermarket in a sub-urban area. The more customers visiting a shop, the more turnover potential a shop has. There are studies on the decision process of customers which shop they will visit. Even if, the latent decision might be due to a myriad of factors e.g. commercials, there is also a influence of the shop to this variable. A good assortment, friendliness of employees, might keep a customer or scare off if opposite.

As technical efficiency is based on the capacity to generate output, one can assume that more input creates more output leading to the below Hypotheses:

Hi1: *The number of customers of a supermarket outlet has a positive effect on its technical efficiency.*

Descriptive Statistical Description of Input Variable 1 – Customers

Variable	Min	Max	Range	Mean	SD	Median	N
Customers	71.354,00	937.747,00	866.393,00	217.471,74	80.490,37	204.332,00	912,00

Table 2.4 - Input – Customers

The variable customers have a mean of 217.471,74 and a median of 204.332. The standard deviation of 80.490,37 shows that the probability of cases is around 68 percent for samples to be within 136.981 and 297.962 customers. As the period of analysis covers around 275 selling days, the mean of customers is around 790 per day per outlet. The percentiles are, 25% 155.211 and 75% 248.086. The minimum number of customers is 71.354 whilst the maximum number of customers is 937.747.

Detailed Description of Input Variable 2 – Floor Size

In agreement with previous research, a traditional correlate of productivity is inventory investment. Nooteboom referred to shop size as economies of scale (Nooteboom, 1983). The rationale behind this measure is, the outlet with more inventory or square meter will be able to provide more selection. A product assortment, more width and/or depth. Thus, a customer will find the item or the bundle of merchandise he or she is seeking. Furthermore, this will increase labor productivity as employees are not directly needed to increase sales. Floor Size, in square meters of space, is a measure of capital input in the study of a UK-based retailer (Siebert & Zubanov, 2010). Gauri et al. used total sales area in their research paper for performance benchmarking in retail chains (Gauri, Pauler, & Trivedi, 2009). As technical efficiency is based on the capacity to generate output, one can assume that more input creates more output leading to the below Hypotheses:

Hi2: *The shop size measured in square meter of selling area of a supermarket outlet has a positive effect on its technical efficiency.*

Descriptive Statistical Description of Input Variable 2 – Floor Size

Variable	Min	Max	Range	Mean	SD	Median	N
Floor Size (m²)	110,00	878,00	768,00	533,67	116,26	536,50	912,00

Table 2.5 - Input - Floor Size

The variable floor size has a mean of 533,67 m², the median is 536,50 m². The median is within the definition of a supermarket with a selling space from 400m² to 999m². The percentiles are, 25% 481m² and 75% 600m². The minimum floor size is 110m² and the maximum is 878m². Out of the total N=912 outlets, 810 outlets are within 400m² to 999m².

Detailed Description of Input Variable 3 – Labor Costs

Another economical correlate of technical efficiency is labor costs. The wage level, as (Sellers & Mas, 2009) argue, is needed to consider the various levels of professional qualifications of employees. A greater wage level makes it possible to attract skilled labor force, reducing turnover and by this foster team work. All leading to the positive relationship of labor costs and productivity. (van Dalen, Koerts, & Thurik, 1990) confirm the hypotheses that higher wage rates stimulate labor productivity. Still, labor costs are a sensitive topic with respect to efficiency. Given the basis, that labor or any other unit of input can be saved directly by reducing the manhours needed (Cox, 1948, p. 438).

Hi3: *The total labor costs of a supermarket measured in Euro has a positive effect on its technical efficiency.*

Descriptive Statistical Description of Input Variable 3 – Labor Costs

Variable	Min	Max	Range	Mean	SD	Median	N
Labor Costs	- 245.835,32	-1.267.334,02	1.021.498,70	- 403.849,34	101.362,63	- 386.539,51	912,00

Table 2.6 - Input - Labor Costs

The variable labor costs size has a mean of EUR - 403.849, the median is EUR -386.539. The standard deviation is EUR 101.362. The percentiles are, 25% EUR -334.460 and 75% EUR -453.463. The minimum labor cost is EUR -245.835 and the maximum is EUR -1.267.334.

Visualization of the DEA Model
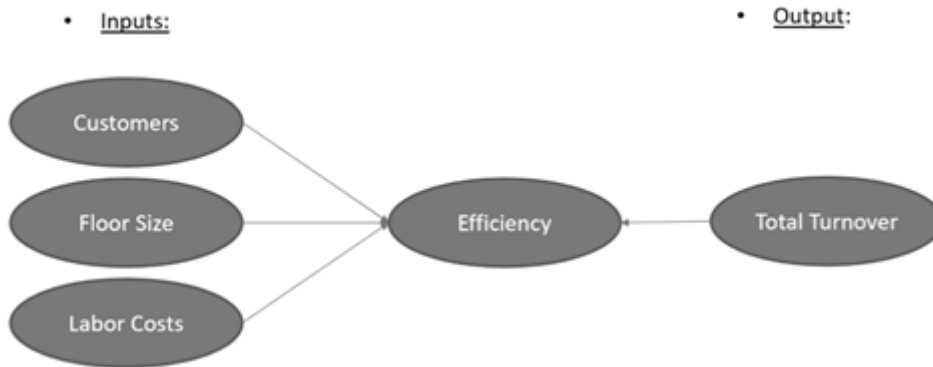
Figure 2.4 - Efficiency Model for DEA

Sub-part 3 Correlation and Model Summary

Correlation of Efficiency and Input Variable 1 – Customers

Correlations

		Customers	Technical Eficiency Score (CRS/CCR)
Customers	Pearson Correlation	1	,145[**]
	Sig. (1-tailed)		,000
	N	912	912

[**]. Correlation is significant at the 0.01 level (1-tailed).

Figure 3.1 - Correlation of Efficiency and Input Variable 1 – Customers

There was a significant relationship between the number of customers visited the store and the efficiency score calculated via DEA: CCR/CRS, r = .15, p (one-tailed) < .01;

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,145[a]	,021	,020	,152

a. Predictors: (Constant), Customers
b. Dependent Variable: Technical Eficiency Score (CRS/CCR)

Figure 3.2 - Regression Model Summary of Variable Customers and Variable Efficiency

The value of R^2 is .021, which means that the number of customers can account for 2,1 % of the variation in efficiency. R^2 adjusted = .020. The standard error is 0,152.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,454	1	,454	19,670	,000[b]
	Residual	21,015	910	,023		
	Total	21,469	911			

a. Dependent Variable: Technical Eficiency Score (CRS/CCR)

b. Predictors: (Constant), Customers

Figure 3.3 - Analysis of Variance of Variable Customers and Variable Efficiency

The F-ratio from above ANOVA is, F is 19,67, which is significant at p < .001.

Testing of sub-hypothesis 1: The number of customers of a supermarket outlet has a positive effect on its technical efficiency.

Statistical analysis found customers to be significantly positively related to technical efficiency (p = < .001). Hence sub-hypothesis 1 is accepted.

Correlation of Efficiency and Input Variable 2 – Floor Size

Correlations

		Floor Size (m²)	Technical Eficiency Score (CRS/CCR)
Floor Size (m²)	Pearson Correlation	1	,183[**]
	Sig. (1-tailed)		,000
	N	912	912

**. Correlation is significant at the 0.01 level (1-tailed).

Figure 3.4 - Correlation of Efficiency and Input Variable 2 – Floor Size

There was a significant relationship between the floor size of an outlet and the efficiency score calculated via DEA: CCR/CRS, r = .18, p (one-tailed) < .01;

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,183[a]	,033	,032	,151

a. Predictors: (Constant), Floor Size (m²)

b. Dependent Variable: Technical Eficiency Score (CRS/CCR)

Figure 3.5 - Regression Model Summary of Variable Floor Size and Variable Efficiency

The value of R² is .033, which means that the number of customers can account for 3,3% of the variation in efficiency. R² adjusted = .032. The standard error is 0,151.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,717	1	,717	31,441	,000[b]
	Residual	20,752	910	,023		
	Total	21,469	911			

a. Dependent Variable: Technical Eficiency Score (CRS/CCR)

b. Predictors: (Constant), Floor Size (m²)

Figure 3.6 - Analysis of Variance of Variable Floor Size and Variable Efficiency

The F-ratio from above ANOVA is, F is 31,44, which is significant at p < .001.

Testing of sub-hypothesis 2: *The shop size measured in square meter of selling area of a supermarket outlet has a positive effect on its technical efficiency.*

Statistical analysis found floor size to be significantly positively related to technical efficiency (p = < .001). Hence sub-hypothesis 2 is accepted.

Correlation of Efficiency and Input Variable 3 – Labor Costs

Correlations

		Labor Costs	Technical Eficiency Score (CRS/CCR)
Labor Costs	Pearson Correlation	1	-,159[**]
	Sig. (1-tailed)		,000
	N	912	912

**. Correlation is significant at the 0.01 level (1-tailed).

Figure 3.7 - Correlation of Efficiency and Input Variable 3 – Labor Costs

There was a significant relationship between the labor costs of an outlet and the efficiency score calculated via DEA: CCR/CRS, r = -.16, p (one-tailed) < .01;

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,159[a]	,025	,024	,152

a. Predictors: (Constant), Labor Costs

b. Dependent Variable: Technical Eficiency Score (CRS/CCR)

Figure 3.8 - Regression Model Summary of Variable Labor Costs and Variable Efficiency

The value of R^2 is .025, which means that the labor costs can account for 2,5% of the variation in efficiency. R^2 adjusted = .024. The standard error is 0,152.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,717	1	,717	31,441	,000[b]
	Residual	20,752	910	,023		
	Total	21,469	911			

a. Dependent Variable: Technical Eficiency Score (CRS/CCR)

b. Predictors: (Constant), Floor Size (m²)

Figure 3.9 - Analysis of Variance of Variable Labor Costs and Variable Efficiency

The F-ratio from above ANOVA is, F is 23,48, which is significant at p < .001.

Testing of sub-hypothesis 3: *The total labor costs of a supermarket measured in Euro has a positive effect on its technical efficiency.*

Statistical analysis found labor costs to be significantly positively related to technical efficiency (p = < .001). Hence sub-hypothesis 3 is accepted.

Correlation of Efficiency and Output Variable 1 – Total Turnover

Correlations

		Total Turnover	Technical Eficiency Score (CRS/CCR)
Total Turnover	Pearson Correlation	1	,276[**]
	N	912	912

**. Correlation is significant at the 0.01 level (1-tailed).

Figure 3.10 - Correlation of Efficiency and Output Variable 1 – Total Turnover

There was a significant relationship between the total turnover of an outlet and the efficiency score calculated via DEA: CCR/CRS, r = -.28, p (one-tailed) < .01;

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,276[a]	,076	,075	,148

a. Predictors: (Constant), Total Turnover

b. Dependent Variable: Technical Eficiency Score (CRS/CCR)

Figure 3.11 - Regression Model Summary of Variable Total Turnover and Variable Efficiency

The value of R^2 is .076, which means that the total turnover can account for 7,6% of the variation in efficiency. R^2 adjusted = .075. The standard error is 0,148.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,638	1	1,638	75,186	,000[b]
	Residual	19,831	910	,022		
	Total	21,469	911			

a. Dependent Variable: Technical Eficiency Score (CRS/CCR)

b. Predictors: (Constant), Total Turnover

Figure 3.12 - Analysis of Variance of Variable Total Turnover and Variable Efficiency

The F-ratio from above ANOVA is, F is 75,19, which is significant at $p < .001$.

Testing of sub-hypothesis o1: *The total turnover of a supermarket outlet has a positive effect on its technical efficiency.*

Statistical analysis found total turnover to be significantly positively related to technical efficiency ($p = < .001$). Hence sub-hypothesis 3 is accepted.

Conclusions, proposals, recommendations

Data Envelopment Scores

The sample was analyzed via Data Envelopment Analysis software MaxDea. The CCR Model seems most suitable as the most implications to improvements can be made. Therefore, all further results are show for the CCR Model only.

Following the 3 heads of (Mittal, Gupta, & Patl, 2013), highly efficient firms are having an efficiency score of 1, efficient firms are having efficiency score of 0.7 – 0.9, and less efficient firms are having efficiency scores of less than 0.7.

Firm´s Efficiency	CCR
Highly Efficient	7
Efficient	665
Less Efficient	240
Total	912

Table 3.13 - Efficiency Scales CCR

	Technical Efficiency Score(CRS/CCR)
Min	0,40
Max	1,00
Range	0,60
Mean	0,76
SD	0,11
Median	0,78
N	912

Table 3.14 - Descriptive on Efficiency Scales

The distribution with the used variables under CCR assumption will look the following
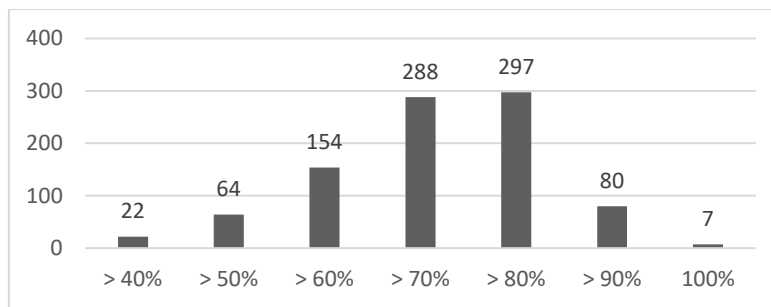
Figure 0.1 - Distribution of Efficiency (CCR)

In general, it must be underlined, that the efficiency in the Austrian supermarket is high. With only 9% inefficiency in the outlets.

Conclusion

• Data Envelopment Analysis (DEA) has become a significant field of research with an increasing and yearly amount of active research contribution between 1987 and today.

• Besides these general conclusions, the analysis of the empirical data revealed clear support of the main and sub hypothesis of this paper.

• The variables used, and the efficiency score received with the Model score significant correlation giving the Model its structural validity.

• The variables used, account for a improvable correlation, therefore a model with more variables must be tested and developed.

In summary, the purpose of this paper has been to estimate a measurement concept of efficiency in the Austrian food retailing industry. Using a non-parametric design with 3 input and 1 output variables. The empirical analysis was done with a sample of N=912 supermarket outlets. There is evidence to support the hypothesis that Austrian supermarket outlets operate under high levels of technical efficiency. The mean value of technical efficiency (CCR Model) was 0.76 with 665 outlets in the range of efficient outlets and 7 outlets in the range of highly efficient outlets. The input and output variables have shown significant correlation to technical efficiency, still literature evidence shows that further input and output variables can provide a more holistic model.

The results obtained have significant implications for management in retailing. The analysis of the determinant factors of efficiency for 912 different outlets may be used for benchmarking. The process of benchmarking requires measuring the difference between the current performance level of an DMU and the best possible practice. (Camp, 1989). The essence is to then make the improvements necessary to reach the standards of the best practices. (Bhutta & Huq, 1999). However, benchmarking is also referred to as a hands-on experience. And it is important to remember that improvements are continuous and therefore benchmarking is a revolving process. In terms of efficiency, the benchmarking process implies that an inefficient outlet or the principal/agent of it, should examine the reasons why other outlets are more efficient.

This, might also be relevant in the hierarchical understanding of management with the principal-agent theory. The factors of efficiency may also be used for overcoming the information asymmetry between management (principal) and outlet (agent).

The limitations of the study include the generalization of the conclusions to the entire sector, which must be done with due care, since only supermarket outlets have been analysed. However, the findings of significance of input/output variables used on outlet level are in line with studies on supermarket chains (meta-level). Also, the study is limited in its

sample size, so future studies might include a larger sample to confirm the findings. Additionally, the input/output variables seem insufficient, as the correlation for a holistic model is expected to be higher. Therefore, lastly, it would be possible to include other relevant variables in the DEA Model for assessing efficiency in supermarket outlets. Future research lines should try to overcome these limitations.

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INTEGRATION OF NATIONAL INNOVATION SYSTEMS OF EAEU COUNTRIES: PROBLEMS AND PERSPECTIVES

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Abstract. Today the world tendencies in the development of national innovation systems are their access to the supranational level and the formation of unified scientific space within the territorial and regional associations that promotes the growth of innovation activity in each of the participating countries. With the formation of the Single Economic Space in 2012, as well as the creation of the Eurasian Economic Union (EAEU) in 2015, the issue of the formation of the Eurasian innovation system is becoming increasingly urgent. It is proposed that the Eurasian innovation system will unite the resources of national innovation systems and give a stable and, most importantly, a systemic character to innovative development of EAEU countries.

The aim of the article is to reveal the main problems and perspectives of the integration of national innovation systems of member states within the EAEU. The main research methods include analyses of the actual state of national innovation economies of Russia, Kazakhstan, Belarus, Armenia and Kyrgyz Republic, analysis of legislation of EAEU as well as comparative analysis of statistical indicators of member states. Also, rating-assessment of the state of knowledge economy and innovation development of EAEU member countries through the World Bank's Knowledge Economy Index and WEF Global Competitiveness Index (in part of innovation indicators) is used.

The results of the research show that the national innovation systems of EAEU member states are now on different stages of development and there are some obstacles in R&D cooperation that prevent of integration of countries' innovation potentials. Author identified the strengths and weaknesses of each country in innovation development in last 10 years. In conclusion, the article provides a number of measures to facilitate a successful formation of a unified Eurasian knowledge economy in the EAEU.

Key words: *Eurasian Economic Union, regional economic integration, innovation economy*

JEL code: F15, O32, P27

Introduction

Background of Eurasian Economic Union creation

The processes of regional integration are among the key ones that form the system of international economic relations. A variety of integration groups were created in last years in order to provide deeper economic relations between the integrating economies. Former Soviet republics, in their turn, also are included into the integration processes. Kazakhstan, Belarus and the Russian Federation in accordance with the Agreement on October 6, 2007 initiated the creation of the Customs Union. It was the second attempt to create a custom union on the territory of Former Soviet Union (the first one, announced in 1996 and known as the Eurasian Economic Community, or EurAsEC, collapsed in failure) (Tarr, 2016). Formation of the Customs Union provided the establishment of the united custom territory, within which member countries do not apply customs duties and restrictions of economic nature, with the exception of special protective, antidumping and countervailing measures. The results of the removal of customs and other controls have led to the growth

of mutual trade for the 9 months of 2011 by 44% within the Customs Union compared to the previous year. From January 1, 2012, along with the common market of goods, the market of services, capital and labor start its work in accordance with the already signed agreements on the formation of the Common Economic Space (Hartwell, 2016).

On May 29, 2014 in Astana, the Presidents of Russia, Belarus and Kazakhstan signed the Treaty on the Eurasian Economic Union (EAEU), which came into force on January 1, 2015 after its ratification by the parliaments of member states. January 2, 2015 Armenia became the fourth full member of the Eurasian Economic Union. With Kyrgyzstan, which had joined them on May 25, 2015 the countries established the union in its present form.

According to some authors (Spitsyn and Kulubekova, 2016), the main motive for integration is geo-economic. Russia, as a key player in the region, views the Eurasian Economic Union as the core of the economic integration, instrument of assistance for the implementation of major energy, infrastructure, industrial and other joint projects. The Eurasian Economic Union is called upon to maximize the use of mutually beneficial economic ties in the CIS area. But other experts (Mukhametov, 2015) underline more geo-politic reasons for integration than economic ones because traditionally the region is more important for Russia than for any other country or economic union. Whatever the reasons for the creation of the union, it is necessary to recognize that this integration will impact on all economic processes of participating countries.

Problem statement

Integration associations around the world are usually created to expand the economic space, maintain peace and stability in the region, strengthen its position in the world, improve the quality of life of citizens. However, the changing world also changes the requirements for integration. The transformation of integration processes today is connected with a new, innovative model of economic growth. Thus, it is possible to formulate a hypothesis that for the effective inclusion of countries and regions in the modern global economy, it is necessary not only to actively develop the integration processes, but splice them, combining with the processes of innovation development, transformation into a unified integration and innovation flow. The aim of the article is to reveal the main problems and perspectives of the integration of national innovation systems of member states within the EAEU. The investigation attempts to answer the question whether such integration and innovation development is possible on the platform of the Eurasian economic union.

The tasks of the research are following:

Analyze the indicators of innovation development of member-states;

Determine advantages and disadvantages of innovation systems of EAEU states,

Consider the perspectives of innovation systems integration on the territory of EAEU.

The results of the research showed the current situation in innovation development of member states, their strengths and weakness. The article provides some recommendations to facilitate a successful formation of a unified Eurasian knowledge economy in the EAEU.

The scientific novelty of the research results is in extending of theoretical approaches to formation of Eurasian innovation system and in applying of methodology of Global innovation and Global Competitiveness Indices to evaluation of the NIS along with statistical indicators.

The research results can be applied in theory for the further studies of Eurasian regional economic integration in innovation sphere. The analytical results of the study are of practical importance because they can be used by scientists and practitioners for the purpose of the further development of innovation integration and harmonization of legislation in R&D of EAEU states.

Methodology

To study the current state and perspectives of system interaction in innovation sphere in EAEU space, positive approach was used. The used approach allowed to author to observe and describe the studied phenomena from an objective viewpoint. The following theoretical methods were applied:

- analysis of literature sources, including OECD publications;

- analysis of EAEU legal documents;

- comparative analysis of innovation indicators of member-states, based on official statistics data of EAEU countries.

For comparative analysis of countries' innovation performance the methodologies of Global innovation Index and Global Competitiveness Index were used.

Research results and discussion

The Treaty on the Eurasian Economic Union of 2015 defines the main goal of integration as "comprehensive modernization, cooperation and improving the competitiveness of national economies in a global economy" (Eurasian Economic commission, 2015). However, in today's global environment it is impossible to build a competitive integration association, relying only on traditional integration tools (intergovernmental agreements, agreements on cooperative supplies, production sharing agreements, etc.). As studies show (Bunin and Isaev, 2013), "the main trend in the development of the global economy, as well as national economies is the innovative component and the formation of a national innovation space".

Accordingly, for the formation of real integration within EAEU, it is necessary to combine and integrate the "pure" integration processes (the tendency of national economies and their structural links to convergence and merger) with innovative development trends into a single integration and innovation flow. EAEU demands not just economic integration in former format, but a new unified Eurasian knowledge economy.

The foundations of the concept of the knowledge economy were formulated in the OECD publication "The Knowledge-Based Economy" (OECD, 1996). The emerging of the term was facilitated by the full recognition of the key role of knowledge and technology that plays in economic growth, which embodied in human capital, innovation and technology (Juma, 2006). Today we can put the sign of equality between the concepts of the knowledge based economy and innovative economy.

Leading factors of economic development includes: science and technology; globalization; a new quality of economic growth.

Table 1 presents the main features of the knowledge-based economy.

The development of the knowledge based economy in the EAEU space is possible within the framework of the formation of the Eurasian innovation system that will unite the resources of national innovation systems and will provide a stable and, most importantly, a systemic character to innovative development (Glazev, 2013).

Table 1

Main features of the knowledge-based economy

Factor	Characteristics
Form of organization of economic relations	The Network Economy
Type of economy development	Innovative
Driving forces of the economy	- Knowledge - Changes - Technologies
Product	New knowledge; new idea, new style
Patterns of economic development	- The law of increasing returns - Exponential nature of growth - Rent effects - Short life cycle of goods and technologies
Infrastructure	Internet as a form of doing business
Financial institutions	Venture funds, derivatives markets securities, financial internet business
Credit sources	Pension funds, corporations, individual investors, households
Institutions	Intellectual property, development institutions, markets with low entry barriers

Source: author's construction based on Sapir and Sidorova, 2015

The purpose of the formation of the Eurasian innovation system is to strengthen the positions of the EAEU countries in the international division of labor and in the global innovation competition by expanding the capabilities of national innovation systems (NIS) based on their integration within the framework of the EAEU. This will allow to form certain "zones of competitiveness" in the field of high technologies and to create modern high-tech industries on the basis of innovative development.

In the opinion of the researcher Slavnetskova (2012) the emerging innovation system of the EAEU will have the following properties (Figure 1):

The property of the integrity of the Eurasian NIS is in the emergence of new qualities that are not inherent in the elements forming it - the innovation systems of the participating countries. Elements of the system are connected and interact with each other. When the components of the system merge into an integrated whole, a qualitatively new formation arises, and new useful properties of the system appear. This is the property of emergence of the system. The adaptability of the Eurasian innovation system is in the fact that when the external conditions change, the system automatically changes the order of its functioning, and sometimes its structure, reaching an optimal state.

In addition, the Eurasian innovation system as a complex dynamic system is capable to change its internal or external conditions to maintain or improve their organization, taking into account past experience. An ability to respond to external and internal changes to achieve the state of dynamic equilibrium, characterizes the system as self-regulating and self-developing.
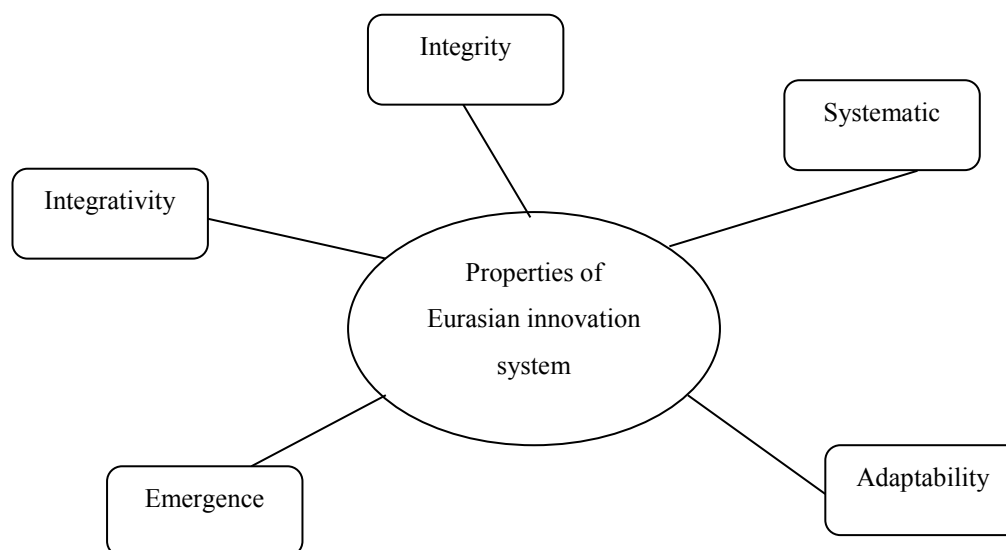
Fig. 1. – **Properties of the innovation system of the EAEU**

Source: author's construction based on Slavnetskova, 2012

Comparative analysis of EAEU-countries innovation development

The initial conditions for formation of innovative economy in the EAEU-countries were unfavorable. The collapse of the Soviet Union has led to not just lag in development but even the disappearance of a number of branches of science and industry (Volkov, 2015). The communication between the key elements of the scientific and technical complex was broken, many of them were degraded, the funding of R&D was sharply reduced, scientific and technical potential was declined, as well as the prestige of the scientist in society was virtually leveled.

Qualitative changes began to take place since the beginning of the 2000s. The need for post-Soviet countries in the transition to a new level of development demanded revision of attitudes towards education, science, the development of innovation and high-tech areas of the economy.

Some of EAEU member states among other Former USSR countries were more successful in the formation of national innovation systems. However, the current stage of their development and growth rates is varying considerably. Table 2 shows the main indicators of innovation development of EAEU countries.

Table 2

Main indicators of innovative activity of EAEU

Indicators, year	Russia	Kazakhstan	Armenia	Belarus	Kyrgyzstan
R&D expenditures in GDP, % (2015) (2011)	1.13 1.02	0.17 0.15	0.25 0.27	0.52 0.7	0.12 0.16
Number of organizations engaged in R&D (2012)	3566	345	212	530	84
Labour productivity in PPP, US$. (2012)	29 973.78	24 288.5	14 108.67	n/d	4 937.77
Patent applications (direct and PCT in national patent offices) (2015)	33798	1797	160	1967	180
R&D personnel, people (2015)	738 857	24735	5044	26153	4557
Patent application on 1 000 R&D employees	45.74	72.65	31.72	75.21	39.50

Source: author's construction based on data of UNESCO (http://www.uis.unesco.org), WIPO (https://www3.wipo.int/ipstats/index.htm)

Based on data from Table 2, it can be noted that Russia shows the highest rates of innovation development at the present stage. With the largest population, development of economic and social sphere the Russian Federation in absolute terms is much superior to the other EAEU countries. At the same time Kyrgyzstan closes the top five countries of the Eurasian Economic Union, indicating the lowest values of most indicators of innovation development.

Considering the relative performance, it is important to point out that Kazakhstan and Belarus by some indicators slightly inferior or even superior to the Russian Federation. For example, indicator of the number of patent applications per 1 000 employees in research and development in Kazakhstan and Belarus is almost 2 times higher than in Russian Federation.

Below we will consider the evaluation of the NIS of EAEU countries by ranking at Global innovation (WIPO) and Global Competitiveness (WEF) Indices (Sitenko, 2011). In general, the indicators of innovative development of member countries are confirmed by the position of the countries in the international rankings. Russian Federation occupied the highest position in both rankings (43rd place). Kazakhstan is runner-up of Russia in GCI with place 53, but in Global innovation index it gives way to Armenia. In Global innovation index the positions of Kazakhstan and Belarus are very close (75 and 79 respectively). Kyrgyzstan closes the top five countries (Table 3).

Despite the different level of results achieved in the sphere of building an innovative economy, each of the EAEU countries in the long-term perspective aims at the transition to an innovative-oriented model of economic development.

Russia and Kazakhstan created all main subsystems of country's innovation system. However, the activity of individual elements of the innovation system is poorly coordinated. Various scientific and technical organizations operate within the innovation infrastructure (technology parks, business incubators and commercialization centers, venture business structures etc.), but they have not reached a synergistic effect for the formation of a coherent successful innovation system model for the countries.

Table 3

Ranking of EAEU countries in Global innovation and Global Competitiveness Indices

№	Country	Global innovation index 2016		Global Competitiveness Index 2016-2017	
		Rank (out of 128)	Score (from 0-100)	Rank GCI (out of 138)	Innovation and sophistication factors
1	Russia	43	38.5	43	66
2	Kazakhstan	75	31.51	53	76
3	Armenia	60	35.14	79	81
4	Belarus	79	30.39	90*	97*
5	Kyrgyz Republic	103	26.62	111	123

Source: author's construction based on data of WEF, 2016 and WIPO, 2016
* – The rank of Belarus in GCI was estimated by NRC Mizes AC «Strategija» for 2014-2015

The regulatory and legal framework for innovation in the Russian Federation is quite massive; it includes legislative acts of various levels (from international to regional) and different status (agreements, decrees, orders, state programs, federal target programs, etc). The most of the normative acts in innovation sphere of the Russian Federation have no clear subject of legal regulation; the content of the core concepts of innovative legislation is defined differently; the legislation of adjacent regulatory areas and federal legislation are not always taken into account (Volkov, 2015).

According to some scientists (van Someren et al, 2017), one of the most critical "bottlenecks" of the Russian innovation system is the relationship between research conducted by public organizations and business. There are a number of institutions designed to fill this niche, such as technology parks, commercialization centers for innovation,

centers for technology transfer, business angel communities. Nevertheless, despite the availability of these innovation infrastructure objects, the gap between the public and business sectors in R&D has not yet been overcome.

Insufficient coordination between the research and development sector, the higher education sector and the business sector determines the low efficiency of the commercialization of scientific research results and weak functioning of the mechanism of transfer of knowledge and new technologies to local and world markets.

The human potential of the higher educational sector in Russia is high but remains unclaimed. According to the OECD, 2013, Russia was in the first place in terms of the number of holders of the diploma of higher education (53%). At the same time, there is a gap between the high level of enrollment in higher education in the country and the lack of special training in innovation and high-tech business. Russian universities give knowledge in the field of management, but they do not provide practical skills to apply this knowledge; they do not form competencies that allow managers to successfully carry out their functions (Limareva, 2013).

Republic of Belarus, as well as Russia, keeps the strategy of transition of the national economy into intensive innovation regime. The country has a high technical potential, but its resource base is limited.

Presently, Belarus creates legislative base and innovation infrastructure that ensure the development of innovative activity in the country (Lemesh, 2012). Among the EAEU countries Belarus has the relatively high share R&D expenditures (more than 0.5) and effective patent activity – the indicator of patent application on 1 000 R&D employees is highest among member states. After independence Belarus due to state measures in education and science succeeded to keep and develop the scientific and technological potential, but the formation of NIS is still in progress. Now Belarus formed only a few elements of the innovation system: educational and scientific organizations, innovation-focused enterprises, enterprises with several innovative products.

According to Lemesh, 2012, among the main problems of NIS functioning in Belarus are the following:

- weak legislation in terms of regulating the relations between the agents of innovation system at different stages of innovation process; lack of effective mechanisms of stimulation of innovation activity of business;

- low demand for new technologies and innovation; the lack of mature markets of high-tech products;

- lack of developed financial mechanisms to support specific elements of innovation infrastructure or implementation of independent innovative projects;

- limited cooperation between science sector, educational institutions and enterprises;

- the number of small innovative firms is insignificant.

Armenia starts transformation its policy in favor of scientific and innovative development only in the mid-2000s. The innovative development of Armenia implies a systematic understanding of innovation. During last years the number of important legislation acts in sphere of science and technology was adopted.

One of the weakest points in Armenia innovation system's structure is minor linkages between science and industry. The managerial power is divided between the State Committee for Science and the Ministry of Economy, which effectively enhances the dissociation of the two sub-sectors, and does not provide the development of the relationships between them. The innovation system of Armenia is developed fragmentarily. The country has developed scientific and educational potential in some areas, but it is not fully demanded (UN, 2014).

The republic has numerous agencies responsible for the implementation of programs to promote innovation, but their power is very insignificant. Numerous bodies that contribute to the innovative development often have no clear coordination (Grigoryan, 2015).

The R&D expenditures, which are essential requirement for development of knowledge-based economy, are at a very low level. The lack of data on the R&D expenditures of private companies complicates the understanding of

innovation activity of the private sector. The innovative potential of the companies is not only limited by low R&D activity, but also the shortcomings in the management of engineering and technological processes and innovations. Low demand for innovation does not stimulate technology renovation on the majority of enterprises. The advantage of Armenia innovation system is qualified labor force; however, there is the shortage of qualified personnel in the management of engineering and technological processes and innovations (Sitenko&Yerzhanova, 2015).

The innovative system of the Republic of Kyrgyzstan is at the initial stage of formation. On most indicators of innovative development Kyrgyzstan has the worst position among all the countries of the EAEU. At this stage, legislative base in the sphere of science and technology and organizational elements of infrastructure do not form system framework for innovation process and do not contribute to the overall goal of innovation development.

R&D sector of Kyrgyzstan does not develop. The lack of R&D in science and its isolation from the global innovation processes invariably affect the quality of education. Academia staff and researchers from higher education today do not have incentives for R&D activity. Students are trained on outdated materials and equipment and have no access to modern achievements of science and technology.

Among other major problems of innovative development of the country are the following:

- the absence of technological parks and specialized business incubators that are important elements of the innovation infrastructure worldwide;

- low industry's sensibility for implementation of technological innovations; narrow market for innovation technologies;

- low involvement of business sector in investment and innovation activity, aging and wear of the major part of fixed assets, technological backwardness of a number of industries;

- the lack of R&D specialists and managers;

- the lack of "triple-helix" cooperation between government, academia and business, and, as a consequence, the lack of joint R&D.

At the same time Kazakhstan had built working innovation system that includes main components like innovation and financial infrastructure, innovation entrepreneurship and scientific potential. The basement of innovation economy was developed in the framework of the Program of formation and development of national innovation system for 2015-2015. In the process of building of knowledge-based economy Kazakhstan achieved some results. The innovation activity of business sector increased from 4% to 8%. In 2014, as compared to 2009, the share of innovative products in the country's GDP has increased 3-fold. However, there are a number of problems. It was planned that the R&D expenditures will be increased up to 1% of GDP. But now it is a negative tendency in R&D expenditures from year to year. Other problems include the lack of developed mechanisms of interaction between the elements of the innovation system, low motivation of small and medium-sized businesses in the financing of R&D, shortage of a crucial mass of innovation (Sitenko, 2011).

Each EAEU country has a certain potential for innovative economic development which is determined by national characteristics and historical conditions. Russia has a significant human potential, results and achievements in the field of nano-, biotechnology, nuclear energy, aerospace technologies, communications and information technologies. Also it has largest consumer market in EAEU which provide potential opportunities for the development of production system focused on the consumption of high-tech innovative products.

Kazakhstan also disposes qualified personnel for the development of innovative entrepreneurship. Programs of industrial and innovative development are being implemented in a wide range of industries. Since 2012, local researchers have gained significant advantages in process of commercialization of research results. Intellectual property rights,

obtained by researchers or scientific organizations as a result of R&D financed by government, now may be assign to scientific organizations.

In its turn, Belarus has a developed potential in transport and communications, high-tech manufacturing facilities, including petrochemical and engineering industries, the availability of qualified labor in different areas as well as scientific potential in high-tech industry. The country develops the sphere of implementation of biotechnology, information technology, modern software and hardware.

The peculiarity of all member states is high rates of intellectual potential along with low salaries. Countries have high level of education, which is much higher than in other states with a corresponding level of per capita income.

Meanwhile, scientific, technological and innovation potential of the Kyrgyz and Armenian Republics is much lower than in other states of the EAEU. Their major asset in matters of innovative development is skilled labor force. However, both countries have the necessary conditions for the development of innovative potential and its integration into the common economic space.

In the end of analysis of innovative development of EAEU countries it should be noted that they pay a lot of attention to the state support and stimulation of innovation, the creation of an efficient innovation infrastructure that promotes the development of innovation, science and technology activity as well as personnel training. However, today there is some lag in the innovative development to compare with the developed countries.

The main problems includes, in our opinion, shortage of funding of R&D sphere (three of five members have the share of R&D expenditures lower than 0.25% of GDP), low interest of the private sector to innovation and investment activity. There is a low level of susceptibility of businesses to innovate technologies, poorly used opportunities for commercialization of technologies and intellectual property. Dependence of economy from mineral resources exports is still serious in Russia and Kazakhstan.

In this light, it becomes obvious that in order to ensure the growth of the economies of the member states it is necessary to unite the efforts of all countries. In our view, the overcoming of the negative trends is only possible through the integration of innovative, human, scientific and technological potential. It is time for countries to create Eurasian innovation system which will be based on the combination of countries' innovation capacities and global experience in high-tech development.

The purpose of the formation of the innovation system on the territory of Eurasian economic union is increasing the competitiveness of the economies of members in the global division of labor by expanding the capacity of national systems of innovation through the integration of scientific, technical and industrial potential, strengthening the links between the main actors (government, academic and science sector, industry), focus on the establishment of joint competitive high-tech industries.

Integration of national innovation systems of EAEU countries involves the development of institutions and relationships between them, which contribute to the implementation of the full cycle of innovation from idea to finish product. At the same time, according to words of well-known Russian economist Sergey Glazev, «the basic structural element of the created Eurasian innovation system should become the Center of High Technologies of the Eurasian Economic Community» (Glazev, 2013). In this situation, it is required the unification of innovative systems of EAEU states aimed at forming a common innovation space, capable to provide the concentration of all available resources for optimal utilization.

Recommendations

In our opinion, the successful integration of national innovation systems of EAEU countries into united Eurasian innovation system in the space of the Eurasian Economic Union requires the following measures.

1. Development and signing of the Eurasian Convention on the ways of forming knowledge economy in the EAEU member countries. The Convention implies the adoption of the most common and harmonized principles and approaches that regulate the unified policy of the EAEU member countries in various spheres of the knowledge economy (education, science, business) for a long-term perspective. Responsibility for the fair implementation of the articles of the Convention rests with the governments of the member countries.

2. Development and approval of a register of key indicators (mutually acceptable and technically feasible for all member countries) that record the current state and dynamics of the formation processes of the Eurasian knowledge economy, both in the context of individual countries, and at the scale of the Union as a whole.

3. Forming and launching the Unified Monitoring System of the Unified Energy System, which allows tracking, recording and identifying problem areas in the processes of formation of the Eurasian knowledge economy and, if necessary, adjusting the situation in this area.

4. Conducting research, preparing on their basis and publishing with subsequent discussion at a broad public forum of scientific reports on theme of Eurasian integration.

5. Research of best practices of 'triple helix' collaboration in EAEU countries with the development of mechanism of financing of their implementation in other member states.

6. Creation and development of Eurasian venture funds for financing of innovative projects implementation in regional level (Sitenko, 2016).

Thus, the effective integration of national innovation systems of EAEU member states is possible, but this requires coordinated purposeful work of all participants. It is necessary to develop and implement a coherent strategy for economic development. In particular, it is requires the consistency in innovation, science and technology, licensing, patent policy, the adoption of new programs in the field of innovation. Attention should be paid to the development of venture capital and venture funds to support projects in the area of innovation.

Conclusions

1. The Eurasian Economic Union was created as geo-political and economic integration of economies of five post-Soviet countries. Its purpose is to facilitate the economic changes of the territory and to provide favorable conditions for implementing important projects in industry and infrastructure. The first steps of integrations showed the positive changes in legislation and mutual trade. However, the future economic integration of member states should be based on the development of knowledge-based economy which can provide opportunities for economic growth and regional competitiveness of all member states.

2. The conducted analysis of innovation indicators and global rankings of member states showed the heterogeneous character of innovation development of EAEU countries. Russia and Belarus, with the highest share R&D expenditures in GDP and share R&D personnel in the labor force achieved greater results in building knowledge-based economy compared with other members. Kazakhstan and Armenia in some innovation indicators demonstrate high performance but low R&D expenditures in GDP (no higher than 0.25) prevent considerable transformations in economic development. Kyrgyzstan in all indicators is still the "weakest" member. The negative tendency in R&D expenditures in GDP in Belarus, Armenia and Kyrgyzstan may be a real threat to creation of innovation process in those countries.

3. The analysis of the innovation development of EAEU countries from 2010 as unified body or as Eurasian innovation system showed a lack of activity of on supranational level. The Center of High Technologies of the Eurasian Economic Community has mostly declarative character and does not impact on the implementation of innovation technologies in member states. Presently, the main mechanisms of Eurasian innovation system are not elaborated and countries implement their own innovation strategies mostly separately. Further development of supranational innovation

system in the space of the Eurasian Economic Union demands the creation of comprehensive policy with clear measures in the field of knowledge based economy. These measures include development and signing of the Eurasian Convention on knowledge economy, creation of the register of key indicators of the Eurasian knowledge economy, research and dissemination of best practices of 'triple helix' collaboration in EAEU countries and others. In our view, the implementation of these measures will impact on the formation the effective supranational innovation system in the territory of EAEU, as well as promote the growth of the competitiveness of its members in the world economy.

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SOCIAL MEDIA INFLUENCE ON CROWDFUNDING PROCESS EVALUATION MODEL

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Abstract. More than ever companies are using crowdfunding campaigns to collect necessary funds for their projects. One of the success factors of crowdfunding campaigns is the usage of social media sites like Facebook and Twitter for crowdfunding campaign promotion. Despite the popularity of crowdfunding campaigns, there has not been developed a model to determine the influence of social media on crowdfunding campaigns.

The aim of this paper was to develop a social media influence on crowdfunding process evaluation model that can help companies evaluate social media influence on their crowdfunding campaigns and help companies to determine necessary changes in social media communication to pledge the necessary funds.

To achieve the aim of the paper several research methods were applied: (1) Literature analysis to determine which Facebook and Twitter metrics should be analysed to determine social media influence on crowdfunding campaigns; (2) Secondary data research method was applied to: a. Collect Kickstarter technology category campaign data; b. Collect data from Kickstarter campaign Facebook and Twitter accounts. Statistical package for the social sciences (SPSS) was used to conduct a correlation analysis and descriptive analysis of the collected data.

The result of the paper was that a model that can determine social media influence on crowdfunding campaign process was proposed.

Key words: *Social media, crowdfunding, evaluation, influence, model.*

JEL code: M31, G20

Introduction

Due to problems for small and medium-sized enterprises (SMEs) attract necessary funds for their projects, crowdfunding campaigns are becoming more popular worldwide, let alone world's most popular crowdfunding campaign platform Kickstarter has funded 140719 projects during its existence (Kickstarter, 2018). The number of funded projects by investors is growing significantly each year (Statista, 2017). And other smaller crowdfunding platforms are emerging in local markets and attracting funding. For example, in Latvia, *Projektu banka* was created to finance local Latvian projects and since 2015, this crowdfunding platform has been running successfully (Projektu banka, 2014). But still many of the submitted crowdfunding projects do not attract the necessary funding and are unsuccessful. Only 20% of all technology campaigns published in Kickstarter crowdfunding were successful. From 33498 crowdfunding projects submitted into technology category in Kickstarter crowdfunding platform, only 6685 reached their funding goal (Kickstarter, 2018). So, it is very important to help companies increase their crowdfunding campaign success rate. Successful crowdfunding campaigns are campaigns that reached their funding goal in the specified amount of time.

When conducting literature analysis and analysing the information provided by crowdfunding campaign creators, the conclusion was made that one of the most important advertising and communication channels or factor that can influence the success of a crowdfunding campaign is social media (Agrawal et al., 2011; Davis and Webb, 2012; Marom and Sade, 2013; Younkin and Kaskooli, 2013; Colistra and Duvall, 2017). Besides social media, crowdfunding campaign creators

suggest using e-mail marketing, search engine marketing, search engine optimization, home page and other channels to reach possible crowdfunding campaign investors (Beier and Wagner, 2015).

Because of the significant influence that social media has on crowdfunding campaigns, and the high rate of crowdfunding campaigns being unsuccessful, it is very important to determine what kind of social media metric results should crowdfunding campaigns achieve to increase the chance that the crowdfunding campaign will be successful (Skulme R., 2017). To determine what kind of metrics should crowdfunding campaigns achieve on social media, a model was developed, that can help companies evaluate social media influence on crowdfunding campaigns and help companies determine the necessary changes in social media communication, that the companies should implement to increase the chance to attract the necessary number of backers for their crowdfunding campaigns. The model used metrics from two most popular social media networks worldwide Facebook and Twitter (Facebook, 2018; Twitter, 2018). These two social media sites were chosen also because: 1) Facebook and Twitter are most often used social media sites for crowdfunding campaign advertisement; 2) Facebook, Twitter and YouTube drive the most traffic to crowdfunding campaign platform Kickstarter (SimiliarWeb, 2018).

To develop the model, a literature analysis was conducted. The literature analysis helped to answer following questions: 1) what kind of social media models do exist; 2) what are the differences between the models; 3) which model would be better suited to develop a model that can help companies evaluate social media influence on their crowdfunding campaigns and help companies to determine necessary changes in social media communication, that companies should implement, to increase the chance to attract the necessary number of backers for their crowdfunding campaigns.

The developed model can help companies increase their crowdfunding campaign success rate.

Research results and discussion

First and foremost, theoretical literature analysis was conducted. During the literature analysis a conclusion was made, that social media models can be divided into five main groups: 1) adoption models; 2) strategy models; 3) approach models; 4) overview models; 5) return on investment (ROI) models (Chung and Koo, 2015; Lindsey-Mullikin and Borin, 2017; Grizan and Jurgelane, 2017; Jabeur N., Nait-Sidi-Moh A., Zeadally S., 2017). Adaption models are models that show ways to social media adoption. They answer such questions as, what is the best place in an organization to allocate social media, what strategic framework can or should be used for this and answer other questions. The most popular adoption models are: 1) social organizing model; 2) the social media maturity model; 3) social engagement journey (Thomas L., 2016; Oz M., 2015). Social media strategy models are step-by-step models, that provide you with the information and guidance how to implement social media into an organization and how to adapt organization accordingly. The most popular social media strategy models are: 1) the POST model; 2) OASIS model; 3) ACCESS model; 4) social media lifecycle model (Kotadis K., Tako A. A., 2018; Stieglitz et al., 2013). The social media approach models provide you with the answers to the following questions, for example, how organizations using social media should approach the target market? The most popular social media approach models are: 1) social media 24/7 model; 2) social media pyramid model; 3) social media ambitions model. Social media overview models are models that display an overview of the social media landscape. The most popular social media overview models are: 1) the social technographics profile; 2) social media funnel 3) engagement pyramid. Social media ROI models are models that are created to track the return on investments into social media. The most popular social media ROI models are: 1) four-stages ROI model; 2) social media ROI pyramid (Owyang J., 2010). After an in-depth analysis of the social media models, social media ROI pyramid model was chosen as the best model as the basis for the social media influence on crowdfunding process evaluation model. This model was chosen because: 1) This model analyses return of investments and the main goal of crowdfunding campaign

is to attract investment; 2) This model is the only one that takes into account, that there are multiple parties involved in the social media process and each of these parties are interested in different metrics, the same is observed in crowdfunding campaign process; 3) Some of the social media metrics are used in the original model are also used to evaluate crowdfunding campaign social media activities (Harmeet K., Gera J., 2017).

The original social media ROI pyramid model is displayed in figure 1.
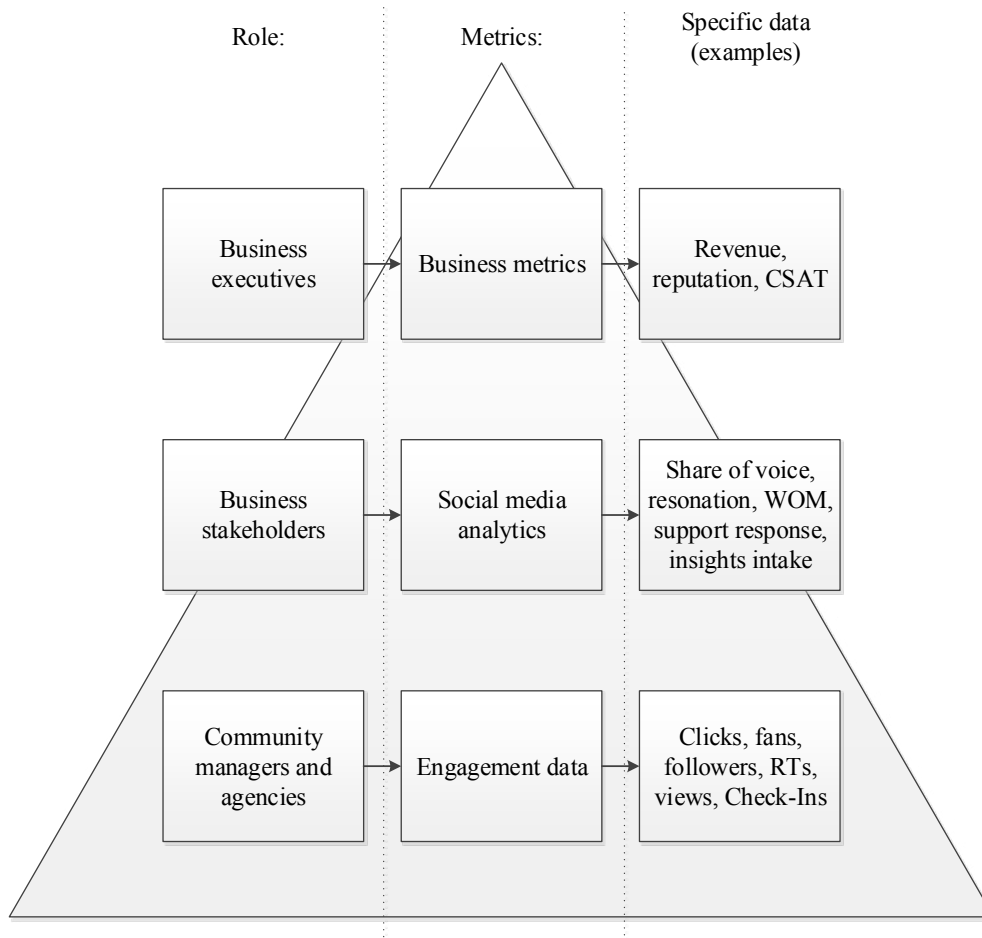
Source: author's figure based on social media ROI pyramid model

Fig 1. **Social media ROI pyramid model**

The social media ROI pyramid was developed by Jeremiah Owyang (Owyang J., 2010; Freberg K., Graham K., McGaughey K., Freberg L. A., 2011). This model was developed to get grip on the different measurable elements and show metrics that different involved parties are interested in. The Jeremiah Owyang social media ROI model is shaped like a pyramid, meaning, the most important metrics are on the top, while the least important metrics are at the bottom. Also, the roles of people in a company are divided similarly, the most important parties are on the top of the pyramid, the least important are at the bottom. At the top of the pyramid are business executives, that are analysing business metrics, such as revenue, reputation and customer satisfaction (CSAT). In the middle are business stakeholders that are interested in such data as a share of voice, world of mouth (WOM), support response and insights intake. And at the bottom are community managers and agencies, that analyse engagement data such as clicks, fans, followers, retweets, views, and check-ins. This model can help business executives and other interested parties help to determine the impact of social media on their business.

To create social media influence on crowdfunding process evaluation model, Jeremiah Owyang social media ROI pyramid model was adapted. The adapted model is shown in figure 2.

Fig 2. **Crowdfunding campaign social media ROI pyramid model**

Following changes were made to the social media ROI pyramid model, to develop the crowdfunding campaign social media ROI pyramid model. This model also was used to develop the social media influence on crowdfunding process evaluation model. First of all, campaign creators were added next to business executives, because the term better describes the person that is in charge of the crowdfunding campaign. Then, the term "business metrics" were substituted by term "crowdfunding campaign metrics", because the term "crowdfunding campaign metrics" more precisely describes the metrics that business executives measure after and during the crowdfunding campaign creation. Also, the specific data examples were changed. The crowdfunding campaign metrics that are measured by business executives and campaign creators are pledged funds and number of investors attracted. These two are the most important metrics of a crowdfunding campaign. The second row was left as it is, because crowdfunding campaigns also have business stakeholders who are interested in crowdfunding campaign social media data, such as share of voice, resonation, WOM and other data. So, they can measure the impact of the different social media activities. Following changes were made at the bottom, the term "community manager" was changed to "social media manager", because community managers are not used very often in crowdfunding campaigns. The engagement data of crowdfunding campaigns are mostly analysed by social media managers or by agencies that have developed the crowdfunding campaign for their clients. Metrics that are analysed in this stage are also engagement metrics, no changes were made there. Changes were made to the specific data examples of social media managers and agencies. Because of the fact, that in this paper only reward based crowdfunding campaigns are analysed, social media managers will definitely not analyse check-ins, because there is not a place to check-in. This metric was substituted with metrics "likes" and "comments", because these metrics are one of the most important and

most often analysed social media metrics by crowdfunding campaign social media managers. If the model is rotated and simplified, the model looks like this, see figure 3.

Fig 3. **Simplified social media impact on crowdfunding campaign model**

On the left side are listed the social media channels that have an impact on crowdfunding campaigns and, in the end, the crowdfunding campaign main results, that are pledged funds and attracted visitors, are displayed. To display the process more precisely, metrics from social media sites and metrics from crowdfunding campaigns, that are used to analyse the return of social media activities, were added to the model. Based on the literature analysis and previously conducted researches by the author, social media impact on crowdfunding campaign model was proposed, see figure 4 (Skulme R., 2017).
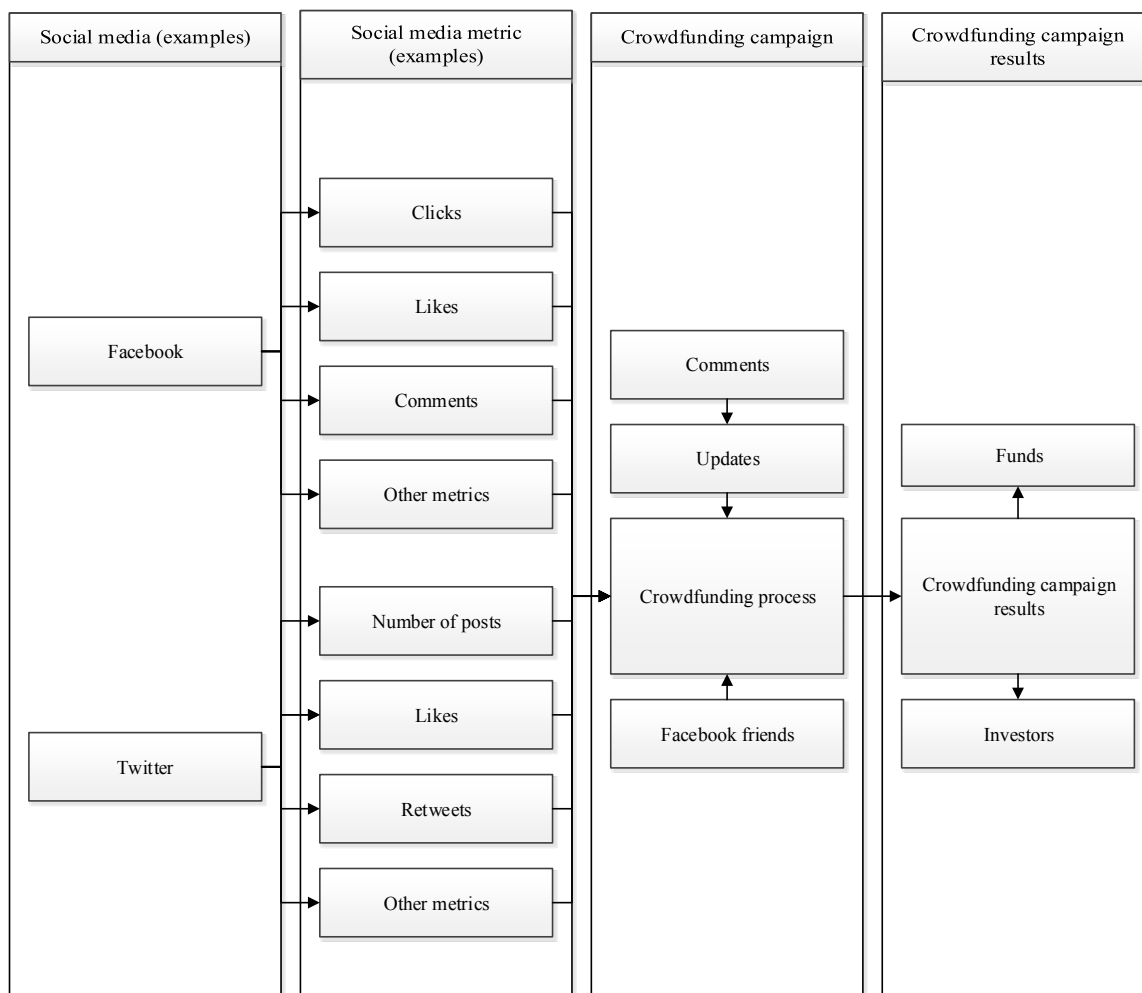
Fig 4. **Social media impact on crowdfunding campaign model**

The sources of social media metrics are displayed on the left side, in this model as social media examples are displayed Facebook and Twitter social networks because these are the most often used social networks for crowdfunding

campaigns, and these two social networking sites are two of the top three social networking sites that bring the most traffic to Kickstarter crowdfunding platform, which is the most popular crowdfunding platform worldwide.

In the second column from left, various social media metrics that are collected and analysed, to see how activities on social media sites are working, are displayed. The metrics that should be collected and analysed vary, depending on the social media networks the crowdfunding campaign is using. The metrics that are collected and analysed also may vary because of the availability, some interested parties may not have the access to some metrics. For example, if an interested party wants to compare their crowdfunding campaign data to other previously developed crowdfunding campaign data, to see how their campaign is going, they may only have limited access to other crowdfunding campaign social media data. The other metrics can vary depending on the social media network that is used for the crowdfunding campaign and from the accessibility of data. According to correlation analysis, the most important Facebook and Twitter metrics besides the already listed in the model are: 1) for Facebook: shares, post lengths, number of posts and post types used; 2) for Twitter: followers, post likes, profile likes.

In the third row from left, the metrics that are collected from the crowdfunding platform are displayed. These metrics are such as the number of comments, number of updates and number of crowdfunding campaigns creators Facebook friends. And in the last column, the crowdfunding campaign results are displayed. The crowdfunding campaign results that are analysed, to determine the influence of social media on crowdfunding campaigns, are the pledged funds and the number of investors.

A research was conducted to test this model and to answer following questions: do social media sites influence crowdfunding campaigns and what kind of metrics successful crowdfunding campaign have achieved? The research was conducted so that, the collected data can be used to compare live crowdfunding campaign data with completed campaign data, to see what kind of changes they need to make to their social media communications to increase the possibility that their campaign will be successful. During this research, data from crowdfunding campaigns and their social media sites were collected and analysed. According to the model, following data were collected: 1) Kickstarter technology campaign data from 1. January 2015 till 31. December 2015; 2) Kickstarter campaign Facebook data from 1. January 2015 till 31. December 2015; 3) Kickstarter campaign Twitter data from 1. January 2015 till 31. December 2015. 6623 Kickstarter crowdfunding campaigns were analysed, from them, 1352 were successful and 5271 unsuccessful, meaning they did not attract the necessary amount for their projects.

The following data from Kickstarter crowdfunding campaign platform were analysed: a) funds pledged; b) number of backers; c) the amount updates campaign published; d) the amount of comments campaign received; e) how many social media sites campaign used; f) what kind of social media sites campaign used. 2) the crowdfunding campaign data in Facebook profiles were analysed, such as: a) the number of page likes; b) the number of post shares; c) the number of post comments; d) the number of post likes; e) the post type; f) the length of the post; g) the number of posts; h) type of communication. 3) the crowdfunding campaign data in Twitter profiles was analysed, such as: a) number of followers; b) number of following; c) number of profile likes; d) number of post shares; e) number of tweets; f) number of tweet likes; g) type of communication. Summarized research results are displayed in table 1. Specifically, dese metrics were chosen because these metrics are accessible for all interested parties, both by campaign creators and investors.

Specially developed data collection program was used to collect the data which was developed in Python (Python., 2018). The data was collected in following steps. First of all, Python program was used to extract data from Kickstarter crowdfunding platform. The program scanned the Kickstarter website and extracted the campaign data. Following data was extracted: name of the campaign, duration of the campaign, profile comments, profile updates, number of social networks used by the campaign, the start and the end date of the campaign, the number of campaign authors Facebook

friends, pledged amount, number of campaigns investors, campaigns currency, campaigns origin country and other data. Then the extracted data were analysed and used to determine what kind of social media sites the crowdfunding campaigns were using to promote their campaigns, and the links to these social media sites were extracted. Then the information from these social media sites, that the crowdfunding campaign was using, was extracted. After the social media information extraction, the information that was posted during the crowdfunding campaign was analysed.

For the descriptive data analysis statistical package for the social sciences (SPSS) was used to: 1) divide the collected data into groups based on the amount the crowdfunding campaign pledged; 2) calculate the minimal, maximal and mean values of the data; 3) conduct a correlation analysis and arrange collected data based on the correlation level. The stronger the correlation between the metric and pledged crowdfunding campaign amount, the higher the position of a metric within a group (IBM., 2018).

The different metrics that have been collected and analysed are displayed in table 1, as well as, the minimal, maximal and mean values of each metric. The data is divided into groups according to the pledged amount of crowdfunding campaign. As it is visible from the data, the metrics that campaigns have to achieve to be successful differ from the amount the crowdfunding campaigns want to pledge. The analysed data showed, that campaigns that used two and more social networking sites pledged more funds, then campaigns who did not use any social networking sites at all. This was observed both in successful and unsuccessful campaigns.

For an example, if crowdfunding campaign managers would like to determine what kind of metrics they have to achieve so that their crowdfunding campaign under 1000 USD would be successful, crowdfunding campaign managers can use table 1. to determine the metrics. First of all, crowdfunding campaign managers should take a look at the following crowdfunding campaign metrics: profile comments, total updates, updates per day etc. To increase the chance that technology crowdfunding campaign will attract the necessary number of investors, it is advisable that at least the mean values of metrics are achieved. So crowdfunding campaign under 1000 USD should get at least 15.44 profile comments, write 6.86 profile updates and have 255.13 Facebook profile friends.

After crowdfunding campaign metric analysis, it is important to analyse and compare social media metrics, such as Facebook and Twitter metrics. To increase the chance of technology crowdfunding campaign being successful, crowdfunding campaign should have at least 1750 Facebook post likes, or at least 5.29 likes per post. The posts should have been shared at least 6666.4 times, the talking about metrics should be at least 1549.6 and etc.

To increase the chance that the technology crowdfunding campaign would be successful, the crowdfunding campaign should have at least the following Twitter metrics. The total likes of Twitter tweets should exceed 60.94 likes, every tweet should have at least 1.44 likes, the Twitter account should have at least 1580.13 followers etc.

The results in table 1. showed, that the bigger the amount that the crowdfunding campaign managers want to collect, the higher metrics the managers will have to achieve, thus more resources they will have to invest into crowdfunding campaigns.

Table 1

Social media impact assessment table for crowdfunding campaigns

Metric	> 1000 USD			1000 USD > 10000 USD			10000 USD > 100000 USD			100000 USD > 1000000 USD		
	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
Kickstarter												
Profile comments	0	15.44	472	0	56.44	1680	0	286.29	7155	7	815.99	14843
Total updates	0	6.86	37	0	10.8	77	0	18.26	104	5	24.86	79
Updates per day	0	0.29	2.97	0	0.35	2.16	0	0.54	3.47	0.17	0.69	2.13
Profile comments per day	0	0.62	15.73	0	1.78	37.75	0	8.03	233.6	0.2	21.8	478.19
Facebook friends	0	255.13	4133	0	300.3	4988	0	310.87	5000	0	299.62	4194
Facebook												
Total post likes	0	1750	1999	0	212.06	1796	2	509.11	21087	13	444.16	2356
Likes per post	0	5.29	25	0	7.6	23.5	0.12	10.1	39.5	3.25	12.41	39.5
Total post shares	0	6666.4	666604	0	160.51	5354	0	252.01	4803	1	823.32	13858
Talking about	0	1549.6	15477	0	93.34	3510	0	135.7	3770	0	34.08	169
Page likes	0	99853.2	990471	7	6414.4	98577	0	8019.01	202188	80	8590.12	134147
Total post lenght	276	1988	7320	102	6070.34	83859	0	8929.08	363921	167	6991.84	22004
Lenght per post	60.2	150.75	281.54	42.25	191.63	1103.41	0	180.25	634.92	41.75	192.53	634.92
Total posts	1	15.7	70	1	29.6	100	1	53.85	2247	4	36.72	142
Posts per day	0.03	0.46	1.3	0.02	0.86	2.75	0.03	1.5	56.18	0.09	0.94	3.97
Shares per post	0	95.68	951.48	0	3.62	53.54	0	9.2	175.13	0.2	24.78	346.45
Twitter												
Total tweet likes	0	60.94	823	0	36.55	308	1	92.54	670	6	3731.65	71491
Likes per tweet	0	1.44	3.5	0	2.29	11	0.11	1	8.39	0.2	60.36	1191.5
Followers	2	1580.13	22400	5	1468.71	16500	3	1900.43	24300	42	184933.7	3660000
Profile likes	2	1732.88	18200	0	663.18	7980	2	673.12	11800	47	1255.1	4778
Following	3	449.19	2107	0	578.02	4138	11	973.87	14800	33	804.25	2810
Tweets during the campaign	2	35.19	214	1	48.64	145	1	118.59	886	7	227.45	962
Total tweets	4	1927.69	24400	4	1491.05	9552	12	1295.68	27800	47	1380.45	4405
Tweets per day	0	1.3	7	0	1.62	8	0	3.42	26	0	6.25	32

Source: author's calculations based on the collected data from Kickstart technology campaigns

The collected data was tested. The results showed that all the technology crowdfunding campaigns in 2015, that did reach at least the average metrics displayed in table 1, were all successful. By analysing the existing crowdfunding campaign data and comparing it to the collected data and making some improvements, the crowdfunding campaign creators can increase the chance of their technology crowdfunding campaign being successful. Thus, the social media impact on crowdfunding campaign model and these tables can help companies increase their chances that their crowdfunding campaign will be successful. This table and model can also be used by investors, to help them determine if the crowdfunding campaign will be successful, by comparing past successful campaign results with the campaign results where they are planning to invest in. The developed table can also be used by crowdfunding campaign creators to predict how much resources they will have to invest in social media to create a successful crowdfunding campaign. The predictions can be made by calculating how much funds they will have to invest in Facebook or Twitter advertising to achieve the average results displayed in table 1.

Conclusions, proposals, recommendations

Following main conclusions were made during this research:

1) According to the literature research, social media models can be divided into five main groups: 1) adoption models; 2) strategy models; 3) approach models; 4) overview models; 5) return on investment (ROI) models.

2) Social media networks have a significant impact on crowdfunding campaign success, according to: crowdfunding campaign creators, numerous articles in scientific journals and author's research;

3) The developed model can help crowdfunding campaign creators evaluate their social media activities during crowdfunding campaigns, help them determine what are the things they should improve, and help them determine how their campaign metrics look in comparison with other crowdfunding campaigns;

4) The developed model can help companies better understand the impact of social media on crowdfunding process, which can lead to higher number of successful crowdfunding campaigns;

5) Achieving the Kickstarter average campaign and social media metrics listed in the table1., during a crowdfunding campaign, can help significantly improve the chances that technology crowdfunding campaign will be successful, due to the fact that all crowdfunding technology campaigns that achieved these metrics were all successful.

Following proposals are put forward from the conclusions:

1) Crowdfunding campaign creators should use social media networks to promote their crowdfunding campaigns and to communicate with their potential investors and buyers. According to author's previous research, the best results can be achieved by using at least two social media networks;

2) It is recommended that the developed model is used to analyse social media impact on crowdfunding campaigns, and to determine which are the things that campaigns should improve in their social media activities to increase the possibility that the crowdfunding campaign will be successful;

3) Crowdfunding campaign investors should use this developed model to predict if the crowdfunding campaign will be successful based on their social media activities;

4) Crowdfunding campaign managers should use the developed social media impact assessment table for crowdfunding campaigns to calculate, how much resources they will have to invest to achieve at least the same metrics that already previously successful campaigns have achieved so that their crowdfunding campaigns could be successful.

In the practice, this paper can be used as an informational material for the crowdfunding campaign creators to plan in advance what kind of social media metrics they will need to achieve to attract the necessary investors. The information about crowdfunding campaign metrics can be used to calculate, how much funds crowdfunding campaign creators will need to invest in crowdfunding campaign so it will be successful. This paper can be also used during crowdfunding campaigns to see, how the metrics from their social media activities are doing in comparison with other crowdfunding campaigns and help them determine how much more resources they should invest in social media activities to achieve the same levels.

The theoretical contribution of this paper is that this paper can be used as a foundation for further crowdfunding model developments and to analyse the impact of social media on crowdfunding process. This paper can also be used as a foundation to develop a model, that can predict the chance of crowdfunding campaign being successful based on the social media metrics.

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CORPORATE SOCIAL RESPOSIBILITY OF SMALL AND MEDIUM ENTERPRISES IN DEVELOPED AND EMERGING ECONOMIES: CASES OF GERMANY AND RUSSIA

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Abstract. Nowadays a new global system of business relationships that is based on the principles of corporate social responsibility (CSR) is being formed. The aim of the work is to investigate the current process of CSR implementation among small and medium enterprises (SMEs) and to compare the way process runs in developed and emerging economies on the examples of Germany and Russia.

According to database of the UN Global Compact the quantity of nonfinancial reports submitted by SMEs of developed countries is much greater than those of emerging countries. In order to explain the difference an initial comparative analysis of SMEs in Germany and Russia was held. It was found that even though the Russian statistics presents quite impressive growth rates for the number of newly registered SMEs, there are a lot of problems and obstacles for efficient operation of SMEs, so SMEs in Russia is objectively simply much less prepared for introducing CSR.

At the next stage the quality of the UN Global Compact reports was examined. The reports of German and Russian companies for years 2014 and 2016 were studied. The in-depth analysis has shown that almost a third of all reports were quite superficial: information didn't correspond to reality and was not supported by calculations or numerical data. Although in comparison with emerging economies the business environment in developed countries should favor the development of CSR, the quality of CSR statements submitted by representatives of both types of economy is not satisfactory. The nonfinancial reports in both cases found out to be often just formal and made only in order to keep the status of UN Global Compact member. In conclusion the suggestions for increase of SMEs involvement in CSR are made.

Key words: *small and medium enterprises; development; CSR; communication on progress*

JEL code: L25 Firm Performance: Size, Diversification, and Scope; M14 Corporate Culture; Diversity; Social Responsibility

Introduction

In recent years corporate social responsibility (CSR) has become a new important feature of modern business. The increasing number of companies are thinking over the sustainability of their business in the long term and are taking into account their impact on the society. Practically nowadays a new global system of business relationships that is based on the principles of CSR is being formed. In some countries the CSR is already mandatory for big business: for instance, in Europe large companies have to prepare sustainability development reports for year 2017 (EU Commission, 2014), in Russia the 500 largest companies will be obliged to prepare nonfinancial statements by 2023 (Government of Russian Federation, 2017). Gradually CSR is spreading over the other business levels, in particular the segment of small and medium enterprises (SMEs) is becoming more and more involved in this process. Taking into account that SMEs are often considered as the backbone of the economies (in many counties they account for more than 50% of gross value added and employ the most part of workforce), SMEs could act as a powerful lever for development and expansion of CSR. However it happens at a slow pace so far.

The aim of the work is to investigate the current process of CSR implementation among SMEs and to compare the way process runs in developed and emerging economies in order to understand the main obstacles for CRS development. The cases of Germany and Russia are taken for illustration. Both these countries submit CSR reports to UN Global Compact Network, they are classical examples of the corresponding types of economy. Germany has been chosen as an example of a developed European country with a strong position of SMEs whereas Russia is a typical emerging economy where the segment of SMEs is not that powerful but is actively growing nowadays. Besides, the similarity of the definition of SMEs in Germany and Russia makes it possible to compare the corresponding economic and social indicators.

Evidently the adoption of CSR is constrained by the limited resources and capabilities the SMEs possess (Mehran and Azlan, 2009; Stoian and Gilman, 2017; Turyakira, 2017). So the first task of our research was to focus on analysis of motivation and barriers of SMEs to participate in CSR practice. According to database of the UN Global Compact the quantity of nonfinancial reports submitted by SMEs of developed countries is much greater than those of emerging countries: for instance, by now there are 203 reports of German companies versus only 11 reports of Russian firms (Global Compact Database, 2018). That probably could be explained by more comfortable business environment in Germany that makes German SMEs to be more prepared for the transition to CSR. So in order to explain the difference an initial comparative analysis of SMEs in Germany and Russia was held. It was found that even though Russian statistics presents quite impressive growth rates for the number of newly registered SMEs and different polls confirm the raise of popularity of SMEs in Russia, there are a lot of problems and obstacles for efficient operation of this business segment: not efficient policy of government support, lack of financing, complicated access to some spheres of economy, poor system of interaction with big companies, low level of the awareness of SMEs about government support and CSR etc. So the segment of SMEs in Russia is still in the process of formation, a lot of SMEs are just trying to survive and in such atmosphere it's strange to expect from their side a great interest in CSR practice. At the same time Germany is characterized in general by already developed fundamentals. The initial macroanalysis of SMEs has shown that Russia is objectively simply much less prepared for introducing CSR among SMEs and that's why very few companies there provide reports to Global Compact. However, the further analysis of Global Compact reports themselves led to a contradictory result.

The second part of current study addresses the issues of non-financial reporting of SMEs that could be considered as a «mirror» reflecting the achievements of CSR practice among SMEs. In particular, we focused on the following research question: what are the specificity of non-financial reporting in developed and developing countries (cases of Germany and Russia)? With this aim the quality of the UN Global Compact reports was examined. The in-depth analysis has shown that about a third of all the nonfinancial reports were quite superficial: information didn't correspond to reality and was not supported by calculations or numerical data. Surprisingly although the business environment in Germany is favorable to the development of CRS, a lot of nonfinancial reports of German companies found out to be just formal and made only in order to keep the status of UN Global Compact member.

The paper is organized as follows: the next section is devoted to the review of the previous studies on CSR in SMEs, section 3 provides with a comparative analysis of the role of SMEs, their impact on the economies in Germany and Russia and study of the economic barriers for CRS implementation, section 4 presents the analysis of quality of SMEs' non-financial reports by German and Russian companies; and ultimately the paper ends with concluding remarks and suggestions how to increase SMEs involvement in CSR.

Literature overview

As an initial point of our research we have looked through the most acknowledged articles on this issue. They describe the possibilities and difficulties of the process of CSR principles integration in SMEs business activity.

To start with there are a lot of CSR definitions in scholar and empirical literature, Montiel I. (2008) analyzed the subtleties in the terminology on CSR and sustainable development. In our work we use the basic definition of CSR formulated by the European Commission (2011, p. 1) as "the responsibility of enterprises for their impacts on society" and states that enterprises should have "a process in place to integrate social, environmental, ethical human rights, and consumer concerns into their business operations and core strategy in close cooperation with stakeholders," while complying with legislation. The European Commission (2011) highlights the importance of shared value between firms and society and acknowledges the fact that for most SMEs the CSR process may remain informal. CSR may imply different things to different stakeholders and businesses of different type or size (Smith and Langford, 2009; Yang and Rivers, 2009). However every year the number of non-financial reports prepared by companies representing the segment of SMEs is constantly increasing worldwide. In particular the number of non-financial reports submitted by SMEs in GRI Database has risen from 188 reports in 2009 to 658 reports in 2016 (Figure 1). That could serve as an evidence of applicability and adoptability of CSR principles for SMEs.
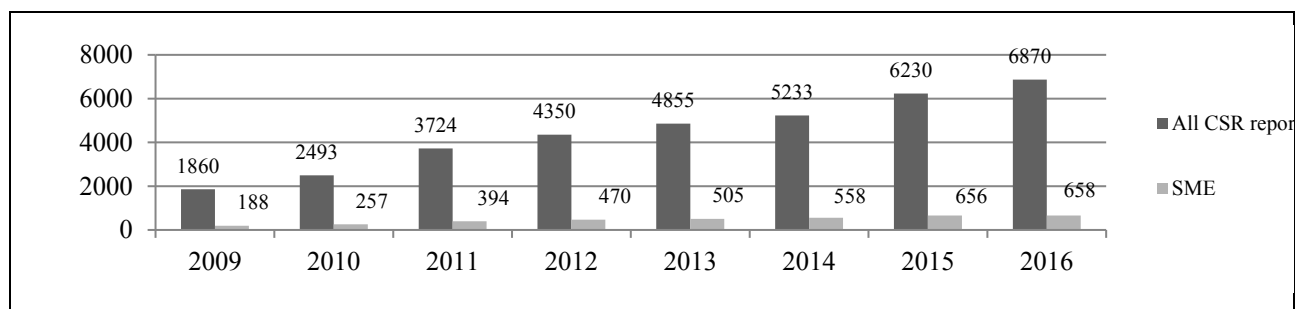
Source: GRI Sustainability Disclosure Database, Accessed:23.03.2018, own presentment

Fig. 1. **Quantity of corporate social responsibility reports**

Currently there is no sufficient literature and studies covering the engagement of SMEs in CSR in developing countries (Inyang, 2013; Sen, 2011; Turyakira, 2017). But there is an increasing recognition of the importance of the role of SMEs in CSR involvement and understanding the necessity to study the problems SMEs face (Mehran and Azlan, 2009; Turyakira, 2017).

SMEs often unintentionally adopt socially responsible practice, have a special relationship with particular stakeholders and are also prepared to lose some of their profits while serving a greater goal (Azmat and Samaratunge, 2009). Fassin (2008) maintains that SMEs engage in responsible business practices although they do not publish formal social reporting (Turyakira, 2017**).**

In Table 1 we summarize the most common problems SMEs in developing countries face while adopting CSR principles that were described in scientific literature.

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Table 1

Problems SMEs in developing countries face in the process of CSR-principles implementation

Internal issues		External issues	
Issues	**Authors**	**Issues**	**Authors**
1. Lack of sufficient resources	a) Jenkins (2004); b) Vives (2006); c) Lepoutre and Heene (2006); d) Revell and Blackburn (2007); e) Kusyk and Lozano (2007); f) Moyeen and Courvisanos (2012); g) Bylok (2016)	1. Minor effect of CSR-activities of SMEs ✓ *lack of measurement and quantification of CSR benefits*	d) h) Schoenberger-Orgad and McKie (2005); a)
✓ *lack of specific corporate strategies*	a), b)	2. Informality of CSR-activities	i) Niblock-Siddle, Jones and Black (2007);
✓ *lack of time*	c), f), g); j) Spence and Schmidpeter (2003);	3. Difficulties in getting employees involved	a)
✓ *lack of skills to engage in CSR activities*	a), b), c)	4. Difficulties in making connections with the community and the challenges of maintaining the momentum of such activities	a)
2. Personal characteristics of owners or the organizational characteristics of SMEs	b), e) k) Anglada (2000); l) Sweeney (2007);	5. Lack of accountability and poor information availability from business organizations	a)
3. Size of enterprises	m) Brammer and Pavelin (2004);		

Source: author's construction

Barriers for the integration of CSR-principles in SMEs can be divided into two large groups: intern and extern. The internal barriers include lack of resources like time, skills in CSR activities, compilation of corporate strategy in CSR and also personal characteristics of owners. External barriers include lack of information about CSR, lack of measurement and quantification of CSR benefits, informally o CSR-activities, because SMEs are discreet to publish CSR-report or another official information about CSR-activity, because it could be obliged to reporting regularly.

We studied several articles about development of CSR by SMES in different countries, it is obvious that scholars share the features of CSR in the SMEs based on the features of the economy in country (developed or developing), noting that in developing countries there are more barriers to the involvement of SMEs in CSR.

So we formulate two research questions, which could help us to understand based on cases of Germany (developed economy) and Russia (developing economy):

RQ1 How evenly does integration of CSR principles in SMEs in developed and developing countries proceed?

RQ2 How does the quality of non-financial reports by SMEs in developed and developing countries differ?

Economic preconditions and barriers for CSR implementation in SMEs

Small and medium enterprises (SMEs) play a crucial role – there are a lot of works confirming their great impact on the economic growth, employment, improvement of income distribution, development of healthy competition, innovation implementation etc. In most developed countries, especially in Europe SMEs have a long history of development and they have already occupied their niche – they are even often called "the backbone" of the economies. For instance in Germany in 2015 the employment share of SMEs was more than 60% and SMEs accounted for about 50% of the gross value added (Eurostat data, Destatis). Quite a different situation one can watch in Russia - in the current time the share of SMEs in GDP and in employment is considerably lower than in the developed countries. According to Rosstat, in 2016 only 26.1% of economically active people in Russia were employed in SMEs, the share of SMEs in gross value added amounted to only 19.9% (Figure 2).

Data for Germany are as for 2015, for Russia – 2016
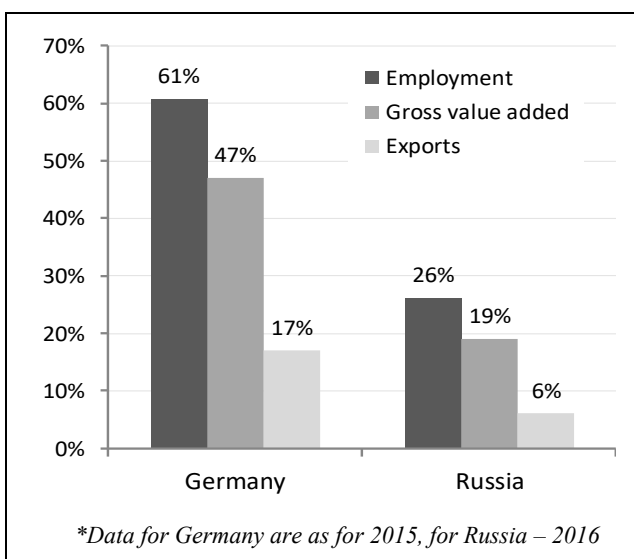
Source: author's construction based on data from the Russian Federation Federal state statistics service (Rosstat and , the Federal statistical office of Germany (Destatis)

Fig. 2. **Share of SMEs in persons employed, gross value added, export volume (in %)***
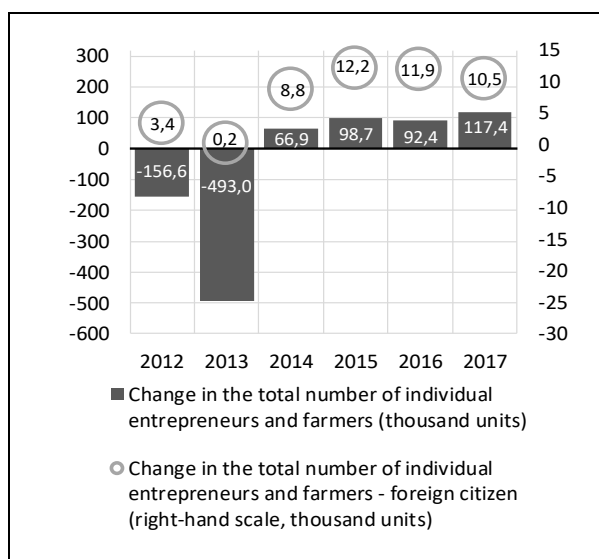
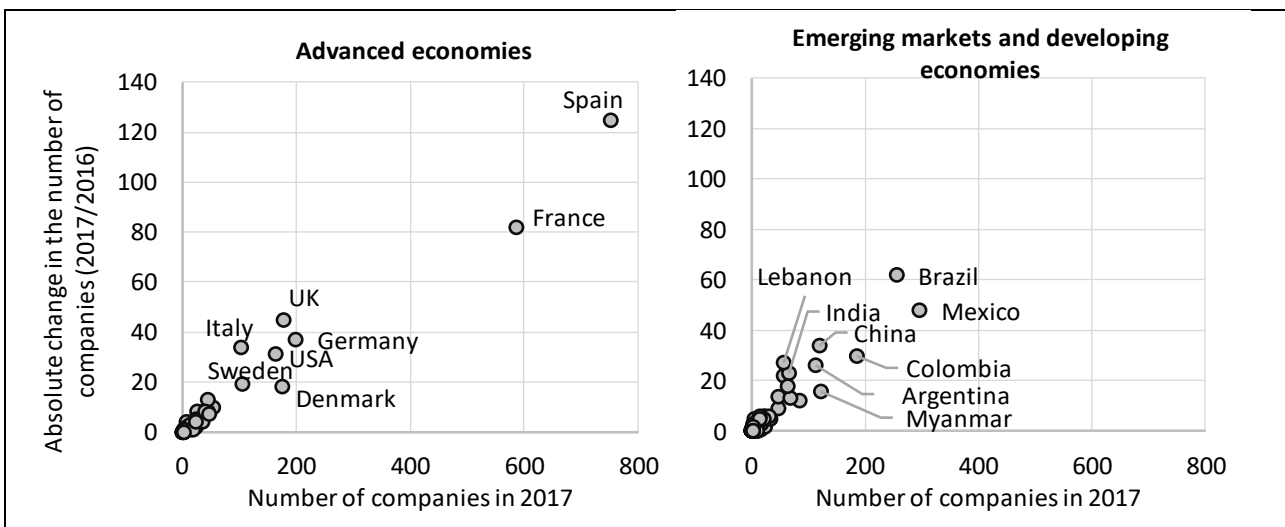*Source: author's construction based on Federal tax service of Russia.*

Fig. 3. **The absolute change in the number of individual entrepreneurs and farmers in Russia (number of newly registered in the period minus the closed ones)**

It's easy to explain the situation - in the Soviet times the culture of entrepreneurship had practically no development, in the 1990s there appeared a class of new businessmen in Russia however it all happened in the atmosphere of chaos - there were no rules, no laws, that was kind of "Wild West". The way business operated those years generated negative attitude of many Russian people to the entrepreneurship in general. However since 2000 the situation has been started changing and now one can watch the raise and forming of the new class of SMEs that is promising to become a new engine of output growth in the next decade. It's becoming more and more popular to start business in Russia (especially among young people). According to the Federal Tax Service of Russia in the beginning of 2018 there were registered 6.04 million of SMEs in Russia (the number grew by 2.9% YoY) and statistics confirms that every year the number of newly registered small and medium businesses considerably grows. In particular the last 4 years there was always an increase in the number of newly registered individual entrepreneurs and farmers (Figure 3). What is interesting is that before 2014 there was a considerable outflow of individual entrepreneurs – the number of those who decided to close their business prevailed. But since the year 2014 the trend has been changing. Worth mentioning that all it happens in not a typical situation – either in spite of or grace to sanctions. Probably nowadays such conditions as well as the decrease of

real income of the population create not only difficulties but new opportunities as well, - all that stimulate and push people to consider opening their own business. Moreover, statistics indicates that opening SMEs in Russia became more attractive for foreign citizen as well. So although in the recent 20 years the locomotive of the growth of Russian economy were big companies (mainly in commodity sector) and the potential opportunities of SMEs were neglected, now the system is changing and the focus is moving to SMEs. There is a unique favorable moment for further active development of SMEs in Russia now. This issue is included in the strategies of growth by the Ministry of economic development in Russia. There are appeared promising programs like "Far Eastern hectare", the priority access of SMEs to new privatization of government assets was legalized as well as some tax benefits etc.

However, there are still the problems that should be solved. The main difficulties representatives of SMEs face in Russia are bureaucracy, limited access to capital, lack of government support. Different public opinion polls and surveys (including GEM 2016) show that problems of financing and administrative burden are main barriers for booming development of SMEs in Russia. The instruments of financing SMEs in Russia are not developed, usually the main sources of finance – own capital or bank loans. According to data of the Bank of Russia only about 16% of the corporative loans in 2017 were given to SMEs. The current policy of the Bank of Russia that leads to the decrease of the number of regional banks also has a bad influence on SMEs. For example, now there only 561 banks are operating in Russia that is 32.7% less than in 2014 (834). In Germany SMEs also experience some of the mentioned problems however they are not that severe grace to better organized infrastructure and more friendly business environment. For example, in Germany there is still strong and well-developed system of regional banks (according to Bundesbank data there are 1634 banks in Germany as for November 2017, in particular 986 cooperative banks and 421 savings banks).

All other things being equal it is logical to expect that CSR should be much more developed in Germany. Since for many Russian SMEs there are still some more important things to think about: because of the mentioned above problems despite of the rising popularity of SMEs some of them are on the edge of survival. Besides one can guess that a lot of Russian SMEs even have no idea that such SCR principles exist. The Russian authorities do not encourage SCR implementation in SMEs so far (there is no "administrative carrot" from the government side) that's why there is no interest for SMEs to participate in such activities. So ceteris paribus initially we can expect that SCR spreading should be much more active in Germany rather than in Russia because of better developed fundamentals - once you are satiated you can think over doing a favor to society.

Source: author's construction based on UN Global Compact database.

Fig. 4. **Number of companies submitted non-financial reports to the UN Global Compact in 2017 versus the increase in the number of such companies in developed countries, emerging markets and developing economies**

Meanwhile if we simply look at the descriptive statistics and study the dynamics of the process of CSR spreading in different countries one can notice an interesting detail. The fact is that in general the dynamics does not depend on the category of the country – it does not matter whether it is an advanced economy or emerging market and developing country. Panel data analysis shows that countries with greater income per capita or better educated people don't tend to greater social responsibility. At Figure 4 one can see that there are 2 outliers among developed countries – France and Spain that are distinguished from other countries by the greatest number of companies submitting nonfinancial reports to the UN Global Compact. They are also characterized by the greatest increase in the number of such companies during the year 2017 (in comparison with 2016). However, for most other countries (no matter developed/developing ones) the figures are really quite moderate: the total number of responsible companies is less than 200 in most countries and the absolute growth made less than 50 companies in a year (for many countries the number hasn't changed at all).

At the next stage we've decided to look inside the nonfinancial reports, assess their quality and investigate if there is really a huge gap in CSR implementation in Russia and Germany.

Analysis of quality of nonfinancial reports

The reports of German and Russian SMEs for years 2014 and 2016 were studied, besides due to very small number of Russian companies' reports the statements of other Commonwealth of Independent States (CIS) countries were added for greater representativeness. To assess the quality of the reports the following special criteria were formulated: materiality of information, comparability of information for several reporting periods, structure of reports, description of positive and negative aspects of firm activity, disclosure of 10 Global Compact principles etc.

Our conclusions are based on two studies: the first one conducted by the German Global Compact Network (DGCN) and the student network for ethics in economics and practice (sneep e.V.) in 2014 and the second one chaired by Business Ethics and Management at the Hamburg University, represented by Solovey Tatiana and sneep e.V. in 2016.

The first study examines the contents of the Communication on Progress (CoPs) of 122 small and medium-sized enterprises (SMEs) from the DGCN. It makes statements about the quality of reporting, depth and scope, and the nature of communication, but the content quality and robustness of those Directives were not examined. The team, represented by Ingo Pies und Stefan Hielscher, Department of business ethics in Martin-Luther-University Halle-Wittenberg, sneep e.V. participants discussed with Germany Global Compact Network (DGCN) the study design and questionnaire for the analysis of the quality of Communication on Progress, the art of report, which is mandatory for all participants of Global Compact Network. Questionnaire consists of 147 check-points, which helps to understand the quality of engagement of 10 principles of Global Compact of SMEs functioning. There are some too detailed questions, that are not applicable for many SMEs, but also there are many basic questions, that allow to analyze how CSR-principles are integrated by SMEs. The second study examines the contents of CoPs of the CIS' SMEs that participate in Global Compact Network. Similar methodology was used to analyze reports in both studies. Base point for the analysis of the German GC database was 1. April 2014, for Russia – 1 March 2016. The first study analyzed 122 companies from DGCN and the second one - 25 companies from the CIS countries. 65 out of 122 analyzed companies DGCN operate in service sector and 57 companies work in industrial sector. It should be noted that the companies with the largest number of employees are industrial companies. As for 25 SMEs from the CIS countries, 22 companies are from the service sector, one company is engaged in the production of household goods, one company works in the sale and design of alternative energy sources.

At first we have analyzed the companies by size (number of employees) and duration of participation in GC initiative. In Germany, the number of companies with an average number of employees up to 20 people was 42 companies,

from 20 to 40 employees - 80 companies, while in the CIS countries 13 companies have an average of 25 employees, and 13 companies have more than 50 employees.

Than we analyzed the duration of participation in the GC initiative (Fig.5)
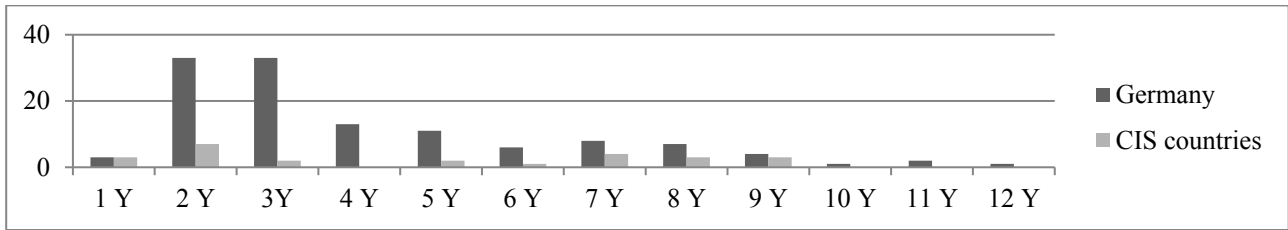
Source: GlobalCompact Database, Accessed:23.03.2016, Materials of study with sneep e.V.
Fig. 5. **SMEs by duration of participation in the GC initiative**

The analyzed SMEs in Germany are the members of the GC Network on average for 4.1 years, it should be noted that a significant increase in participants occurred in the last three years. 23 companies have been participating in the GC initiative for more than 6 years, 69 companies have joined in the last three years. It should be noted that in the first year companies participants of GC Network are not required to prepare reports. In the CIS countries, almost 50% (12) of the analyzed companies joined the initiative in the last three years. More than 50% of SMEs of CIS countries have been participating for more than 6 years. Fig.6 represented the number of companies from CIS countries, which were participants of Global Compact (1 March 2016)
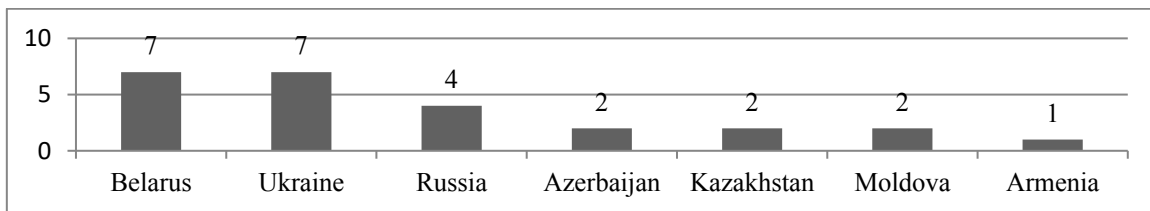
Source: GlobalCompact Database, Presentment: Materials of study with sneep e.V.
Fig.6 **Companies from CIS countries, participants of Global Compact Initiative**

SMEs in the CIS is significantly less active in the GC Network, for example, it was analyzed only 5 SMEs from Russia, one of these companies was a participant in the GC for less than a year, that does not correspond to mandatory requirements of reporting. Nowadays (March 2018) there are only 11 Russian SMEs registered in GC Network, 7 of them have the status "Active participant", which means that companies provide regularly CoPs. In General, out of 25 companies, two companies are subsidiaries, which indicates that for these two companies, the problem of resource constraints is not so acute.

On average, reports of German SME companies consist of 20 pages, reports of companies from the CIS countries -12 pages, this figure seemed interesting to us, since the volume of reports is very different, for example, 23 companies reports consist of 1-4 pages. You can identify the following relationship, the larger the company-the larger the report, but this is not always the pattern. About 30% (7) of SMEs in the CIS countries make reports ranging from 1 to 4 pages.

The qualitative analysis of report was carried out for each group of principles (human rights; labour, environmental, anti-corruption). The results were the similar for Germany and for CIS countries: analyzed CoPs differ greatly in scope and content depth; evidence of following 10principles is sometimes hampered by general and superficial information; the size of companies in the majority of cases does not affect the quality

of reporting; The criterion of materiality is disclosed only by single companies (Germany); the results of companies' activities in the framework of compliance with GC principles are rarely clearly traced; negative results and problems are rarely mentioned; the reporting provides information about certain actions in the framework of the GC principle, but not a description of the principles of the company's activities and measurement results; The supply chain is a regular feature of reporting and is considered part of the business responsibility area (for SMEs in Germany); the relevance of human rights and the prevention of corruption in relation to own Company often not described. identical quantity of SMEs in Germany that describe relevance of GC10 principles and do not describe at all, in CIS countries more than 70% of SMEs do not describe the relevance at all; There are not clear difference in reports about labour and human rights aspects .

Responding to our second research question, it is important to note that despite the large number of companies-participants in GC in Germany in compare with the CIS countries, the problems of quality of reports are similar.

Conclusions, proposals, recommendations

Taking into account the great influence SMEs have on economy and society (in particular the current strong position of SMEs in Germany and its growing role in Russia) it's evident that SMEs could be a breeding ground for CSR implementation however so far its possible contribution is underestimated. Nowadays in Russia like in many developing countries SMEs segment is in the phase of active development, so far it's flexible and sensitive to global trends. However today implementation of CSR here goes very slowly and it does not work efficiently. One should work out the strategy for informing the SME about CSR and some updated system of motivation and stimulus should be suggested (probably at the government level). Otherwise all these CSR initiatives will be taken just as another bureaucratic routine.

The other finding of the work was that actually it doesn't matter whether the country represents the developed or developing economy - the process of CSR implementation doesn't depend on macroeconomic fundamentals.

It is important to note that despite the large number of companies-participants in GC in Germany in compare with the CIS countries, the problems of quality of reports are similar.

As concept for achieve a better SMEs involvement in CSR activities, we suggest to use the collaboration opportunities of networks of different CSR initiatives to build a regional system which could help to give SMEs information about CSR, measurement and quantification of CSR benefits, to connect SMEs with the CSR active community. Possible it's possible to organize a multi-stakeholder net for sharing the information about CSR and reporting. But access by multi-stakeholder nets would be an important decision for company, because the information must be actual and could be controlled by many stakeholders, templates in nets could press company not to keep still when negative facts in social and environmental area happens. Communications process will be on-line, it could be difficult for SMEs with lack of resources.

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MIGRATION OF HUMAN CAPITAL AS A FACTOR OF SUSTAINABLE DEVELOPMENT: A SURVEY

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Abstract. In our time many developed countries receive significant migration flows, but there is no political and public consensus about their positive impact on the economy of host countries. The particular disagreements concern the social policy, the problems of budgetary funds for the integration programs, benefits for immigrants, and the impact of immigration on the future of the economies of developed countries.

The aim of the study is to identify the impact of migration of human capital on the sustainability of the socio-economic system More specifically, the papers looks at the following issues: the impact of international labour migration on the sustainability of developed economies; the most significant (on this topic) characteristics of the human capital of migrants, the impact of migration on host and donor countries, the impact of migration on social protection systems, a set of characteristics of both migration and the host country to assess the likely effects of migration (on the example of EU countries).

The methodology of the research is based both on the review of scientific literature and on the theoretical analysis of economic theory in order to provide arguments for the economic benefits of human capital migration for both recipient and donors countries, and to systematize the benefits and costs of migration of human capital. Theoretical analysis showed that, on the one hand, the influx of migrants creates a burden on social protection systems, on the other hand, developed countries taking the main migration, need of labour force and must compete for human capital of high quality. Although the integration of refugees entails large preliminary short- and medium-term financial costs, if successful, it will bring financial benefits in the long term. It is shown that the migration of human capital leads to the formation of a diversity of labor resources as a factor of sustainability of the socioeconomic system.

The findings and results of the study can be used for theoretical research and forecasting of social and economic change. Governmental organizations can use the results to improve the efficiency of social and migration programs.

Key words: *migration, sustainable development, human capital*

JEL code: F22, J24, Q01

Introduction

A variety of processes such as changes in labour rights, labour market flexibility growth, the emergence of new technologies and the privatization of former state companies have increased the demand for labour migrants in Europe in recent decades significantly. On the other hand, the EU experienced an unprecedented influx of refugees, which was called the European Migrant crisis. The new stage of migration should be studied, systematized, verified with the modern theoretical concepts and methodological approaches. The migration of human capital is one of the most important trends. Migration growth affects both formation and development of human capital. Human capital as well as human potential can change due to the intensification of migration processes. Current issues are: what are the migration trends? what are the implications for host countries and donor countries? how to use the migration of professionals as a strategic growth

factor, both for developed countries and for developing with a known problem a brain drain? Since different states and public institutions have very different ideas about migration-related benefits and costs, accurate, interrelated and timely data on migration processes are extremely important. Only on the basis of such data, it is possible to assess current and future trends and justify social priorities. The inevitable costs of international migration are compensated more or less by its positive effect - the formation of diversity as a condition for sustainable development[1]. Any political trend to reduce migration is incompatible with the trend towards economic liberalization and maximum economic growth.

The purpose of the study is to identify the impact of migration of human capital on the sustainability of the socio-economic system. More specifically, the papers looks at the following issues: the impact of international labour migration on the sustainability of developed economies; the most significant (on this topic) characteristics of the human capital of migrants, the impact of migration on host and donor countries, the impact of migration on social protection systems, a set of characteristics of both migration and the host country to assess the likely effects of migration.

As the objects of analysis, the EU regions were chosen. Open data from OECD, Eurostat, World Bank Group, IOM were used. The subject of the study is the migration of human capital (as part of international migration) consisting of at least three flows: cross-border movements of skilled workers, academic and educational mobility, "brain circulation."

Theoretical approaches to the study of international labour migration have been developed in a number of studies Harris J. and Todaro M., (1970), Hicks J., (1932), Lee E., (1996), Ravenstein E., (1885) among others, which focused on the study of migration behavior and the economic consequences of migration andargued that differences in net economic benefits, mainly in job opportunities and higher wages, are the main reasons for migration. Migration of labour resources began to be considered as a special type of investment in order to increase productivity, which requires up-front costs, but promise to generate income (Sjaastad L., 1962, p.83). Many attempts to accurately assess the profitability of the individual's move have been made.

In later studies, other drivers of migration were considered to be the main ones: improving the quality of life, increasing consumption, access to education, medical care, and access to culture (for example, Glazer et al., 2001). Studies of the impact of highly skilled labour migration are presented in the works of Bhagwati J. and Wilson J., (1989), Haas H., (2010), Hunt J., and Gauthier-Loiselle M., (2009), Ozgen C. et al., (2013), Kerr S. and Kerr W. et al., (2016, 2018) and others.

The methodology of the research is based both on the review of scientific literature and on the theoretical analysis of economic theory in order to provide arguments for the economic benefits of human capital migration for both recipient and donors countries, and to systematize the benefits and costs of migration of human capital. Theoretical analysis showed that, on the one hand, the influx of migrants creates a burden on social protection systems, on the other hand, developed countries taking the main migration, need of labour force and must compete for human capital of high quality. It is shown that the migration of human capital leads to the formation of a diversity of labor resources as a factor of sustainability of the socioeconomic system. The result of managed migration can be the formation of social and professional international relationships, knowledge transfer, technology transfer and investment expansion. In addition to ethnic diversity and mutual enrichment of socio-economic systems (if an adequate state migration policy is in place), international labour migration contributes to the active development of human capital, which is recognized as the most important resource of sustainable development at present. The results of the work can be used for subsequent theoretical studies, as well as for socio-economic forecasting.

State organizations can use the results to increase the effectiveness of social and migration programs.

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[1] The diversity generated by migration corresponds to the law of the necessary diversity of Wiener-Shannon-Ashby: for the stable existence of the system it is necessary that it possess the internal variety required to block any external and internal disturbances.

Research results and discussion

The "migration track" of the theory of human capital assumes that the population moves from regions with poor opportunities to regions with better opportunities where the price of human capital is higher.

Economic motives of an individual to move is based mainly on a comparison of income on two places: the present and the new as well as the migration costs (costs of transport, sale of movable and immovable property, long-term loss of earnings in the moving period, the cost of personal training for a new job). The individual decides to migrate if the expected income is greater than the existing one.

Both the benefits and costs of moving are material and immaterial, short-term and long-term, even forever (while the migrant resides in a new place) (Fields G.,1979, p. 21-32). Not all consequences of migration can be taken into account and assessed accurately before and after the move. Particularly this concerns a) psychological costs, b) losses in human capital (work not by specialty, impossibility to upgrade qualifications or get a new education), c) loss of social capital caused by weakening of related, friendly and economic ties, d) separation from native language and culture.

There is a point of view (for example, Kerr, S, and Kerr, W, et al., 2018) that workers with greater human capital tend to migrate more than other ones.

For people to invest in education, not only money is needed, but also confidence in future income from education. In developed countries, each additional year of education increases the income by an average 5-15 %(World Bank Group, 2018).. Therefore, people with secondary and higher education seek to migrate to where they can fully use their skills and receive a salary level of developed economies. Migration of the HSM is also facilitated by a favorable state selective policy in the host countries, in the formation of migratory flows from the most educated and highly qualified part of the population (Kapur D., McHale J., 2005). Development and improvement of education, rather than poverty and violence, tend to increase the opportunities and aspirations of people to migrate. Countries with very high HDI levels show a much higher level of migration than all other categories. (Fig.1) Extreme poverty deprives people of freedom of movement, they are unable to leave their region, since migration requires considerable resources.
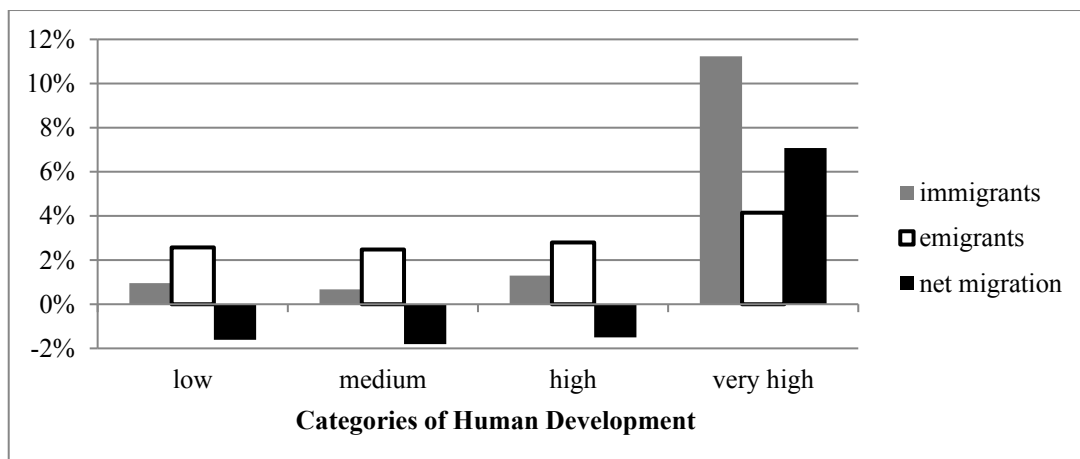
Source: author's construction based on (United Nations, 2017), (UNO, 2016)

Fig. 1 **Emigration and migration as a percentage of the population of countries with different HDI[2].**

One of the positive consequences of human capital migration for donor countries is money transfers, which can be a significant part of GDP. According to the World Bank in 2015, migrant workers sent about $ 601 billion to their homeland,

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[2] UN data for 173 countries, 204.9 million migrants for the period 1990-2013 (before the refugee crisis) were summarized. "Migrants" means the sum of migrants divided by the sum of population of all (of 173) countries with a specified category of Human Development

of which $ 441 billion was to developing countries. Money transfers are three times larger than the amount of international financial assistance. In 2016, the amount of money transfers to developing countries reached $ 445 billion. The total earnings of all migrants is 3000 billion a year, 85% of this amount remains in host countries (World Bank Group, 2016A).

In 2017, the main recipient country for migrant transfers was India. Citizens sent 72 billion dollars to this country. China is in second place (64 billion dollars). Russia is also in the top three countries for money transfers by migrants, but in the opposite list. Foreigners working in Russia sent home $ 33 billion over the past year. Approximately 200 million migrant workers send money home on a regular basis, at least 10 times a year. Thus, migrants provide financial assistance to 800 million people. Every seventh person in the world (including migrants themselves) lives off migrant earnings (World Bank Group, 2016A).

One of the long-term positive effects of migration for recipient countries is its contribution to population growth and compensation for the aging of the population. It is difficult to measure this effect in specific economic benefits. From 2000 to 2015, net migration provided 42% of the population growth in North America and 31% in Oceania. In Europe, the population would decrease from 2000 to 2015 if not for a positive net migration. The age structure of immigrants in 2017 (high proportion of persons of working age) suggests that the number of labour migrants has tripled since the end of the 20th century.

The share of labour migrants is 4.4% of the global workforce, which is more than the share of migrants in the world's population (OECD, 2017B). Thanks to this, positive net migration can help reduce the proportion of older dependents in some parts of the world. If net migration is zero, the number of people aged 65+ will increase from 53 to 57 per 100 people of working age by 2050. In North America and Oceania, the proportion of elderly dependents will increase to 47 and 37 from the current 41 and 33 to 100, respectively, if net migration is zero and the current migration conditions remain unchanged (UNO, 2017, p.19). Therefore, tomorrow the question may not be how to prevent the arrival of migrants, but how to attract them.

The main benefit of international migration goes to migrants themselves as their income increases significantly. On average, for migrants from the poorest countries, moving to a developed country means a 15-fold increase in incomes, a doubling of enrollment in schools and a 16-fold decrease in infant mortality. However, benefits for migrants can not be assessed economically only. Migration can enhance the rights and opportunities of migrants (especially women and minorities) and avoid abuses in the social sphere thereby (Ratha D. et al, 2011, p.9).

In addition to the migrants themselves, business and representatives of the upper middle class mostly benefit from migration, according to research. Lower-paid workers, former migrants receive much less profit and are most afraid of new immigrants because of competition for work.

Evaluation of the contribution of highly qualified migrants (HQM) to the host economy is of great interest to researchers, especially in the context of growing population mobility and a shortage of highly qualified specialists needed for the transition to a digital economy in developed countries in. Some analysts estimate the potential global shortage of up to 85 million highly skilled and medium skilled workers in 2020 (Dobbs R. et al., 2012) (reff). The European Commission estimated that 16 million jobs in the EU will require high qualification by 2020 (ILO, 2017 A). In recent decades, migration rates for highly skilled workers have been significantly higher than for low-skilled workers. In addition, they tend to migrate to developed countries, where they get more rewards. For example, in 1990-2010, the number of migrants with higher education increased by 130% and the average and low skilled only by 40%. And 70% of all HQM migrated to the USA, Great Britain, Canada and Australia both from developing and developed countries (Kerr S. et al, 2016, pp 2-5).

The positive effect of HQM migration is associated with the growth in the proportion of migrants with a bachelor's level of education and more among scientific and technical workers as well as with the growing number of employed in knowledge-intensive areas, the growth of patent and innovation activity. Empirical studies confirm this. For example, in the USA in 1995-2008 the growth of employment in the scientific and technical sphere was 0.5% as a whole, while for immigrants by 3-4%. In the USA for 30 years (1975-2004), the share of Anglo-Saxon and European names among patent holders declined from 82.5% to 70.4% and 8.3-6.4% respectively, while the share of Chinese and Indian names increased from 2.2% to 8.5% and 1.9% to 5.4% for the same period, in high-tech industries (computers, pharmaceuticals) mainly (Kerr W.2008, pp 6-7).

An immigrant was co-owner of more than half (52.4%) of Silicon Valley companies and 38% of California as a whole in 1980-1998. The Chinese owned 17% of start-ups, Indians-7%. In North Carolina, Indians owned 25% of start-ups, immigrants from Germany and Great Britain were in the second and third places (15%) (Wadhwa V. et al, 2007, pp 3-5). Hunt and Gauthier-Loisel M.,(2009 found that the contribution of migrants is 24% of all patents, which is twice the share of the total population (12%). Moreover, an increase in the proportion of immigrant graduates by 1% among the population increases the number of patents per person by 9-12%. The increase in the proportion of graduates of immigrants by 1% among university graduates increases by 6% the number of patents per person (Hunt J., Gauthier-Loiselle M., 2009). Immigrants who once entered the country with educational visas, surpass Americans in terms of salaries, the number of patents, the number of scientific reports and articles. A positive and statistically significant effect on the growth of patent applications was achieved as a result of an increase in the qualification level of immigrants, and not with an increase in the share of foreign population in the regions. The authors emphasize that the positive effect of the growth of patent and research activity increased due to increased cultural diversity. It was noted that innovative activity tends to correlate with the cultural diversity of immigrants. If immigrants were from different cultures, this significantly increased the innovation activity of firms (Ozgen C., et al, 2013).

Table 1

Benefits and costs of human capital migration

|	Benefits	Costs
Donor Countries	Human capital for export as a business Money transfers, assistance of diasporas Knowledge and technologies transfer The benefits of "brain circulation": productivity growth of returning specialists due to experience gained abroad Reduction of (i) tension in the labour market, (ii) competition for jobs, (iii) unemployment and wage growth Reduction of unemployment benefits, education and health care costs	Human capital level reduction (loss of educated and skilled workers) The loss of tax revenues and additional income from labour that left the country Economic backwardness of the country due to the migration of professionals
Recipient countries	Cultural diversity and hence greater sustainability Increase the human capital stocks Alleviation of demographic problems (aging and natural population decline) Savings of social costs (due to HSM), additional tax revenues from working migrants Growth of competitiveness of products, production and incomes Replenishment of the shortage of highly skilled workforce, elimination of labour market disparities	Increasing competition in the national labour market Additional costs for the social integration of migrants Increased social spending on newly arrived migrants (changes in social policy) The risk of political instability, the emergence of ethnic conflicts, the problem of illegal migration

Source: author's construction compilation

The losses of the donor countries due to the emigration of the HSWs are obvious: investment in the education of emigrants will never pay off. If average, the cost of education is about 3% of GDP. The donor country is losing the opportunity to introduce new technologies and open new production facilities. The structure of the labour market can be much distorted. The analysis by Rodriguez-Pose and Vilalta-Bufi (2004), using the example of different regions of the European Union, shows the correlation between GDP per capita, human capital and migration trends. They concluded that regions that can attract a large number of skilled workers have higher growth rates, so the region's ability to attract foreign highly skilled workers is as important as a good education system (Rodriguez-Pose, A., Vilalta-Bufi, M.,2004).

Thus, immigration contributed to improve the financial and social stability of the countries with high level of welfare of immigrant qualifications should be high enough to meet labour market requirements. A generalized analysis of the benefits and costs for donor countries and recipient countries, some of which is well known and does not require additional evidence, is presented in Table 1.

One of the most pressing questions is still unanswered: do the benefits of migration of human capital outweigh its costs? According to Table 1, the number of profitable items exceeds the number of items with costs for both donor countries and recipients (but only the number). Below we try to clarify the conclusion by analyzing the impact of migration on the social costs of host countries.

Another also debatable question is the impact of migrants on the budgets and social costs of host countries (Dullien, S., 2016; Hansen, M.F. et a.l 2017; OECD, 2017 C.; IMF Staff Discussion Note, 2016 and others). Public expenditure on the reciption and the integration of international refugees is very different in different countries. In 2015, more than 1.6 million people applied for asylum to the OECD countries, and in the first eight months of 2016, about a million more asylum-seekers were registered. Together: direct financial assistance to refugees, housing, food, health care and various programs for the integration of refugees, etc. require significant up-front public expenditure right now, while some benefits can be obtained much later. The overall short-term costs of integrating refugees can be quite high for recipient countries 8. The IMF estimates the costs of 0.1-0.2% of GDP on average in the EU (IMF Staff Discussion Note, 2016). In 2015, Germany accepted up to 900,000 asylum seekers and spent 16 billion euros, 0.5% of GDP. In 2015, Sweden accepted 163,000 asylum seekers (the highest number of refugees per capita in the OECD at all times, = 1.6% of the population) and spent 6 billion euros (1.35% of GDP) (OECD, 2017 C.). According to Swedish data, the costs of reception and integration of refugees are especially high in the first years, then they are significantly reduced (Fig. 2)
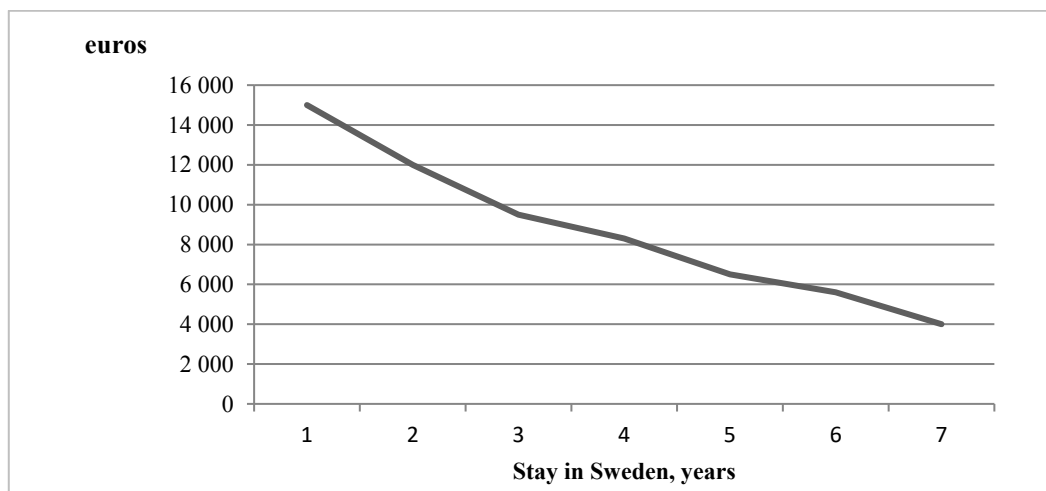
Source: author's construction based on(OECD, 2017 C.)

Fig. 2. **Estimated average annual costs per migrant, depending on the time of stay in Sweden, in euros**

A large influx of migrants may require local budget infrastructure costs, such as housing, school buildings or transportation. This is a long-term investment that also benefits the neighboring areas and the central government could financially reimburse the local authorities that integrate refugees particularly successfully. In some countries, incentive systems and tax incentives to support refugees for their language training are introduced. For example, the Danish government grants subsidies to regional employment centers of municipalities for the employment of refugees.

In the long term, the costs of refugee integration are declining (see, for example, Fig. 2), and the benefits, if the integration is successful, are growing, especially in countries with an aging population. And in this case, immigration can already be considered as a way of filling the budget. The net financial impact of immigration is the difference between taxes and other contributions paid by immigrants and costs for public services, financial and non-financial assistance provided to migrants. Long-term assessments should take into account the fiscal impact of current immigrants already in the country, as well as future migrants and second-generation migrants. The calculation of the fiscal impact of immigration is a problem both in theory and in practice. Most studies show that immigrants from Western countries have a positive fiscal impact on the budgets of host countries, while immigrants from non-western and poor countries are more likely to have a negative effect (Full Fact 2018).

But in general, the impact depends on the characteristics of individual immigrants and their activities, as well as on the characteristics of the country and the current state of the economy. In response to the question "Can a country, like Denmark, use immigration to strengthen its financial sustainability?" Hansen et al (2017, p 950) give a positive answer, provided that good conditions of employment exist for migrants and migrants themselves remain active in the labour market for a long time.

Table. 2

Economic growth, unemployment and the flow of migrants, 15 countries in Europe, 2016.

	Country	migrants from non EU-28, 2016	population, /1000, 2016	migrants per 1000 inhabitants, 2016	GDP growth, %, 2016	Unemployment rate, %, 2016	unemployed, 15+, /1000, 2016	Average annual wages, USD PPS, 2016	Social Progress Index 2017
1	Germany	507 034	82 868	6	1.9	4.1	1 774	46 389	88.50
2	United Kingdom	265 390	65 637	4	1.8	4.8	1 625	42 835	88.73
3	Spain	235 632	46 444	**5**	**3.3**	**19.6**	**4 505**	37 333	86.96
4	Italy	200 217	60 601	**3**	**0.9**	**11.7**	2 932	35 397	82.62
5	France	158 156	66 896	2	1.2	10.1	3 038	42 992	85.92
6	Sweden	104 384	9 903	11	3.2	7	363	42 816	89.66
7	Poland	80 054	37 948	2	2.9	6.2	1 141	25 921	79.65
8	Netherlands	76 680	17 018	5	2.2	6	543	52 833	89.82
9	Greece	69 497	10 747	6	**-0.2**	**23.5**	**1 199**	**25 124**	**78.92**
10	Austria	54 472	8 747	6	1.5	6	272	48 295	87.98
11	Belgium	46 502	11 348	4	1.5	7.8	393	49 587	87.15
12	Switzerland	37 585	8 372	4	1.4	4.9	241	60 124	90.10
13	Norway	32 364	5 233	6	1.1	4.7	130	53 643	90.27
14	Czech Republic	29 902	10 562	3	2.6	4	214	23 722	84.22
15	Denmark	28 559	5 731	5	2.0	6.2	186	52 580	90.57
16	Russia				-0.2	5.5		6 240	67.17

Source: author's calculations based on (Eurostat, 2018, ILO, 2017B, ILO, 2017C, OECD 2017 A, Social Progress Index, 2018, World Bank Group 2016B, Rosstat, 2018)

Thus, the integration of refugees entails large preliminary short-term and medium-term financial costs, but if successful, it will bring financial benefits in the long term. This shows that it is rapid integration that can reduce the financial consequences of refugees, lead to long-term GDP growth and eliminate imbalances in the labour market. The most important socio-economic factor affecting migration is the current state of the labour market.Table 2).

The analysis of the data in the table shows, basically, a high level of stability of the western economies to the impact of migratory flows. The economies of the main countries for the reception of refugees (especially Germany and the United Kingdom) have high labour market indicators (high average wages, low unemployment, low number of unemployed), and sustained economic growth. There is high unemployment in France and Spain, but this is offset by high / sustained economic growth and high average wages. The situation in Greece is the most negative because of negative GDP growth rates, high unemployment, low average wages and, in addition, a large number of migrants per 1000 inhabitants. This means that the country's economic potential for receiving additional refugees is limited. At the same time, indicators of social development: basic needs (food, housing, utilities, etc.), the basis for well-being (access to basic knowledge, information, health care, etc.) and human development opportunities (the level of personal and civil liberties, human rights, etc.) are high (including Greece) or very high (for example, Denmark, Switzerland, Norway).

The problem of sustainability of the socio-economic system will become even more difficult if we compare public social spending per capita and annual cost per refugee (Table 3). This indicator adds new countries to the risk group (Spain and Greece): Italy, the Netherlands, Belgium and the Czech Republic, where the cost of refugees is more than twice the social costs per capita.

Table 3

The cost of integrating one refugee in comparison with the average social costs per capita.

	Country	Public Social Spending, % GDP, 2016	GDP per capita, $, 2016	Public social spending per capita, $, 2016	annual cost per refugee, $
		A	B	B*A	C
1	Germany	25.3	42 161	10 667	8 908
2	United Kingdom	21.5	40 367	10 213	3 261
3	**Spain**	**24.6**	**26 616**	**6 734**	**13 687**
4	**Italy**	**28.9**	**30 661**	**7 757**	**16 950**
5	France	31.5	36 857	9 325	12 190
6	Sweden	27.1	51 845	13 117	13 898
7	Poland	20.2	12 414	3 141	5 276
8	**Netherlands**	**22.0**	**45 638**	**11 546**	**31 933**
9	Greece	27.0	17 891	4 526	—
10	Austria	27.8	44 758	11 324	4 608
11	**Belgium**	**29.0**	**41 271**	**10 442**	**25 536**
12	Switzerland	19.7	79 888	20 212	22 621
13	Norway	25.1	70 868	17 930	13 924
14	**Czech Republic**	**19.4**	**18 484**	**4 676**	**10 049**
15	Denmark	28.7	53 579	13 555	21 791

Source: author's calculations based on (Eurostat, 2018, ILO, 2017B, ILO, 2017C, World Bank Group 2016B)

On the one hand, social security programs are financed by income tax and therefore require a high level of employment; on the other hand, the social protection system leads to a high minimum wage and thus hinders the employment of newcomers and low-skilled workers. Therefore, for migration to increase the financial and social stability of countries with a high level of well-being, the level of migrants must be high to meet the demands of the labour market

Conclusions

1. The relevance of labour migration is determined by its ability to shape the demographic and social diversity necessary for the stability of developed economies to internal and external disturbances. The" quality "of migration depends on the quantitative and qualitative parameters of migrants' human capital, their level of qualification and education

2. First, the migration of human capital should be seen as a phenomenon that positively affects the economy. In the recipient countries, the deficit of labour in the sectors with high unemployment (where a lot of unskilled labour is required) is reduced . However, a number of negative aspects also arise, for example - social tension, the emergence of ethnic conflicts, the problems of illegal migration, increased competition in domestic labour markets in the country hosting migrants. For the donor country, economic benefits are also possible, for example, unemployment reduction, additional income of emigrants (remittances, diaspora assistance), which can also stimulate economic growth).

3. Over the last decades, the migration of highly skilled workers was significantly higher than that of low-skilled workers. HSMs are moving mainly to developed countries, where they receive more rewards. The contribution of highly qualified migrants (ECM) to the host economy can be traced by the increasing share of them among scientific and technical workers, by the growth of their patent, entrepreneurial and innovative activities. HSM in comparison with refugees do not require large social expenditures and increase the human capital of the host countries. The HSM recruitment policy is particularly effective and stimulates innovation when a critical level of cultural diversity is achieved. HSM donor countries lose these advantages, which leads to even greater inequality and a "technological gap" between developed and developing countries..

4. Migrants from Western countries have a positive fiscal impact on the budget of the host country, in contrast to migrants from the poorest countries. Although integration of refugees requires large short-term expenditures, it will bring long-term financial benefits if successful. This shows that it is rapid integration that can reduce the financial consequences of refugees and lead to long-term GDP growth and eliminate imbalances in the labour market.

5. Of all the diversity of socio-economic factors, the labour market is the most important factor affecting migration. The analysis of the labour market indicators of a number of EU countries (unemployment, employment change, minimum wage level) as well as generalized socio-economic indicators (GDP growth, social progress index) shows a fairly high stability of the western economies to the impact of migration flows. In order for immigration to increase the financial and social stability of countries with a high level of well-being, the level of qualification of immigrants must be high enough to meet the demands of the labour market. A comparative analysis of the costs of integrating refugees with average social costs per capita in a number of countries shows an increase in the level of (socio-economic) risks for a number of countries (eg Spain, Italy, etc.).

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HOW TO FACE LATVIA'S COMPETITIVENESS CHALLENGE? BOOSTING INVESTMENT IN RESEARCH AND INNOVATION

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Abstract. This paper examines Latvia's competitive position vis-a-vis its EU and OECD peer group. Unlike Estonia and Lithuania, Latvia has fallen in the Global Competitiveness Index by the World Economic Forum. Weak innovation performance, bream drain, and lack of STEM skills reduce the economy's ability to expand the share of knowledge-intensive activities. The country's growth model will need to shift the focus to climbing the global value chains. A good proxy measure of competitiveness is productivity. Productivity has grown recently in Latvia but at half the rate it was growing before the financial crisis. We argue in this article that a close and pro-active involvement of the research community in setting up a National Productivity Board is a sine qua non if Latvia is to establish a policy consensus on how to further boost its productivity and competitiveness.

Introduction

This paper examines the factors underpinning Latvia's competitive position vis-a-vis its EU and OECD peer group. In recent years, Latvia has fallen in the Global Competitiveness Index by the World Economic Forum, unlike Estonia, which has risen and remains the Baltic champion, and Lithuania, which has maintained its position. Latvia's particular drawbacks lay in business sophistication and innovation factors.

A good proxy measure of competitiveness is productivity. Productivity has grown in Latvia since the financial crisis (at around 2%, among the highest in the EU) but at half the rate it was growing before the crisis. Easy gains from catching up are over and the risks of falling into the "middle-income trap" are multiplying.

Weak innovation performance, a diminishing talent pool due to emigration, and insufficient supply of STEM skills all raise concerns about the economy's ability to expand the share of knowledge-intensive activities. The moderation of the investment rate suggests that there is no "low hanging fruit" left and the country's growth model will need to change by shifting the focus to climbing the global value chains.

To enable this process, the country will need a strategy of investment into research, innovation and human capital. As comparative examples of Germany, Netherlands, Singapore and New Zealand show, without sustained and reliable funding of the science base, structured, independent and regular expert advice on productivity-related policies and strong academy-industry-government cooperation, there cannot be a "great leap forward" in national competitiveness performance.

We argue in this article that a close and pro-active involvement of the research community in a new National Productivity Board is a *sine qua non* if Latvia is to establish a policy consensus on how to further boost its competitiveness. A means, rather than an end in itself, only higher productivity will allow firms to pay higher wages and ensure a better living standard for all.

Theoretical Aspects of Competitiveness

Competitiveness is a complex phenomenon with a great number of definitions. Both from a theoretic and empirical perspective, a definitive expert consensus on what constitutes "competitiveness" does not exist. Some noted authors, including Paul Krugman, have even argued that the focus of policy-makers on national competitiveness as a policy goal is a "dangerous obsession" given its ambiguity. Others have criticized the ambivalent and relative nature of competitiveness – what is a gain for one nation, is a loss for another. It is clear, however, that competitiveness can be treated at both microeconomic (firm) level and macro-economic (country, regional) level. In this article we briefly review the most relevant economic literature as it relates to macro-economic competitiveness.

Every respected economic school of thought has contributed to defining the concept of competitiveness. Starting from the classical economic theory, according to Adam Smith's "The Wealth of Nations", capital investments and trade lead to specialization and division of labour, which, in turn, generate economies of scale and help explain productivity differences between nations (Smith, 1776). For Smith, productivity gaps occur when "autarchic regimes" open up borders and engage in free trade and the nations involved have absolute advantages in production of some goods. Thus, differences in productivity, in the classical theory, are explained by gains from trade. David Richardo adds the element of comparative advantage, establishing that, if countries specialize in what they are best at and trade, their production technology differences translate into employment productivity differences (Richardo, 1817). Of course, the classical theories assume that there is perfect competition. Furthermore, the Hecksher-Ohlin model, based on Richardo's thinking, brings two other production factors into the picture, namely, labour and capital (Ohlin, 1967). This model assumes that technology is the same and differences in competitiveness are explained by differences in efficiency of labour and capital utilization.

Whereas classical economists considered labour and capital as two independent production factors, Keynesian economics believes that they are mutually complementary. The Keynesian theory is based on the dynamics of aggregate demand and on degree of employment (Keynes, 1936). This theory centres on expectations because they influence investments and consumer behaviour. There are a number of implications of the Keynesian theory for competitiveness. First, a state (government) may successfully interfere in economic policy-setting by boosting demand. Second, imperfect markets allow for the existence of regional disparities. Third, regional convergence may be achieved through economic policies. Fourth, the intensity of capital utilization leads to the growth of economy and productivity.

Other well-established economic theories have also contributed to the understanding of the notion of competitiveness. For instance, proponents of development economics argue that differences between nations in terms of competitiveness can be explained by efficiency and regulation of state aid, trade liberalization and foreign direct investment (Sen, Nussbaum, 1993). However, authors such as Joseph Stiglitz, have cautioned that unbridled liberalization in the absence of appropriate rules and institutions can mean gains for the big and powerful, but losses for the others (Stiglitz, 2002). Development economics posit a few fundamental ideas relevant for competitiveness. First, they argue that central regions with a productive advantage will maintain their superior positions ahead of the periphery regions. Second, then crafting economic policies policy-makers should keep in mind the level of development of every region. And, finally, economic policies should promote the positive spill-over effects of FDI.

Endogenous growth theories also contribute insights relevant for the understanding of the concept of competitiveness. First, these theories posit that technological and human capital improvements are growth engines. Second, free trade and global competition contribute to growth and technological development. Third, investments into research, development and innovation are very important for nations to succeed (Barro, Sala-i-Martin, 2004).

For new trade theories, the key concepts are economies of scale and product differentiation as explanations for the trade dynamics between nations. For the concept of competitiveness, their implications are, first, that labour specialisation is good and necessary and, second, more investments intensify the economies of scale (Krugman, 1986).

For full understanding of the concept of competitiveness, some insights can be also borrowed from urban growth theories and the Schumpeterian theory. In urban growth theory, Jane Jacobs considers that cities are the main factors of wealth (Jacobs, 1961). The Schumpeterian theory, in contrast, posits that the role of individual entrepreneur is the most important for economic growth (Schumpeter, 1934).

However, perhaps the most influential recent theory for the understanding of competitiveness is the cluster theory ("five-force" theory) developed by Harvard professor Michael Porter in late 1990s (Porter, 1998). Cluster theory posits that to remain competitive, a firm must constantly improve its operational efficiency and geographic clusters stimulate competitiveness. Porter has also applied his theory from firm to nation level, arguing that states should promote economic clusters as a pathway towards prosperity.

The most recent pioneering work in the area of competitiveness has been carried out by the respectable World Economic Forum (WEF). The Forum, as a starting point of its analysis of countries,defines competitiveness as "a set of institutions, policies and factors that determine the level of productivity of a country" (WEF, 2018). To put it differently, to establish what makes a country competitive is to consider how well it promotes the quality of life **in practice**. A competitive economy, by and large, must be a productive one. Productivity leads to growth, which leads to higher income levels and hopefully, to better overall well-being Productivity is a key factor in this equation because well-established research has shown it to be the main driver of growth and income. Income levels are closely linked to human welfare – the higher the average salary, the better people tend to live. Grasping the factors that enable this causal link of events to occur is very important. Rising competitiveness causes rising prosperity. By the same token, competitive economies are more likely to grow in an inclusive and sustainable manner, effectively meaning that most social groups will gain from economic growth.

WEF divides the countries' competitiveness performance into 12 distinct areas that are further grouped into three sub-indexes. First, there are "basic requirements" comprised of institutions, infrastructure, macroeconomic environment, health and primary education. These are "basic" as these pillars tend to be those that countries at earlier stages of development tackle first.

Second, comes the "efficiency enhancers" sub-index. These indicators show how efficient are markets – be them goods, labour or financial markets. Efficiency enhancers also consider higher education, training and technological readiness, which measures how well economies are prepared for the transition into more advanced, knowledge-based economies.

Third, the business sophistication and innovation pillars include complex areas of competitiveness that require an economy to be able to draw on world-class businesses and research establishments, as well as an innovative, supportive government. Countries that rank highly in these pillars tend to be advanced industrial economies with high GDP per capita.

Competitiveness research shows that flexible labour markets and respect for workers' social rights are not reversely related. So much conventional wisdom is given over to the idea that unemployment can be solved by making it easier to hire and fire people and put them on insecure, short-term contracts. However, while such "labour market flexibility", as economists call it, is certainly important in kick-starting a jobs market, it can also act as a barrier to workers being able to land sustainable, secure work. According to WEF Global Competitiveness Index, economies that have been able to

combine labour market flexibility with robust protection of workers' rights have been more successful at achieving higher levels of competitiveness, higher employment and lower inequality.

Is "technological readiness" the cause of the productivity paradox? Trying to figure out the reason why ever increasing investments in technology is not leading to comparable increases in productivity is one of the most active areas of economic debate today. According to WEF data, improvements in innovation are often failing to have wider impact due to the fact that many countries – especially emerging markets that are accelerated their innovation capacity rapidly – are achieving much slower progress in the area of "technological readiness", or preparing firms and people to take advantage of new technologies as they come online.

Competitiveness is not a "crystal ball". For instance, in the Fourth Industrial Revolution which is unfolding around us we know that many jobs will become replaced by automation and robots. This could well make our education increasingly important, as economies shift to higher value, higher-skilled work. Due to changes in the economic structure and ever-deeper globalization, measuring competitiveness should not escape from a critical radar screen.

There are so many factors important to well-being that cannot be easily included in standard competitiveness measurements. One of such factors is the social cohesion or inclusiveness of economies. Another factor, often omitted or weighted too low, includes environmental externalities and product life-cycle costs. Provided that a high degree of inter-dependence exists between natural and human systems, environmental sustainability is likely to play an increasing role in driving future economic success.

Measuring Latvia's Competitiveness Ranking

The global marketplace is characterized by fierce competition – the EU competes collectively against the US, China, and other emerging regions. As Europe is gradually aging, it becomes less competitive in labour terms, and must compensate this disadvantage by gains in investment and total factor productivity. As China and the US are also strong investors, such factors as innovation, business sophistication, technological readiness and market integration become ever more important. Therefore, the European Commission has greatly invested in finishing the Single Market – building a more complete digital, energy and services market, filling in the missing links of Banking Union, Capital Markets Union and Economic and Monetary Union. More integration in economic terms can mean – higher competitiveness.

But the EU, unlike the US or China, is not a unitary formation, and, in many ways, it is only as strong as its weakest link. Therefore, the collective competitiveness of the EU depends on the resilience, industriousness and good policies of its Member States. Latvia, a recent entrant to the "rich countries' club", the OECD, has placed enhancement of productivity and competitiveness squarely among its top economic priorities. As a policy measure, Latvia is considering to establish a National Productivity Board, following the available best practices. And for a good reason – in many ways, Latvia is still a runner-up as concerns many facets of competitiveness.
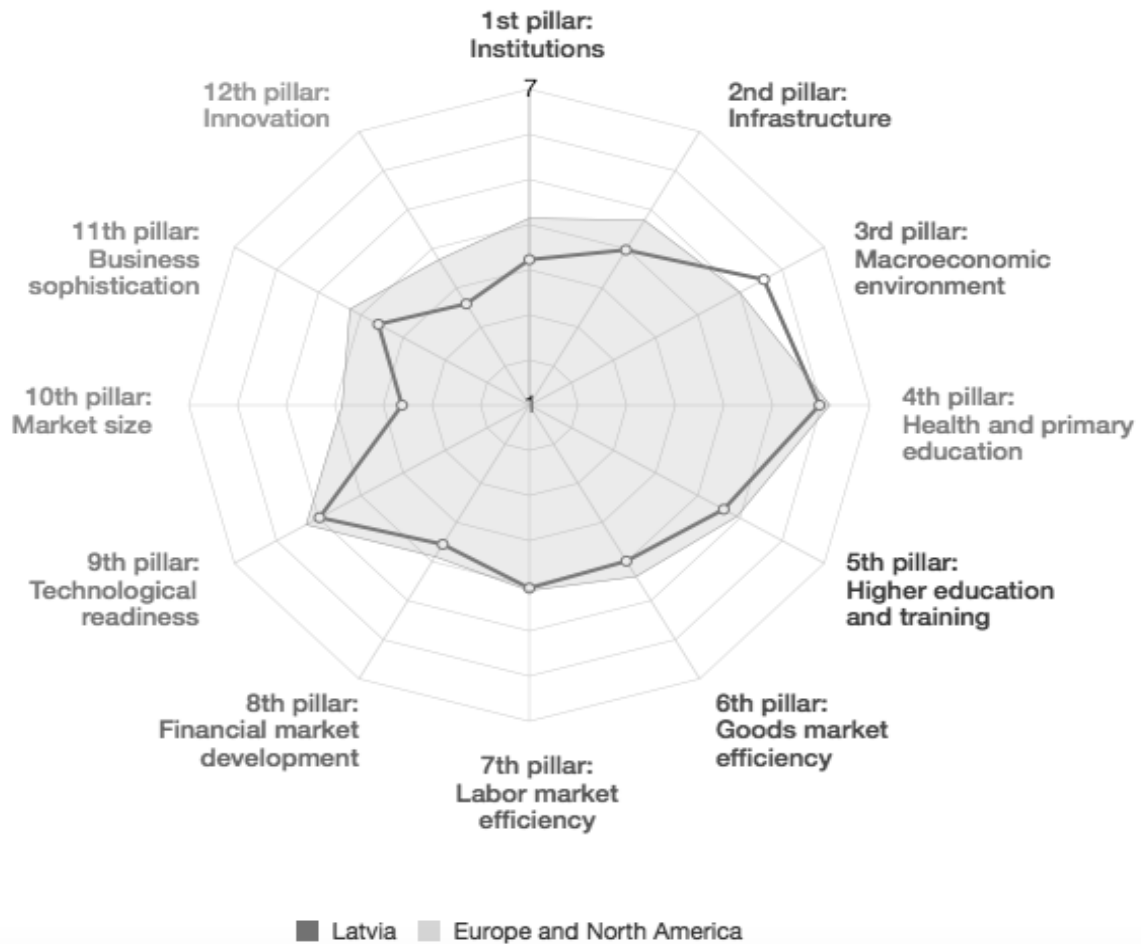
Source: Global Competitiveness Index 2017-2018; Latvia Country Profile

Fig. 1. **Drivers of Latvia's competitiveness against reference group**

Looking into the mirror of WEF Global Competitiveness Index, one finds a mixed performance [see Fig. 1. above]. Latvia scores comparatively well in such indicators as macro-economic environment (fiscal discipline, deficit and debt level, inflation) and labour market efficiency (hiring and firing of workers), while the small market size is an objective drawback. More painful is the relatively low ranking of Latvia's institutions and infrastructure (roads, ports, railways, airports), which require considerable investments and cannot be overhauled overnight. However, what most significantly drags down Latvia's overall competitiveness is low innovation performance and insufficient business sophistication (World Economic Forum, 2018). These are key factors, which the government can and should influence. As discussed before, these factors will determine if Latvia one day plays in the highest league of high-income states or remains entangled in the middle-income trap.

Interdependence Between Innovation and Productivity

No country, large or small, has ever transitioned from a state of relative poverty to relative wealth without economic modernization, in which innovation is a factor *sine qua non*. Cutting-edge research, through technology transfer and commercialization, feeds into business operations and allows firms to climb up the global value chains. The public sector

has a key role to play as facilitator and catalyst in the "knowledge triangle" (or "triple helix" – market-university-government).

The EU generously supports scientific and business innovation through European Structural and Investment Funds, *Horizon 2020* excellence grants, blending programmes, guarantees and other instruments, monitors innovation performance across Member States through its *Innovation Scoreboard* as well as offers recommendations, advice and expertise through the *European Semester*, *Structural Reform Support Programme* and *Horizon 2020 Policy Support Facility*. Latvia has been on the receiving end of this innovation support, and, as consequence, has been improving its innovation performance during the last eight years, albeit starting from a low base. In 2017, Latvia graduated from the class of "modest innovators" (below 25% of EU average) [see Fig. 2. below] (European Commission, 2017). While progress is evident, Latvia still has a long road ahead.
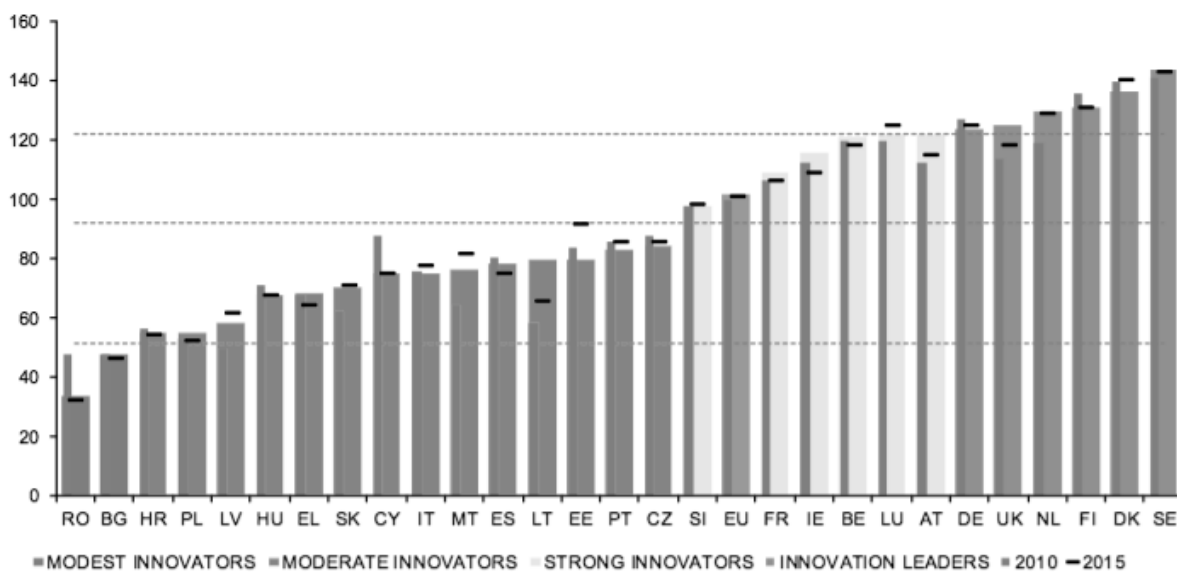
Source: EU Innovation Scoreboard, 2017

Fig. 2. **Performance of EU Member States' innovation systems**

According to the latest EU Innovation Scoreboard Latvia, is now a "moderate innovator". Over time, Latvia's innovation performance has increased by 8.5% relative to that of the EU in 2010, but Latvia has been starting from a low base. Latvia's relative strengths of the innovation system are a high and increasing share of population with tertiary education, high broadband penetration, improving start-up ecosystem and employment in start-ups (opportunity driven entrepreneurship), and increasing availability of venture capital and trademark applications. Relative weaknesses are R&D expenditures in the business sector, SME product and process innovations (including in-house), collaboration of innovative SMEs, private-public co-publications, patent and design applications and sales of new-to-market innovations. Notable differences between Latvia and the other Member States, which impact total innovation performance are a larger share of employment in agriculture, a smaller share of employment in high and medium high-tech manufacturing, a larger share of micro enterprises and SMEs in turnover, a smaller share of large enterprises in turnover, a larger share of foreign controlled enterprises, lower GDP per capita, a higher growth rate of GDP, a lower and negative growth rate of population, and lower population density (European Commission, 2017).

Latvia	Performance relative to EU 2010 in		Change 2010-2016
	2010	2016	
SUMMARY INNOVATION INDEX	49.6	58.1	8.5
Human resources	61.9	93.2	31.3
New doctorate graduates	30.8	54.5	23.7
Population with tertiary education	109.2	157.9	48.7
Lifelong learning	44.2	64.2	20.0
Attractive research systems	14.1	37.6	23.5
International scientific co-publications	21.4	75.5	54.1
Most cited publications	20.5	28.7	8.3
Foreign doctorate students	2.3	36.9	34.6
Innovation-friendly environment	122.7	160.1	37.4
Broadband penetration	200.0	244.4	44.4
Opportunity-driven entrepreneurship	68.1	100.5	32.4
Finance and support	39.4	75.9	36.6
R&D expenditure in the public sector	23.6	55.6	32.0
Venture capital expenditures	59.3	101.6	42.3
Firm investments	68.5	44.0	-24.5
R&D expenditure in the business sector	11.6	10.7	-0.9
Non-R&D innovation expenditures	182.3	79.7	-102.6
Enterprises providing ICT training	35.7	50.0	14.3
Innovators	20.0	11.9	-8.1
SMEs product/process innovations	22.9	0.0	-22.9
SMEs marketing/organizational innovations	9.5	27.0	17.5
SMEs innovating in-house	27.9	8.4	-19.5
Linkages	33.3	41.4	8.1
Innovative SMEs collaborating with others	20.9	15.8	-5.1
Public-private co-publications	20.5	0.1	-20.3
Private co-funding of public R&D exp.	54.3	97.7	43.4
Intellectual assets	66.2	49.8	-16.3
PCT patent applications	44.8	28.7	-16.1
Trademark applications	105.4	102.6	-2.8
Design applications	64.9	37.9	-26.9
Employment impacts	55.4	84.5	29.1
Employment in knowledge-intensive activities	48.7	69.2	20.5
Employment fast-growing enterprises	60.4	95.7	35.4
Sales impacts	47.2	46.7	-0.6
Medium and high tech product exports	38.1	43.6	5.4
Knowledge-intensive services exports	73.8	71.5	-2.3
Sales of new-to-market/firm innovations	27.1	21.4	-5.7

Dark green: normalised performance above 120% of EU; light green: normalised performance between 90% and 120% of EU; yellow: normalised performance between 50% and 90% of EU; orange: normalised performance below 50% of EU. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

Change highlighted in green is positive; change highlighted in light red is negative.

Source: EU Innovation Scoreboard, 2017

Fig. 3. **Performance of Latvia's innovation system**

System Approach in Latvia's Innovation and Research Policies

Latvia's notable weakness is domestic financing of innovation. According to *Eurostat* figures, expenditure on research, development and innovation in 2016 constituted just 0,6% of GDP, well below Latvia's national *Europe 2020* target of 1,5%, and a fraction of EU's collective target of 3%. This proportion is partially explained by the presence of few multi-nationals in Latvia, and relatively low R&D activity performed by domestic firms, as well as economic structure where lower added value sectors tend to dominate. However, the small share of financing for research and innovation also reflects national policy decisions to assign lower priority to science funding than in many other peer countries.

A number of important suggestions on how to improve the funding and governance of Latvia's research and innovation system (RIS) have been suggested in the final report of *Horizon 2020 Policy Support Facility* (January 2018). First and foremost, the report suggests that funding for research and innovation should increase, especially from national sources, in order to drive performance and growth. Funding increases should be supported by improved communication to achieve a clearer national understanding and vision and to upgrade the visibility and priority of research and innovation policy. Another idea to consider is that line ministries could allocate a certain share of their budget to research and innovation in their respective areas. The current high dependence on EU Structural and Investment Funds is hardly sustainable in the longer run and a more optimal balance between national and European funding ought to be sought (European Commission, 2018).

Particularly startling is the miniscule 0,15% of the private sector contribution to R&D financing (Eurostat, 2016). Investment by private and public businesses in innovation needs increasing and broadening. The innovation funding portfolio is incomplete and needs to be strengthened with additional measures that foster innovation and the creation of absorptive capacity in firms. One of the suggestions proposed by Horizon 2020 policy support facility work for Latvia includes a more targeted and purposeful use of state-owned enterprises (SOEs). As SOEs account for more than 10% of private sector employment and represent a significant lever over the performance of industrial R&D, an idea has been floated that SOEs could be mandated to spend a certain minimum of their revenues on doing or commissioning R&D.

In parallel to visibility and funding increases, the Horizon 2020 report suggests a "package deal" – streaming the structure and governance of state research and innovation organisations to meet national needs. A national exercise is needed to restructure and improve coordination and the division of labour in the structure and governance of research and innovation policy. The ministries need to build a platform for cooperation on research and innovation questions. The implementation of Structural Funds programmes should be re-integrated with national funding in order to build capacity and scale. In a small country such as Latvia, a unified implementation agency for research and innovation funding could build scale and capacity while implicitly coordinating the various policies and instruments it implements. This should include both research and innovation funding in a single organisation. Latvia could build such an organisation by bringing together relevant functions from existing agencies.

Another vital Horizon 2020 suggestion entails mainstreaming international peer review. Peer review proposal assessment in Latvia should be centralised in a way that builds on existing experience and capabilities and should ideally form part of the unified implementation agency. This capacity can then be used by others, as needed. Processes used should follow good international practice. Latvia should develop a strengthened and more integrated innovation agency function, with good links to research as well as business innovation.

There is more to do to integrate research and higher education. Higher education structure and governance should further be modernised. There should be further consolidation among research performing organisations, though this should respect individual circumstances and the opportunities for some to act as "boundary organisations". The Latvian authorities should consider reforming the research career system, for example by introducing a tenure track. The national higher education accreditation agency should engage in the main European networks in its area, both to obtain recognition and in order to learn.

Finally, performance-oriented incentives could be boosted, according to Horizon 2020 report. Competitively-won research funding should increase, in order to meet national needs. The next research assessment exercise should be directly coupled to performance-based funding, though care should be taken to ensure that this does not accidentally undermine the incentives for other vital functions such as teaching and the third mission. The next exercise should continue to use peer review, in order to generate institution-specific feedback. Both the scale and the scope of competitive, external

research funding schemes should increase, in order to meet national needs for both "bottom-up" and thematically orientated research.

Productivity Boards as Part of Policy Steering System

The European Council on 28 June 2016 in its conclusions on Economic and Monetary Union, following a lengthy public consultation process, endorsed the legal recommendation on National Productivity Boards. Member States, including Latvia, have to implement the Recommendation within 18 months and the Commission must draft a progress report in 30 months. Key elements of the Council Recommendation include: each Member State (mandatory for euro zone, and advisable for non-euro zone) should have in place a productivity board tasked with analysis of productivity and analysis of policy challenges and options. Each Member State should identify one productivity board, which could, in turn, rely on, or consist of different existing bodies (European Union, 2016).

There are a number of reasons why national productivity-diagnosing institutions, bound together in a European framework, can prove useful. First, the analysis of competitiveness developments in Member States can take into account euro area and Union aspects and address the long-term drivers and enablers of productivity and competitiveness, including innovation, the capacity to attract investment, businesses and human capital and cost and non-cost factors that can affect prices and quality content of goods and services relative to global competitors. Expert institutions can perform and provide analysis based on transparent and comparable indicators. The Boards can undertake independent analysis of policy challenges in the field of productivity and competitiveness, and, if and to the extent foreseen in their national mandate, assessment of the effects of policy options, making trade-offs of policy explicit.

Second, productivity boards can carry out their activities on a continuous, rather than *ad hoc*, basis. They make their analyses publicly available and publish an annual report. They engaged in contacts with productivity boards of other Member States with the aim of exchanging views and best practices, and can produce joint analysis, taking into account the broader euro area and Union dimension. The European Commission on a regular basis can exchange views with all participating Productivity Boards, including during fact-finding missions to Member States, and could facilitate the exchange of views between the Productivity Boards.

Third, Productivity Boards are objective, neutral and fully independent regarding policy analysis and content. They may consult relevant stakeholders, but they do not convey only or mainly the opinions and the interests of a particular group of stakeholders. Productivity boards have the ability to carry out economic and statistical analyses with a high degree of quality, including as recognised by the academic community. The analysis could be produced by existing and separate bodies provided that it is of the same high quality.

Best Practice Examples for Latvia

1. Germany

German Council of Economic Experts is an academic body advising German policy makers on questions of economic policy. It was set up by law in 1963 with the objective to assess the macroeconomic development of Germany. It also aims to aid the public and economically relevant institutions in making informed judgements about economic developments. It enjoys complete independence with respect to its advisory activities. The Council's reports and assessments have since become an essential part of German economic policy making and have notably influenced political decisions.

The following are among the Council's tasks according to its mandate: analysing the current economic situation and its likely development; examining ways and means of ensuring steady and adequate growth within the framework of the free market-economy system, whilst simultaneously maintaining high employment, price stability and foreign trade equilibrium; while taking into account the accumulation and distribution of earnings and capital, pointing out the causes of current and potential conflicts of macroeconomic demand and supply; pointing out undesirable developments and examining ways and means of avoiding or eliminating these without suggesting specific economic or socio-economic measures.

In line with its mandate, the Council compiles and publishes an annual Economic Report which is released in mid-November. In order to assess particular current problems and depending on the mandate issued by the government, the Council also prepares ad-hoc Special Reports. Since 2005, the Council has also been releasing Occasional Papers on selected topics upon the request of the Federal Government.

The Council of Economic Experts consists of five members who are specialists in the field of economic theory and economic policy. They are appointed every five years by the German Federal President on the recommendation of the Federal Government. Reappointments are permitted. The Council then selects one of its members as chairperson for three years. The Council of Economic Experts is supported by the staff chaired by the secretary general. Furthermore, the Council resorts to the Liaison Office at the Federal Statistical Office in matters of organisation and statistics.

2. Netherlands

The Social and Economic Council of the Netherlands advises the Dutch Government and Parliament on key points of social and economic policy. It also undertakes activities arising from governance tasks and self-regulatory matters, and functions as a platform for discussions of social and economic issues. The Council consists of independent Crown-appointed members, employers, and employees.

Established in law by the 1950 Industrial Organisation Act, the SER is the main advisory body to the Dutch government and the parliament on national and international social and economic policy. The SER is financed by industry and is wholly independent from the government. It represents the interests of trade unions and industry, advising the government (upon request or at its own initiative) on all major social and economic issues. The SER also has an administrative role. This consists of monitoring commodity and industrial boards, which perform an important role in the Dutch economy. Industrial boards are responsible for representing the interests of particular branches of industry, and are made up of employers' representatives and union representatives.

The Industrial Organisation Act ascribes the SER a number of advisory and administrative tasks, and gives it a role in promoting self-regulation in business: advising government and parliament, supervising commodity and industrial boards, enforcing laws, supervising conduct in mergers and promoting business and consumer self-regulation.

3. Singapore

National Productivity Board, now renamed **SPRING Singapore**, was established in 1972 to improve productivity in all sectors of the economy. Increasing individual and company productivity at all levels was a government priority, given Singapore's full employment picture and relatively high wages. Greater worker productivity than the country's neighbours and competitors was viewed by the government as a necessity as well as one of Singapore's major advantages. The National Productivity Board followed a "total productivity" approach, which emphasized productivity measurement, product quality, a flexible wage system, worker training, and assistance to small- and medium-sized enterprises. In order

to promote productivity in both the public and private sectors, the board used mass media publicity, seminars, conventions, and publications to remind Singaporeans that productivity must be a permanent pillar of the economy. The board sponsored a productivity campaign each year with such slogans as the one for 1988, "Train Up--Be the Best You Can Be."

The Standards, Productivity and Innovation Board (SPRING Singapore) is a statutory board under the Ministry of Trade and Industry of Singapore. It is the main agency for enterprise development, and it aims to enhance the competitiveness of enterprises to develop a strong base of dynamic and innovative Singapore enterprises. It is also the national standards and conformance body. According to SPRING Singapore, the agency helps to nurture a pro-business environment, facilitate the growth of industries and enhance innovation and enterprise capabilities of small and medium enterprises for better access to markets and business opportunities.

SPRING Singapore was formed as a result of the merger between the National Productivity Board (NPB) and the Singapore Institute of Standards and Industrial Research (SISIR) in April 1996. The purpose is to bring together the soft skills of productivity handled by NPB and the technical aspects handled by SISIR. It is also known as the SPIB. In April 2002, it was renamed SPRING Singapore to signify the shift towards an innovation-driven economy, and its new role in promoting creativity to sustain growth for Singaporeans.

4. New Zealand

The New Zealand Productivity Commission is an independent Crown Entity that began operating on 1 April 2011. According to New Zealand Productivity Commission Act of 2010, "The principal purpose of the Commission is to provide advice to the Government on improving productivity in a way that is directed to supporting the overall well-being of New Zealanders, having regard to a wide range of communities of interest and population groups in New Zealand society." To fulfil this purpose, the Commission does three things: undertakes in-depth inquiries on topics referred to it by the Government (core business); carries out productivity-related research that assists improvement in productivity over time; and promotes the understanding of productivity issues. The Commission's work – across these three areas – is largely at the "framework level" – considering whether laws, policies, regulations and institutions best support the wellbeing of New Zealanders. This is different to workplace or individual productivity, which some assume (understandably but incorrectly) is the focus of the Commission.

Conclusion

On the basis of the best-practise examples from such EU Member States as Netherlands and Germany, but also further off examples of "world champions" in boosting competitiveness, like New Zealand and Singapore, and considering Latvia's particular competitiveness challenges, we advocate the establishment of Latvia's National Productivity Board. The Board should closely involve independent academics and experts. Due to twice slower productivity growth than before the financial and economic crisis, Latvia is in a dire need of re-launching its competitiveness agenda. However, the last comprehensive competitiveness assessment was done by a team of experts under Christian Ketels (Harvard Business School) back in 2011 on a one-off basis. No comparable assessments have taken place since then, with the exception of some work by the OECD. Neutral and systematic national policy analysis with a view of global competitiveness impacts would be an invaluable contribution towards more evidence-based and informed policy decisions and long-termism in economic policy making.

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THE INFLUENCE OF THE INHABITANT ON THE ESTIMATION OF THE HOUSING VALUE

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Abstract. Real estate evaluators should estimate the value of a property objective without environmental influences. They should use the relevant information of the property, like the location, number and standard of the rooms. The problem is that they could be influenced by the seller and their reason for valuation, especially when they want to sell. So the purpose of this study is to find out the influence of the value of a property regarding the information of different sellers. Therefore, three different stereotypes are defined, including positive and negative associated individuals. In addition, one type of seller is neutral, without any information of the reason and picture. In the social psychology the use of such stimulus is called as anchor effect. The study is based on a web supported lab experiment and conducted with 112 students. The findings show that the estimated value of the property and also the control variable as a car achieve in mean both of the offered real price. The impact of the different stereotypes of sellers on the value could not be proven. The effect of the anchor was not as strong, so that it could influence the objective of the survey.

Key words: *Real Estate Valuation, Information of Inhabitant, Austria*

JEL code: R31, M31

Introduction

The valuation of properties implies that it is objective, based on the standards and best of the evaluators knowledge and conscience. It is or should not distorted by environmental influences. Levitt S. D. and Syverson C. (2008) analyzed the distortions of house prices regarding the information of the agents and found that homes owned by the agents achieve a higher price of about 3.7%. They come to the conclusion, the greater the informational advantage and experience of agents, the larger the difference in the price and time on market. Violand W. and Simon A. (2007) investigated the impact of real estate brokers on the price of residential properties that were sold in 2005 in twelve French cities. They found that the brokers increase the prices of houses they sell in average of 1.3% and depends on factors, like the property size and the experience of buyers and sellers, measured by the age. Another study (Andersen S. and Nielsen K., 2017) shows that forced sales for example from sudden death within poor market conditions increase the discounts. Therefore, Selcuk C. (2013) purpose an equilibrium search model where in periods with a large number of sellers, they could strategically slow down the speed of market trades. Also Ozhegov E. M. and Sidorovykh A. S. (2017) studied the effect of time on price based on asking price dynamics.

The human behavior has so far played only a minor role and only a small number of studies deal with human behavior in the real estate evaluation. The focus of behavior in the housing market differs in the research; most are concentrated on investment then consumption (Salzman D. and Zwinkels R. C. J., 2013). The majority of research to date in the area of behavioral real estate deals with how people behave in the real estate market, whether as sellers or buyers, and which human factors have an influence on the decision-making process. Northcraft G. B. and Neale M. A. (1987) were among the first who detected cognitive distortions in human behavior toward real estate evaluation. They formed two groups of participants, students and experts, which should estimate the value of a property. The participants received information

of the property as well as a stated list price, which differed in both groups. They analyzed the influences of the list price on the valuation and the results showed that both groups were strongly influenced by the stated list prices. Diaz J. (2002) showed a similar phenomenon, how different property valuers can be influenced by the actual valuation method. However, Salzman D. and Zwinkels R. C. J. (2013) introduced one of the most interesting and current approaches to research at behavioral real estate when they specifically tried to transfer psychological and sociological behaviors of people into the real estate industry and, for example, explained the difference between a personal home and a house as an investment good. Homebuyers take life decisions on vague expectations and are not aware of the importance of psychological processes in the real estate market. Another effect for the real estate industry, based on the anchor effect, is the fact that for people who are moving into a new market, the figures from the old market act as a strong anchor (Ariely D., 2008). This leads to pay a similar price for a property, but adapt their quality of life. When they move to a cheaper market, they get a better home and when prices rise, they are more willing to save on apartment size and quality than on the price to pay. Based on the theory of the anchoring effect it is assumed that information, which form an anchor for a real estate value, also completely independently of the actual value of the property (Tversky A. and Kahneman D., 1974; Northcraft G. B. and Neale M. A., 1987; Ariely D., 2008; Kahneman D., 2011). For example, this study assumes that negative information about the seller leads the participant to believe that the real estate has less value, since the participant transfers the negative information from the salesman to the real estate. The negative anchor therefore leads to a negative setting, although the information is completely independent. Based on the theory of priming, this study assumes that supposedly irrelevant and random information can strongly influence the valuation of a property. This can happen even though this information has nothing to do with the reality and the actual value or quality of the thing (Ariely D., 2008; Kahneman D., 2011). Specifically, it is assumed that negative information about the seller of a property can significantly worsen the attitude towards the property and its value. Real estate evaluators should estimate the value of a property objective without environmental influences. They should use the relevant information of the property, like the location, number and standard of the rooms. The problem is that they could be influenced by the seller and their reason for valuation, especially when they want to sell. Therefore, the purpose of this paper is to analyze the effect of positive and negative associated information of sellers on the estimated value of the property. The research question is formulated as follows: *What impact have different sellers on the estimated value of a housing property?* The study is based on a web supported laboratory experiment. Therefore, the defined typical housing ad is in all scenarios the same, only the type of the seller is changed. For the type of seller are four different stereotypes defined, including a neutral, positive and negative associated individual. The different stereotypes are chosen randomly in the experiment. The methodology for the evaluation is based on descriptive statistics and independent samples tests. The implication of this paper is on the one hand relevant for real estate evaluators as well as for housing sellers, because of their influence on the value.

Research results and discussion

1. Description of the survey

The survey or questionnaire consists 3 parts. The first part contains the description of the reason for the sale and the presentation of one randomly chosen seller. The second part includes the description of the apartment and the car. The car only serves as a control variable in this examination. The last part of the questionnaire contains the questions about the setting of the displayed contents, demographic information and the inquiry whether the participant is active in the real estate sector or has experience in the inquired market. Four scenarios were used to define the different seller types. Scenario A describes a man who sells his apartment and car for crimes. Another scenario (B) describes an elderly lady who moves to a retirement home and therefore sells. Scenario C describes a man who has won the lottery and wants to

lead a more luxurious life. The fourth scenario (D) is defined as neutral, with no description of the reason for the sale and no picture. Scenarios A and C should represent a negative and scenario B a positive anchor effect.

Table 1

Definition of the sellers / scenarios

Seller	A	B	C	D
Description	Mr. Müller will soon be imprisoned for various crimes related to drugs and assault. That's why he's gonna sell his apartment and his car.	Mrs. Müller lived in the apartment for many years. Now she has decided to move to a retirement home. That's why she's gonna sell her apartment and car.	Mr. Müller has won at the lottery and wants to adopt a more luxurious lifestyle. That's why he's gonna sell his apartment and his car.	The apartment and car described below are to be sold. The seller asks you to estimate the market value.
Picture				No picture

Source: author's construction.

The second part of the questionnaire includes the description of a typically flat, which is offered in reality. The information's and pictures of the flat are used form an online offering platform (www.willhaben.at). The flat is offered with a price of about 359,000 EUR. The description of the flat includes the number of rooms with their sizes, the year of construction and the included parking spaces. The pictures show the rooms, the floor plan, the outside of the building and also a map for the location in the town. The followings figures (Fig. 1) present a few used pictures.
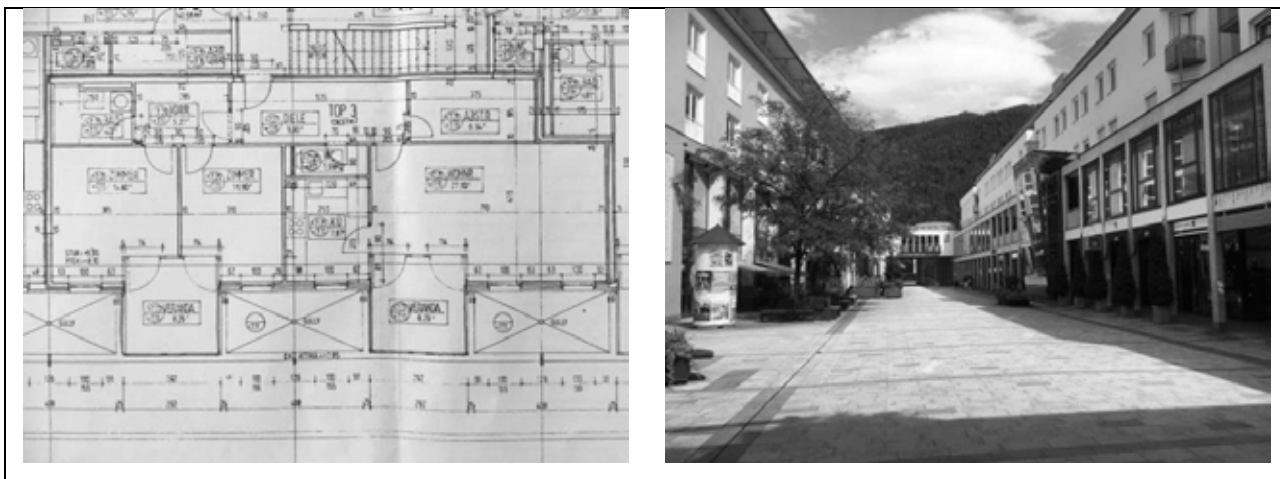
Fig. 1: Pictures of the offered flat

For the description of the car, also a real offering is used from an online platform (www.autoscout24.at). The car is one of the most used car in Austria, a Volkswagen Golf, Model 7. It is a used car, the year of manufacture is 2015, the colour dark grey. The price of the offer is about 14.850 EUR.

2. Descriptive statistics

The survey was conducted between the 15-24 March 2018 with students at the university of applied sciences Kufstein. The survey was web supported and 112 students participated. The value of the flat has an average of about 366,843 EUR and for the car 15,234 EUR. The distributions are illustrated in Figure 2. The median is for the value of the flat 356,000 EUR which is very close to the offered price. The deviation therefore is less than one percent. Referring to the average value approximately 2%.
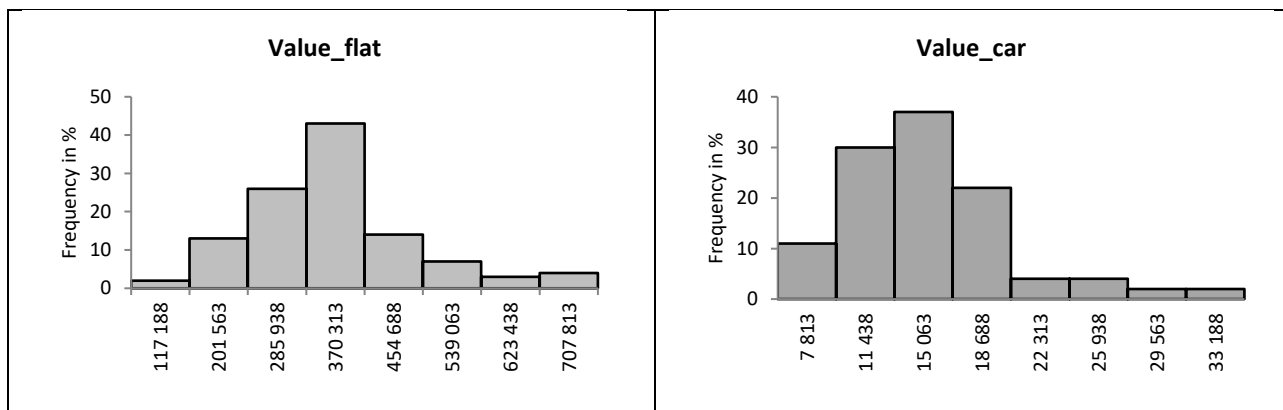
Fig. 2: Distribution of the estimated value for the flat and car

Table 2 summarizes the mean, minimum, maximum, and standard deviations of the ratio-scaled variables and the proportion of the binary-scaled variables. The variable Value flat is of primary interest and the descriptive statistics show a broad bandwidth. The variable has a minimum of 75,000 and a maximum of 750,000 EUR and a standard deviation of 121,762 EUR. From the overall 112 participants were 57% male and 43% female. The frequency about the age shows that the majority is in the age of 20-30 (70%). The professional activity in the real estate sector is balanced with 50%. About 19% stated, that they have experience in the regional real estate market in Kufstein.

<div align="right">Table 2</div>

<div align="center">

Descriptive statistics of the variables

</div>

Variable (ratio)	Mean	Min	Max	Std.-dev.
Value flat	366,843	75,000	750,000	121,762
Value car	15,000	6,000	35,000	5,268

Variable (categorical)	Proportion	Variable (categorical)	Proportion
Gender: Male	0.57	Gender: Female	0.43
Age: until 20 years	0.05	Age: 20 - 30 years	0.70
Age: 30 - 50 years	0.25	Age: over 50 years	0.00
Professional in real estate (yes)	0.50	Professional in real estate (no)	0.50
Market experience (yes)	0.19	Market experience (no)	0.81

Source: author's calculations (n=112 observations).

The allocation of the sellers was random. Seller A was assigned for 24%, Seller B 28%, Seller C 28% and Seller D 20% of the overall 112 observations. For the analysis of the deviation between the seller types, selected box plots are shown below in figure 3. From the diagrams with the different sellers it is evident that there is no correlation between the values of the flat and the car. Furthermore, it can already be seen from this presentation that there is no connection as assumed between a seller's positive or negative associations with value. For example, the average value is highest for seller A (median = 380k EUR) and lowest value for seller's B and C (both median = 350k EUR).

Box-plots of Value flat vs Gender / Marketexperiance / Professional
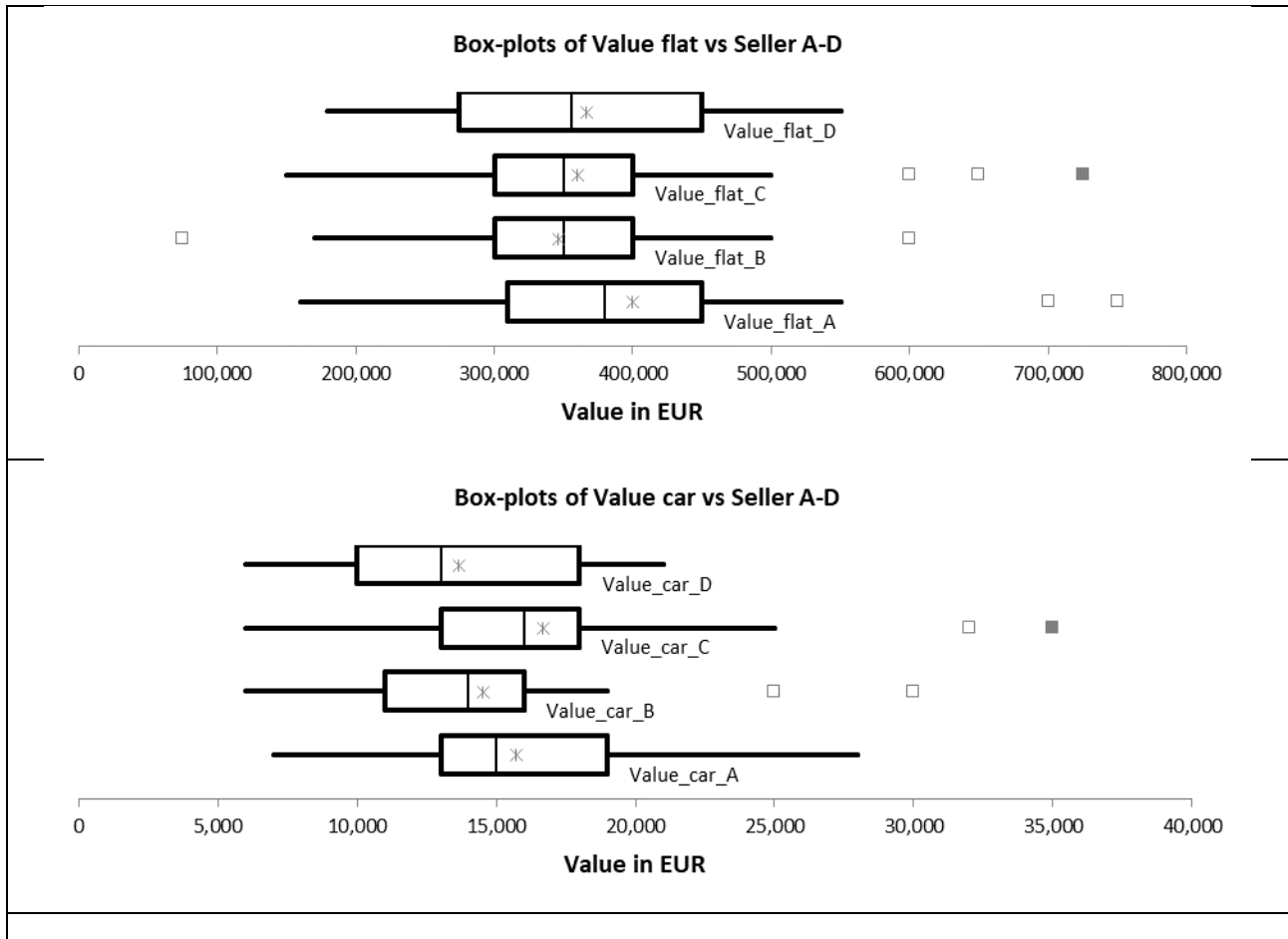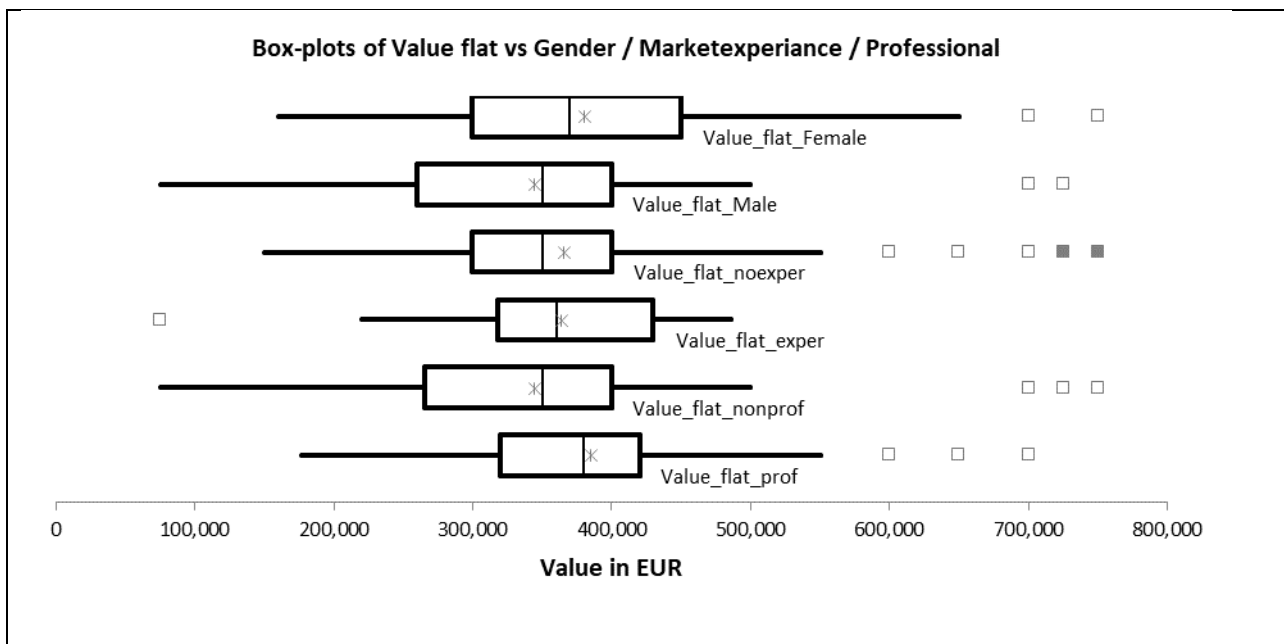
Source: author's calculations (n=112 observations).

Fig. 3: Box-plots of Value of the flat and car

The other box-plots below represent the differences of the estimated values between the sexes and the experience or profession in real estate. The women estimated a higher value than the men. The same is true for the participants with market experience and profession in the real estate. However, the range is not as high as of the participants with no experience or profession.

3. Empirical findings

The empirical findings are based on a hypothesis test and a single factor variance analysis (simple ANOVA) to analyze the difference between the mean values of the different defined groups. The results of the hypothesis test show that the seller type have no significant impact on the results.

Table 3

Independent samples test (mean)

	Value_flat_A	Value_flat_B	Value_flat_C	Value_flat_D
Sample Size	27	32	31	22
Sample Mean	399,851.85	346,031.25	359,900.03	366,388.18
Sample Std Dev	147,998.88	102,480.99	126,474.49	103,733.09
t-Test Statistic	14,0386	19,1006	15,8438	16,5667
p-Value	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Null Hypoth. at 10% Significance	Reject	Reject	Reject	Reject
Null Hypoth. at 5% Significance	Reject	Reject	Reject	Reject
Null Hypoth. at 1% Significance	Reject	Reject	Reject	Reject

Source: author's calculations (n=112 observations).

Based on the single factor variance analysis the p-value results at 0.3927 and the F-ratio at 1.01. The assumption that the seller influences the value must be rejected on the basis of the test procedures.

Conclusions, proposals, recommendations

The aim of this study was to investigate how different stereotypes of sellers can cause different reactions among the estimation of the property value. It was assumed that these positive or negative associated situations have an influence on the estimated value. In summary, the result shows that the different sellers have no significant impact on the value of the property. But the empirical data represent that the estimated values of the flat and also the car achieved in mean the offered prices. That principle is also named as wisdom of crowds (Surowiecki J., 2004). Regarding the duration of the different parts of the questionnaire, the participants dealt only very briefly with the sellers and focused on the estimation of the objectives. The analysis of the output shows, that they spent about 4-5 seconds for the description of the seller, about 116 seconds for the flat and 75 for the questionnaire. This leads to the facts, that the stimulation of the anchor effect has not taken effect. Therefore, the study should be conducted in context of a field experiment with evaluators and for example real personas or at least a video of them. So the behavior of the personas could leave an impression which is more comprehensive. The effect would probably be present, if the test persons had to evaluate the objects not neutrally, but in their own interest to purchase.

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INTERNATIONAL ACCREDITATION OF STUDY PROGRAMMES IN THE CONTEXT OF QUALITY ASSURANCE IN HIGHER EDUCATION

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Abstract. A comprehensive strategy of a modern university includes, among other things, quality assurance policy; quality assurance mechanisms are usually customized taking cognizance of the unique features of an educational organization. In the framework of quality assurance, assessment, accreditation and audit can be performed. Internal and external quality assurance procedures accompany each other, providing synergy necessary for supporting sustainable educational process. External expert accreditation is considered to be one of the most efficient tools for quality assessment of a study programme in the agenda of quality assurance in higher education. The aim of this paper is to discuss the main procedures, principles and standards used in the process of international accreditation of a study programme. The paper is based on the analysis of theoretical sources and official EU documents on quality assurance in higher education, and the author's longstanding experience as a self-accreditation expert in Transport and Telecommunication Institute. The analysis performed in the paper has allowed the author to outline the basic study programme accreditation standards applied in the context of quality assurance in higher education. The conducted analysis has also enabled the author to conclude that the implementation of European Standards and Guidelines (ESG) used as a basis for accreditation procedures in the EU countries contributes to enhancing quality provision in cross-border higher education within the European Higher Education Area. The author hopes that whatever lessons this analysis provides would be helpful to the emerging experts in the field of international accreditation, as well as policy decision-makers in the area of higher education.

Key words: *higher education, quality assurance policy, accreditation standards.*

JEL code: I29, M19

Introduction

Modern universities are concerned with ensuring continuous enhancement of the quality of their study programmes and their quality culture. The demand for quality of educational services is mainly determined by severe competition in the global education market (Štimac H. and Katić S., 2015).

An all-inclusive strategy of a contemporary university includes, among other things, quality assurance policy, which provides the means of checking that the standards and quality of higher education provision by the university meet certain requirements and norms. Quality assurance mechanisms are usually customized taking cognizance of the unique features of an educational organization. In the framework of quality assurance, assessment, accreditation and audit can be performed. Internal and external quality assurance procedures accompany each other, this way providing synergy necessary for supporting sustainable educational process. External expert accreditation can be considered to be one of the most efficient tools for quality assessment of a study programme in the agenda of quality assurance in higher education. The accreditation decision-making should be based on the established and fair procedures and standards that ensure appropriate peer input, and are publicly available. In the EU, accreditation is awarded to those study programmes that meet the educational requirements of certain internationally accepted standards.

The aim of this paper is to discuss the main procedures, principles and standards used in the process of international accreditation of a study programme. The paper is based on the analysis of theoretical sources and official EU documents on quality assurance in higher education, and the author's longstanding experience as a self-accreditation expert in Transport and Telecommunication Institute. The analysis performed in the paper has allowed the author to outline the basic study programme accreditation standards applied in the context of quality assurance in higher education. The conducted analysis has also enabled the author to conclude that the implementation of European Standards and Guidelines used as a basis for accreditation procedures in the EU countries contributes to enhancing quality provision in cross-border higher education within the European Higher Education Area. The author hopes that whatever lessons this analysis provides would be helpful to the emerging experts in the field of international accreditation, as well as policy decision-makers in the area of higher education.

Research results and discussion

1. Quality assurance as a means of providing quality education

There is strong evidence that quality assurance in Europe remains an "area of dynamic evolution" (The European Higher …, 2015). The Bologna reforms have changed the higher education landscape throughout Europe (Bucharest Communiqué, 2012). The Berlin Communiqué (2003) emphasizes the importance of the higher education quality for creating the European Higher Education Area in the context of the Bologna process (Bologna Declaration, 1999). The EU countries pursue quality improvement in higher education, as quality assurance in higher education is also crucial in enabling the comparability of qualifications across Europe (Prague Communiqué, 2001). It is also essential in the perspective of modernisation of European higher education (Modernisation of Higher …, 2014).

Implementation of a system of clear and comparable degrees for supporting the employability of the EU citizens and stimulating the international competitiveness of European higher education is in the centre of the Bologna process (Bologna Declaration, 1999; The European Higher ...., 2012; The European Higher …, 2015). In view of this, the development of quality assurance systems in higher education is regarded as an essential tool for accomplishing the strategic objective of enhanced educational quality and effectiveness, quality assurance systems being in the focus of the Quality Assurance in the European Higher Education Area (Štimac H. & Katić S., 2015). Higher education organizations in Europe are now "more compatible and comparable", quality assurance systems making higher education qualifications more recognisable across borders in the agenda of modern cross-border education (Bucharest Communiqué, 2012). So cross-border quality assurance is now becoming increasingly important (COM(2009) 487 final, 2009).

Quality assurance is a wide concept that covers various aspects, being used in different situations. In higher education, quality assurance can be defined as "policies, procedures and practices" developed to "achieve, maintain or enhance quality as it is understood in a specific context" (The European Higher …, 2015). Quality assurance aims at maintaining and enhancing the quality of various organizational services and activities. It involves particular organizational entities, standards, models and external evaluation techniques, which are applied in conformity with the internal quality management system and standards (Todorescu L., L. et al., 2014). Standards are closely associated with improving quality assurance systems (Štimac H. & Katić S., 2015). Qualification frameworks are also essential tools as for accomplishing transparency and comparability as for facilitation learners' mobility within the European Higher Education Area (London Communiqué, 2007).

The Bucharest Communiqué (2012) recognizes the role of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) in uniting countries in their efforts towards common objectives concerning

quality assurance. So the role of standards for internal and external quality assurance is vital in the agenda of providing quality education across the European Union.

The most significant policy-setting document in the area of quality assurance in higher education was adopted in 2005 – "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (2005) that assists higher education institutions (HEIs) in developing their own culture of quality assurance. The ESG include a few standards that can be used in various national contexts and in different types of HEIs, as they constitute the basis for a common understanding on quality assurance in the European Higher Education Area (Wächter B. et. al, 2015).

The above standards set up common and acknowledged practice for quality assurance in the European Higher Education Area agency (Standards and Guidelines …, 2005; Standards and Guidelines …, 2009; Standards and Guidelines …, 2015). The ESG constitute a common methodological base for quality assurance in Europe enabling quality assurance agencies to function all over Europe; so higher education institutions and quality assurance agencies can work in "an environment with similar basic structures" (Vėbra A., V. & Scheuthle H., 2013).

It should be noted that the revised ESG "rest on" on four main principles (Wächter B. et. al, 2015):

1) External quality assurance must support the creation of an appropriate internal quality assurance system within the HEIs.

2) Quality assurance is applicable to the variety of higher education systems, HEIs, programmes and students.

3) Quality assurance must also support the development of a certain quality culture.

4) Quality assurance must consider the requirements and expectations of students, other pertinent stakeholders and the society.

As stated in Berlin Communiqué (2003), the principal responsibility for quality assurance in higher education is imposed on an educational organization itself. Strategic management and quality management integrate different aspects of a higher education institution to ensure high-quality educational outcomes (Kettunen J. & Kantola M., 2007). So every HEI sets an individual quality assurance system based on its internal structure and the usage of the standards and concepts. Quality assurance policy in a modern university embraces a wide variety of activities (Standards and Guidelines …, 2005; Standards and Guidelines …, 2009; Standards and Guidelines …, 2015). In this context, continuous quality assurance is vital at both internal (institutional level) and external level (Štimac H. & Katić S., 2015).

Internal quality assurance can be defined as the "procedures, instruments, and measures" a HEI uses autonomously as for meeting external standards (criteria), as for achieving its own development goals in its numerous activities (Ganseuer Ch. & Pistor P., 2017). External quality assurance is associated with external examination performed by an independent quality assurance body that is supposed to utilize an assortment of common principles for quality assurance (A Framework for …, 2005). External quality assurance may involve the following processes:

a) "auditing" the quality of an institution, its programmes/units;

b) "benchmarking" – comparing quality at different institutions in a certain area;

c) "accreditation" – ensuring that definite pre-defined "standards" of quality are met (COM(2009) 487 final, 2009).

The choice of a particular procedure depends on different purposes; for example, audits are more focused on evaluation of the internal quality assurance system of a HEI, while accreditation is aimed at assessing if a programme/university complies with a definite standard (Wächter B. et. al, 2015).

The main issues related to international accreditation of a study programme in the frame of external quality assurance are reviewed below.

2. International accreditation of a study programme in the context of quality assurance in higher education

Quality assurance is based on the educational organizations' responsibility for the quality of their programmes and other provision; the development and improvement of study programmes is in the focus of HEIs' teaching mission (Standards and Guidelines …, 2015).

One of the most efficient instruments for quality assessment of a programme is public professional accreditation, which is performed by an independent accreditation body in line with the international guidelines and rules (Belash O. et al. 2015). Accepting a shared qualification structure and comparable systems for external quality assurance in higher education at the international level is very important in the agenda of life-long learning (Hendriks B., 2008), hence the role of European standards for institutional accreditation (both internal and external) is increasing. For study programmes, accreditation can be viewed as a keystone of the quality assurance process, which can offer valuable input and perspectives; evaluation should be closely linked to the identified programme goals (Helms R., M., 2015).

There are different forms of accreditation at both international and national levels; however, in the increasingly globalized higher education sector, accreditation by a foreign body has become an attractive strategic choice for HEIs, especially for those depending on the recruitment of international students (Practical Guidelines for …, 2016); so international accreditation helps educational institutions to become more competitive and internationally recognized (Bernhard A., 2012). International accreditation of a programme (institution) can provide an academia with external feedback regarding the present situation, and give some recommendations based on a broader external experience compared with a national procedure (Vėbra A., V. & Scheuthle H., 2013).

Accreditation performed by an independent body on behalf of a national government is closely associated with quality assurance; it allows an academia to offer a definite study programme at a particular level (Lunt I. et al., 2015). The term "accreditation" implies a) recognition assumed to a programme for meeting some appropriate criteria (including some standards) in the aftermath of an evaluation process; b) the evaluation process itself (Best Practice in …, 2015). An accredited programme must comply with a number of standards including those for planning of education, implementation of education, resources and quality management (Standards and Procedures …, 2015). Accreditation standards are statements of measurable attributes to be shown by university graduates, which demonstrate that the purpose of the study programme has been accomplished (Best Practice in …, 2015).

An accreditation assesses a certain programme in terms of its organisation, planning, implementation and development; the decision is made by the programme evaluators if the programme's operation (related to the above aspects) guarantees that its students accomplish the programme's learning outcomes, the learning outcomes including the knowledge, skills and competences that the degree graduates must demonstrate (Standards and Procedures …, 2015). An accreditation is viewed as a "collegial advisory process that is based on constructive criticism (Guidelines for Programme …, 2007). It should be also mentioned that procedures and criteria used in the process of public accreditation of a study programme are also closely associated with the effectiveness of the programme's stakeholders' feedback (Belash O. et al. 2015). Accreditation of a study programme (as an external quality assurance procedure) is to be carried out on a cyclical basis, in accordance with a set of internationally accepted standards (Standards and Guidelines …, 2015). The guidelines for accreditation of a study programme complying with the Standards and Guidelines for Quality Assurance in the European

Higher Education area (ESG) can be applied in both national and international assessment procedures (Guidelines for Programme …, 2007).

The common international accreditation standards used by the European Quality Assurance Agency (EQAA) for the accreditation of study programmes are discussed below.

3. EQAA accreditation standards for a study programme

The European Quality Assurance Agency, an international quality assurance agency, offers international accreditation to HEIs and their programmes. EQAA is operating according to the Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015) developed in the framework of the Bologna Process (Bologna Declaration, 1999). The standards presented in Table 1 are utilized for making a decision if a study programme offered by a HEI can be accredited by EQAA.

Table 1

Study programme accreditation standards

No.	Group of standards	Standard description
1.	Objectives of the study programme	- The objective complies with the university's mission and strategy - The objective directs the planning of the programme - The objective is recurrently reviewed and accustomed - Detailed and publicly available learning outcomes comply with general academic requirements, national regulations and qualifications framework
2.	Quality assurance	- The quality assurance provisions are embedded in the quality assurance system - The emphasis of the quality assurance activities is on the quality improvement - There are an appropriate structure and suitable management system for quality assurance processes - The university ensures involvement of management, staff, students and external stakeholders in the quality assurance processes - The quality assurance system embraces teaching and learning, research, engagement with the community, management, administration, support services - The programme periodically undertakes external quality assurance by an applicable body
3.	Management of the study programme	- The programme management includes its design, approval, monitoring, review - The programme is designed according to the level of qualification that students have when enrolling in the programme - The study programme is structured in a logical manner - Its staff and students are sufficiently involved in the programme management - Appropriate distribution of responsibilities is ensured - Information about the study programme is publicly available

4.	Learning and Teaching	- The learning outcomes are clear, adequate and applicable, and the learning/teaching activities are appropriately designed for accomplishing learning outcomes - The admission process is based on clear and consistently applied regulations - The programme permits and controls the recognition of previous learning - Students are supplied with sufficient learning resources and an appropriate learning environment - The assessment system contains consistently applied and transparent regulations in terms of the accomplishment of the learning outcomes - The award of a qualification(s) is escorted by appropriate explanatory documents
5.	Research	- The aims and objectives of the research constituents of the programme are consistent with the research policy and strategy of the university - The study programme ensures that its research constituents comply with internationally accepted methodological standards - The research constituents are suitable for the type and level of the programme - Sufficient and appropriate research facilities/equipment are available for staff and students - There are mechanisms to ensure compliance with ethical standards for the conducted research
6.	Community engagement	- The needs and requirements of the community are taken into consideration for the design of the programme - The programme influences and benefits the relevant community (communities) - Sufficient public information about the study programme is easily available
7.	Staff	- Staff is sufficiently qualified and experienced - Staff is regularly evaluated; it is committed to improving their performance and the programme quality - Staff is motivated to participate in professional development activities (qualification improvement) - The student-staff-ratio for the study programme is sufficient to properly implement the programme
8.	Resources	- There are sufficient financial resources - The financial resources for the study programme are efficiently managed, financial requirements being properly articulated for budgeting

Source: author's construction based on European Quality Assurance Agency classification (https://eqaa.eu/en/accreditation/standards/)

The evaluation criteria, procedures and practices applied by quality assurance agencies must be pre-established and publicly accessible; the main processes involve a self-assessment procedure, an external assessment by a group of experts including students, publication of a report with their decisions, comments and recommendations, as well as a follow-up procedures that are used to assess the actions undertaken by an academia to follow these recommendations after the visit

of the agency (Standards and Guidelines for …, 2005; Standards and Guidelines …, 2009; Standards and Guidelines …, 2015).

The operation of an independent quality assurance agency is based on a set of pre-defined principles for the greatest benefit to the higher education institutions, their students and the society itself by inspiring the enhancement of the quality of teaching/learning, research/innovation and the related activities performed by a modern academia.

4. Some commonly accepted principles for an educational programme accreditation

It is apparent from the foregoing that the process of accreditation of a study programme should conform to some commonly acknowledged principles. These principles include a few "methods and means of delivery" used in the accreditation procedures.

In Table 2, the main principles utilized in the process of an engineering programme accreditation are summarized. These principles (as well as best evaluation practices) have been created cooperatively by the European Network for Accreditation of Engineering Education (ENAEE) and the Washington, Sydney and Dublin Accords, the basic educational agreements within the International Engineering Alliance (IEA).

Table 2

Engineering programme accreditation process: the main principles

No.	Principle	Description
1.	Consistent and fair procedures	- The accreditation process is well-documented - Assessment of programmes and decision-making are based on appropriate, consistent and unbiased procedures with due account for the fundamental criteria for accreditation - The evaluation process may consider groups of related programmes together
3.	High standards of professionalism	Programme evaluators work consistent with high standards of professionalism, ethics, neutrality and objectivity
4.	Providing confidentiality and transparency	- The accreditation system should give full information to all stakeholders providing an appropriate balance of transparency and confidentiality - Within the accreditation process of a programme, evaluators observe confidentiality regarding information obtained in the course of the accreditation process; they are open with the provider - Outside of the evaluation of an individual programme, the accreditation system is completely transparent; official and recorded policies, standards, criteria and procedures are publicly available
5.	Avoiding conflict of interest	- A clear conflict of interest policy for all parties involved in the accreditation process is in place - Practices for avoiding conflict of interest at any stages of the accreditation process are in place
6.	Careful choice of peer evaluators	Evaluations of programmes are conducted by peer evaluators having disciplinary knowledge of the study programme

7.	Participation of students in the accreditation process	- Students contribute to evaluation of programmes in fields where they are competent: student services, assessment of results, teaching and learning facilities, library provision, scheduling, pedagogical methods, workload, etc.
8.	Periodic re-evaluation	The accreditation process includes periodic re-evaluation and a follow-up process for dealing with the recommendations developed by the programme evaluators
9.	Pre-visit completion of a self-assessment report	Pre-visit completion of self-assessment report is made by the provider of the study programme utilizing a structure and format specified by the agency
10.	Preparing a detailed visit schedule	- The visit schedule gives the evaluators sufficient time and opportunity to collect, check and assess all necessary information - The visit schedule presuppose interviews the main stakeholders of the programme and visiting all available facilities
11.	Careful and objective accreditation decision-making	- Accreditation decision- making is criterion-based assessment - Accreditation decision- making is based on a rational approach to dealing with non-compliant programmes
12.	Using defined reporting protocols	- Accreditation reports use uniform ways of recording recommendations and decisions with evaluation templates or questionnaires - The agency provides a written report to the HEI, which contains 1) the actions necessary for the education provider to gain accreditation; 2) the actions recommended for improving the study programme
13.	Making the accreditation results publicly available	The agency makes a list or searchable database of accredited programmes available to the public
14.	Compliance with published accreditation policies/procedures	Programme evaluators ensure that accreditation visits are made consistent with their own publicly available accreditation policies and procedures

Source: author's construction based on Best Practice in Accreditation of Engineering Programmes: An Exemplar (2015)

All steps of the programme accreditation process must be well-documented; there is a variety of documents to be included in the application for accreditation for further evaluation. Typically, the following documents must be prepared in advance (Accreditation Criteria, Guidelines …, 2012): a) self-assessment reports; b) annexes – academic regulations, description of the educational objectives and intended programme outcomes, curriculum and module description, statistics and figures on recruitment and programme outcomes, examples of degree certificates and diploma supplements, etc.; c) quantitative data – title of the programme, tuition fees, duration of the programme, research environment, number of students including international students, student life, links with employers; d) quality manuals; e) stakeholders' surveys, etc. The comprehensive self-documentation by a HEI must reflect how the study programme is integrated in the overall strategy of this organization, and how it complies with certain legal regulations (Guidelines for Programme …, 2007). In the course of the on-site visit the following associated documents have to be prepared (Accreditation Criteria, Guidelines …, 2012): a) preparatory meeting documents; b) documents providing evidence of the actual functioning of the study programme; c) documents related to the discussion with the programme management team and the HEI directorate, discussion with the teaching staff, discussion with administration and services staff, discussion with employers' representatives, discussion with alumni; d) documents related to the visit to the organizational facilities; e) concluding discussion with the management team of the study programme.

The final evaluation report generated by the expert group will contain description of

1) the assessment and accreditation procedure itself;

2) the initial situation (short depiction of the institution and the context of the study programme);

3) the evaluation section (the programme's objectives, concept, implementation, quality assurance and development);

4) recommendations to the accreditation commission that would contribute to the optimisation of the study programme (Guidelines for Programme …, 2007).

Conclusions, proposals, recommendations

The analysis provided in the paper has allowed the author to draw the following conclusions.

1. In the increasingly globalized higher education sector characterized by severe competition for attracting and retaining young talents, quality assurance is regarded as a means of providing high quality education, quality assurance policy being an integral part of the overall university's strategy.

2. In the frame of quality assurance in higher education, a few external quality assurance procedures are used including auditing, benchmarking and accreditation.

3. There exist different forms of programmes accreditation at both international and national levels, international accreditation being viewed as a strategic choice for a modern academia in the highly competitive global education market.

4. In the EU, accreditation of a study programme should be performed in line with internationally accepted standards – Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) developed in the framework of the Bologna Process.

5. The standards are categorized into several groups including objectives of the study programme, quality assurance, management of the study programme, learning and teaching, research, community engagement, staff and resources.

6. Accreditation of a study programme is carried out by an independent quality assurance agency, which applies a set of pre-established and publicly available evaluation criteria and procedures that conform to the commonly acknowledged principles.

7. These basic principles include using clear, fair and consistent assessment criteria, high standards of professionalism, supporting confidentiality and transparency, eliminating conflict of interest, involving students and other stakeholders in the accreditation process, objective accreditation decision-making, careful choice of competent and experienced peer-evaluators, periodic re-evaluation, making the accreditation results publicly available, etc.

8. All stages of the programme accreditation process must be carefully documented; the documents embrace the self-documentation (with appendices) prepared by an accredited institution, the documents prepared by an agency before and in the course of the on-site visit, as well as the final evaluation report.

9. The final assessment report for the accreditation of a study programme must contain sufficient information and clear conclusions (recommendations). The findings are generated based on quantitative and qualitative data collected throughout the evaluation.

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ANALYSIS OF ECONOMIC SECURITY IN THE BALTIC STATES IN CONTEXT OF LIFE QUALITY

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Abstract. Life quality and human well-being is a very important topic in the science of economics. Economic security of individuals is often analysed in the context and framework of life quality, yet still there is no common approach for this kind of analysis. Previous research about economic security in the Baltic States in context of life quality is very limited.

The aim of this paper is to describe and systematize theoretical background of economic security as part of life quality framework and to analyse the economic security in the Baltic States in context of life quality.

The authors have done literature review about life quality and economic security and created a framework for analysing economic security in context of life quality, drawing attention to the main applicable statistical indicators. Authors have also analysed these economic security indicators in the Baltic States based on the above mentioned framework for the last nine years.

Authors have concluded that there are differences in the economic security situation between the Baltic States. Authors have described and analysed the various situation in different aspects of economic security in Latvia, Lithuania and Estonia. Authors have indicated the fields where improvements are necessary to advance economic security and life quality of individuals in the Baltic states.

This research paper contributes to theoretical and practical research of economic security as there have been very few research papers about this topic in the Baltic States. The paper also contributes to the ongoing discussion about economic security and life quality interconnections.

Introduction

There have been a lot of research in the field of life quality (also "quality of life" – authors will use these two as synonyms in this paper) in the past years, not so much – in the field of economic security. Researchers have tried to find links and interdependences between these two issues. Economic security of individuals can be analysed in the context and framework of life quality, yet still there is no common approach for this kind of analysis. Previous research about economic security in the Baltic States in context of life quality is very limited.

In this study the authors have looked at previous research on economic security in context of life quality, describing the theoretical background on these issues. Based on the previous theoretical research, the authors have proposed a framework of economic indicators which can be used to analyse economic security in the context of life quality.

The aim of this paper is to describe and systematize theoretical background of economic security as part of life quality framework and to analyse the economic security in the Baltic States in context of life quality. The research question is how the economic security have changed in the Baltic states in the last decade. The tasks of the research are to do the literature review on the topic, systemize and analyse the literature, create a framework of statistical indicators which can be used to analyse the topic, and finally to analyse and interpret the data about Baltic states. The authors have used literature analysis and analysis of statistical data to reach the aim of the research. The analysis of statistical data has been done for years 2008-2016, looking at the recent financial crisis and post-crisis period. The authors have used data provided by EUROSTAT.

As the research on the topic have been very limited in the past years, this paper contributes to the development of the research in the field of economic security in the Baltic states. The results of the paper can be further used to indicate the problems and areas where actions must be taken in order to improve economic security and life quality of individuals.

Research results and discussion

1.   Theoretical background

The term "quality of life" was used in economic research for the first time in the second half on the twentieth century. Oxford dictionary defines "quality of life" as the standard of health, comfort, and happiness experienced by an individual or group (Oxford dictionary). Parmenter interprets quality of life as the level to which an individual has been able to meet his/her needs (Parmenter T.R., 1992). Goode has stated that quality of life has been ensured if an individual has a possibility to meet such needs as shelter, education, job, social life and living a "normal" life defined by society (Goode D., 1990). Cummins writes that quality of life is a sum of objective and subjective factors which include material well-being, health, productivity, security, social life and emotional wellness (Cummins R.A., 1997). The idea of the quality of life is central to economic and social assessment and also to public policy, social legislation, and community programs (Nussbaum M. & Sen A., 1993). From the definitions from the academic literature mentioned above the authors can conclude that the meaning of the term is explained a bit differently by several authors, yet the core idea remains the same – the quality of life means meeting different needs of individuals. It is also important to take into account that the criteria of how life quality is defined are different in various societies and cultures. Quality of life is a multi-dimensional concept based on a complicated causality of mutual relationship of their indicators (variables) (Murgas F. & Bohm H., 2015). Because of that, when analysing life quality, very concrete criteria (variables) must be chosen, and these criteria may be different for each region, culture, society etc. There are two main different approaches to the idea of quality of life in academic context. The first is the welfare theories – a number of conditions must be met in order for the population to have a life of good quality. One of the most popular authors of this approach, Amartya Sen, states that meeting these conditions help people to improve their quality of life and prosper as human beings (Sen A., 1999). The other approach is defined as a multi-dimensional assessment of a person's life, including cognitive and affective reactions to life as a whole or certain it's fields (Eid M. & Diener E., 2003).

Similarly to quality of life, economic security is also an interdisciplinary term (concerning economic science and security); it is not a new concern (Kahler M., 2004) and there are several definitions for this phenomena. It can be analysed at three levels – macro (national economic security), mezzo (economic security of enterprises) and micro (individual economic security). For this study the authors will use only the micro (individual) level for analysis. Bonoli defines economic security as a level to which citizens are secured against the risk to get in a situation when they have no income or the income is not enough to provide a worthy living standard (Bonoli G., 2003). Wolfson states that economic security means avoiding from very low income, and it can also be defined as conservation of living standard during economic

volatility – during recession, high level unemployment period, during sickness, invalidity or during retirement years (Wolfson M., 2011). Economic security can also be defined as stable incomes and other sources in order to maintain a standard of living in the present and in the foreseeable future which means: continuous solvency, predictable cash-flow, efficient use of human capital (Rupert M., 2007). Hacker, which is the leading academic researching economic security in the United States of America, defines economic security as the degree to which individuals are protected against hardship-causing economic losses; Hacker also emphasizes that the basis for concern about economic security is the belief that uncertain economic prospects leave people worse off (Hacker J., 2010). Economic security is composed of basic social security, defined by access to basic needs infrastructure pertaining to health, education, dwelling, information, and social protection, as well as work-related security (International Labor Organization, 2006). If we compare all these definitions, it can be concluded that economic security is mainly connected with stable income (and therefore job security) and assets available to individuals to provide them a worthy living standard and be able to finance themselves during different parts of economic cycle, especially recession.

There are certain links between economic security and life quality. It can be concluded from the definitions mentioned above that individual economic security can be viewed as a dimension of life quality – security against the risk to be in the situation with no financial assets for living and meeting different needs of individuals. In both rich and poor nations, fears about what the economic future may hold are important for two main reasons – they subtract from individuals' enjoyment of the present and they influence behaviours (Osberg L., Sharpe A., 2013). Research made by EUROSTAT confirms this as economic security has been named as one of dimensions of quality of life (see the next chapter). Gubaidulina and Ivanova have linked these two issues (economic security and quality of life) to create a model for estimating the level of economic security by the parameters of quality of life. This enables to distinguish a zone of normal security level, a critical level zone and a pre-crisis zone. The critical values of the initial indicators are determined on the basis of the minimum acceptable level of safety whose overcoming would mean a transition to an economically dangerous zone (Gubaidulina T. & Ivanova N., 2017). In the next chapters the authors will look at this and other models for analysing economic security in context of life quality.

2. Framework for analysis of economic security in context of life quality

Over the past decade there have been growing demands from academic sector, political sector and public to develop better approaches to measure economic and social progress and to monitor well-being in a more comprehensive way. More and more it is accepted that economic growth measured as GDP will not automatically lead to greater satisfaction in people's lives. Even the Human Development Report is not comprehensive enough to describe welfare, well-being and quality of life (Rokicka E., 2014). There is a need to develop measures that complement GDP to evaluate the social and environmental costs and benefits of services, products, and policy options (Palumbo L., 2013). This is the reason why different methods of measuring quality of life and human well-being have been developed in the recent years.

Because of the various definitions there are also different methods how to assess quality of life (Panagiotakos B. & Yfantopoulos J., 2011). Kapozsta, Illes and Nagy states that the main quality of life models consider mainly material welfare (Kapozsta J., Illes B. & Nagy H., 2017), which is affirmed in the next paragraphs where the authors describe different models.

Specifically for this study the authors will look at the ways how only the economic security can be calculated and analysed as a part of quality of life model. It means that the indicators which are attributed to national economic security will not be taken account, as quality of life is an issue which is mostly analysed at individual level, taking into account the needs of individuals. In the next paragraphs the authors will mention different methods how to analyse economic security in the context of quality of life.

A set of indicators which can be used to analyse the life quality in different countries is provided by EUROSTAT. These indicators are divided in 9 dimensions (these dimensions are created based on academic research): material living conditions, productive or main activity, health, education, leisure and social interactions, economic and physical safety, governance and basic rights, natural and living environment, overall experience of life (EUROSTAT, 2017). The dimension of economic safety is applicable to this research, as "economic safety" is used as a synonym for "economic security" in this context. EUROSTAT suggests to use the following statistical data to analyse the economic security in context of life quality:

1. Population unable to face unexpected financial expenses (percent of total population);

2. Arrears on mortgage or rent payments (percent of total population);

3. Population in arrears (mortgage or rent, utility bills or hire purchase), (percent of total population) (EUROSTAT, 2017).

This approach corresponds to finance-oriented societies in context of neoliberal economies, where borrowing money in order to reach a certain level of life quality can be viewed as a norm.

Gubaidulina and Ivanova propose to use the following statistical indicators to analyse the economic security in context of life quality:

1. Gini coefficient;

2. The population with income below the subsistence level (percent of total population);

3. The average monthly gross wage of 1 employee (Gubaidulina T. & Ivanova N., 2017).

This approach, on the other hand, takes into account only the income aspect, which may not be enough to analyse and discuss economic security.

Udovič provides the following indicators to measure the economic security at micro level:

1. Stability of state macroeconomic environment;

2. Food, water, shelter stability;

3. Lodging, Job security, stability;

4. Stabile and "fair" wages;

5. Trust in institutions;

6. Minimising (absolute and relative) poverty;

7. Minimising social exclusion (maximise individual reputation);

8. Education;

9. Minimising phobias and various – isms;

10. Degetoising, free movement of individuals;

11. Avoiding the "magic circle" of living standards and employment (Udovič B., 2006).

Udovič uses different threats, and certain level of economic security and life quality can be reached when these threats are eliminated. Not all of the indicators used by Udovič can be used to analyze the economic security in context of life quality, as not all of the indicators are used to measure the life quality. The authors propose to use 5 indicators in 3 fields to analyze economic security in context of life quality, combining different indicators from the models described above (see Table 1). The explanation for choosing these indicators are also included in the table.

Indicators measuring economic security in context of life quality

Field	Indicator	Explanation
Individual economic stability	1. Population unable to face unexpected financial expenses.	The more individuals are able to face unexpected expenses, the better their economic security and life quality is.
Financial possibilities for individuals	2. Arrears on mortgage or rent payments. 3. Population in arrears (mortgage or rent, utility bills or hire purchase). 4. The population with income below the subsistence level.	The more free financial resources the individuals have, the better their economic security and life quality is.
Education and job security	5. Employment rate of recent graduates	Having an education and a job is a precondition for better economic security and life quality

Source: author's analysis.

Authors have chosen these five indicators for several reasons. As quality of life is mainly connected with meeting different needs of individuals, authors conclude that it is important to look at the economic and financial possibilities of the individuals to meet their needs. Because of that authors propose to analyse individual economic stability (using population unable to face unexpected financial expenses as an indicator), financial possibilities for individuals (using arrears on mortgage or rent payments, population in arrears and population with income below the subsistence level as indicators) and education and job security (using employment rate of recent graduates as indicator). The authors have chosen the indicators which meets the conceptual ideas of quality of life and economic security. The authors have chosen the criteria which could be described as more objective compared to others and which would reflect the real situation. Authors have avoided to include, for example, Gini coefficient because of its critics and have instead tried to include indicators which are not used so widely. This model is the proposal of the authors how the economic security can be analysed in context of life quality. Modification of this framework is possible (and even necessary) based on further discussion. In the next chapter the authors will approbate this model of five indicators while analysing the situation in the Baltic states.

3. Economic security in the Baltic states

Authors have analysed the economic security in context of life quality in the Baltic states using the model described in the previous chapter. The authors have done the analyses for years 2008-2016, looking at the recent financial crisis and post-crisis period. This period was chosen also because of the availability of the data. The authors have not analysed the population with income below the subsistence level as such data was not available for all Baltic states for the chosen period.

Figure 1 shows the inability to face unexpected financial expenses. The trend is very similar for all three Baltic countries in all years. People in Latvia are most vulnerable to unexpected expenses, Lithuania following shortly behind, but people in Estonia are more ready for such situations. After the crisis in 2008 ability of people to face unexpected expenses decreased dramatically, reaching the worst situation in 2011. In 2011 80.4% of people in Latvia were not able to face unexpected expenses (in Estonia – 44.7%), but the situation has improved after 2011 in all countries – in 2016 60% of people in Latvia cannot face unexpected expenses, 53.2% in Lithuania and only 31.6% in Estonia.
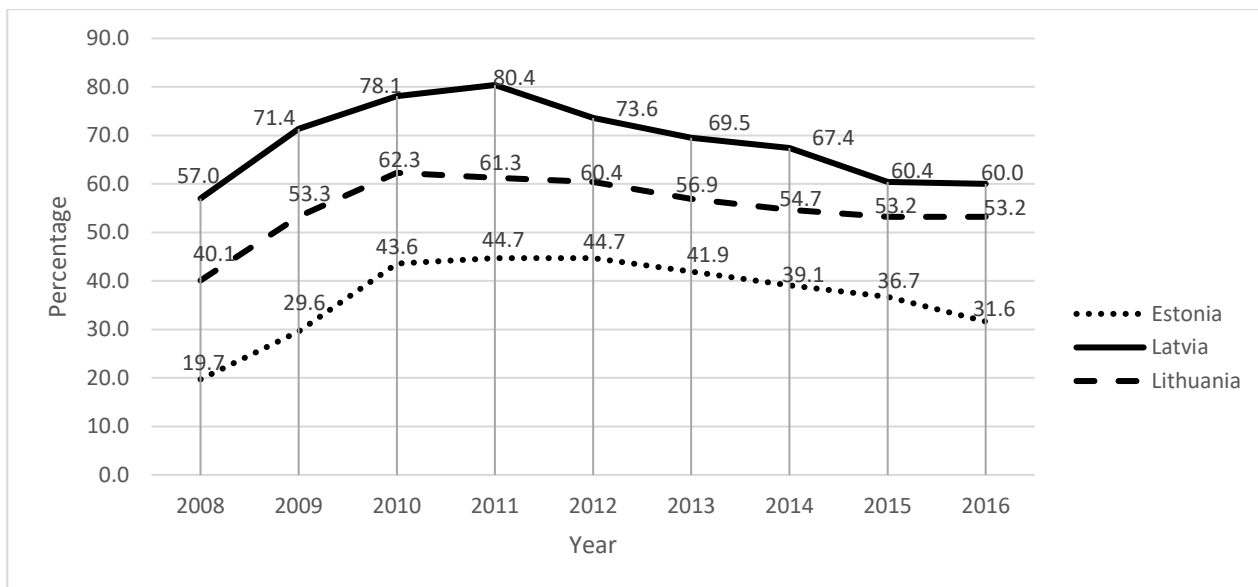
Source: author's construction based on EUROSTAT data

Fig. 1. **Inability to face unexpected financial expenses, percentage of total population**

Figure 1 shows that the recent crisis has been a threat in a financial aspect. During the financial crisis there was a trend in the Baltic states that the salaries were reduced for many individuals in order to save the jobs (although many people also lost their jobs) and minimal existence level. Based on the data authors suspect it would be necessary to improve the ability of individuals to face unexpected financial expenses in Latvia and Lithuania. It could be achieved by raising the minimum wages or decreasing the tax burden on employees.

Figure 2 shows the percentage of population which have arrears on mortgage or rent payments. This indicator is important to describe the economic security of individuals as having a shelter is one of basic needs. The situation is different in each country. In Latvia there is the highest rate of arrears, it has increased after the financial crisis (6.7% in 2011), but decreased significantly in the last years (reaching 2.7% in 2016). In Estonia the arrears rate has increased after the crisis and have been stable since 2010 at around 2%. In Lithuania the arrears rate is the lowest in the Baltic states – in the post crisis period it has never been higher than 1.7%, but has increased in the last years.
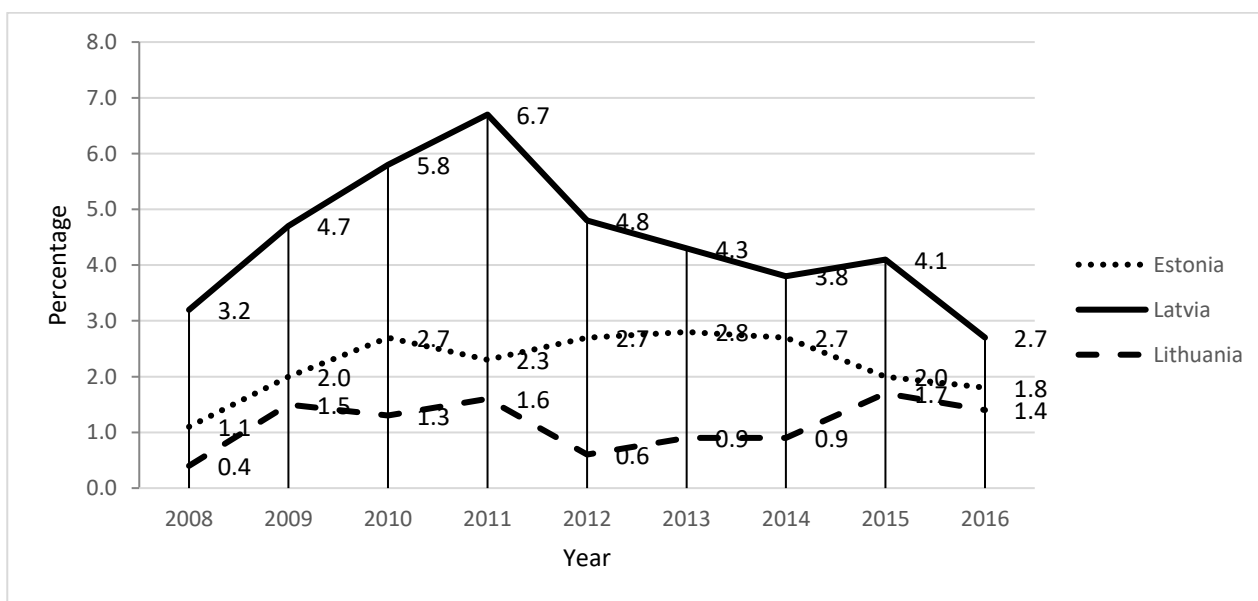
Source: author's construction based on EUROSTAT data

Fig. 2. **Arrears on mortgage or rent payments, percentage of total population**

Figure 3 describes the population in arrears (not only mortgage or rent, but also arrears on utility bills or hire purchase). Here the situation is a bit different from the one seen in Fig. 2. The highest part of population in arrears is still in Latvia, reaching the maximum (25.2% of the total population was in arrears) in 2010, but it has decreased since then and was 14.9% in 2016. The situation is very similar in Lithuania and Estonia, where around 9-13 % of the total population was in arrears in 2008-2016. In 2016 the best situation is in Estonia, where only 8.9% of the total population was in arrears. Authors suppose that this can be explained also by historical factor – during the Soviet occupation regime, individuals in the Baltic states had very limited possibilities to raise their life quality. After regaining the independence in 1991, people had a chance to borrow money in order to improve their quality of life (build new houses etc.). As this was all new, people were not financially educated enough and had very hard times during the financial crisis when many borrowers were not able to commit and lost their housing.
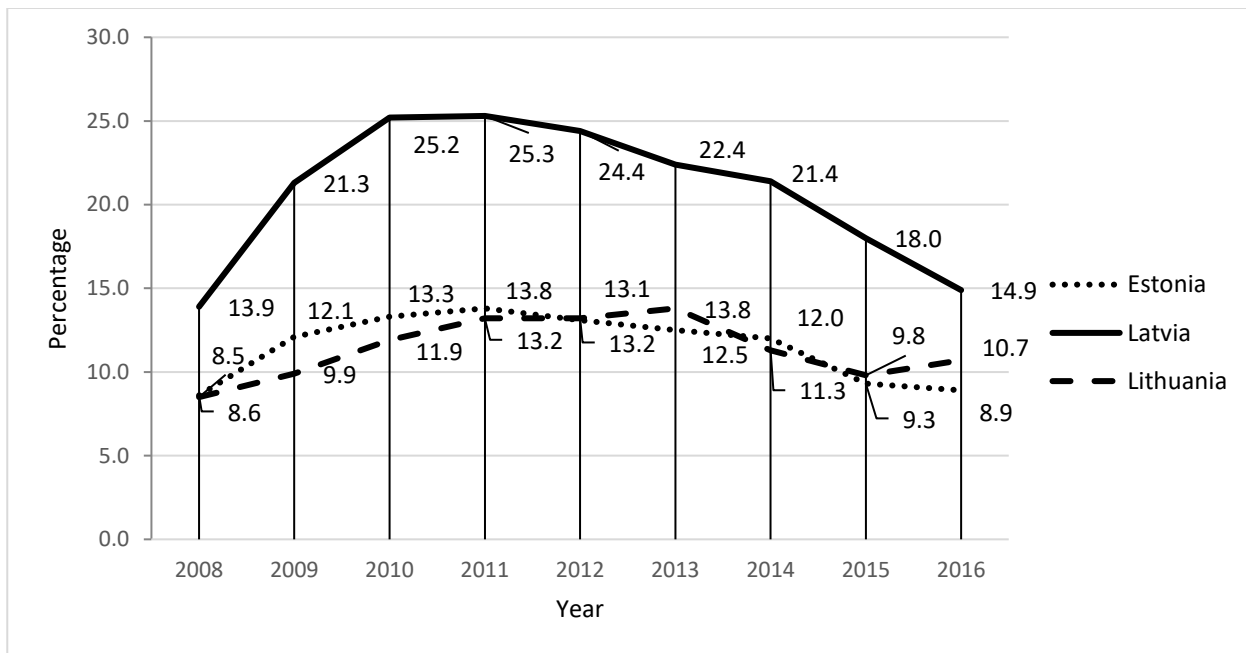
Source: author's construction based on EUROSTAT data

Fig. 3. **Population in arrears (mortgage or rent, utility bills or hire purchase), percentage of total population**

Authors think it would be necessary to reduce the population in arrears, especially in Latvia. To achieve this aim, a comprehensive policy is necessary by the government to improve the overall economic situation, monitor the rates of utility bills (and intervene if necessary), have stricter regulations on crediting (there are improvements since the financial crisis) and educate the society in household budget planning.

Figure 4 describes the employment rates of recent graduates. Fig. 4 shows very clearly the employment problems the countries were facing during and after the financial crisis.
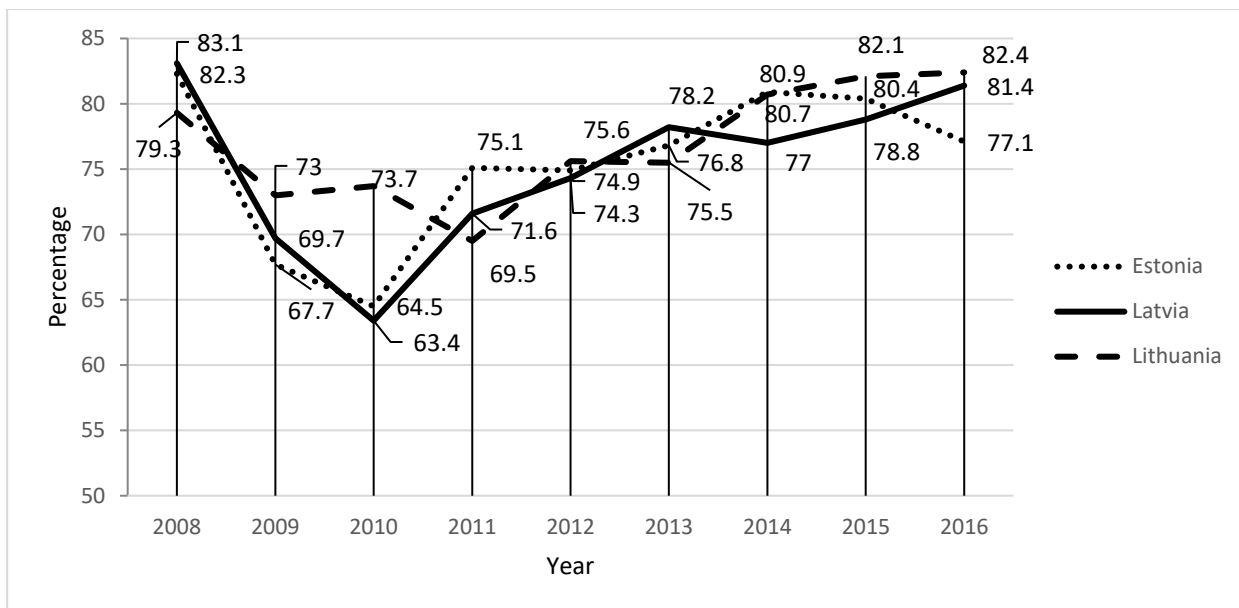
Fig. 4. **Employment rates of recent graduates, percentage**

It can be concluded that the most stable employment situation is in Lithuania, for example, in 2016 82.4% of recent graduates could find a job, and the lowest point was only 71.6% in 2011. In Estonia the lowest point was in 2010 (employment rate 64.5%), and the same in Latvia (employment rate 63.4%). The situation has become better after the post crises period, yet still in Estonia the employment rate of recent graduates is falling in the last years. Authors suggest that the governments should participate in increasing the employment rates of recent graduates (for example, by setting priority study fields based on market demand, running support programs for new professionals etc.).

The compilation of all the data discussed before can be found in Table 2. The authors compiled the data about four indicators for all three Baltic states for years 2010 (year after the financial crisis, when the effects of the crises could be felt very strongly) and 2016 (year when the economic in all Baltic states was growing).

Table 2

Changes in economic security in the Baltic states

Indicator	Level in 2010	Impact	Level in 2016	Impact
Inability to face unexpected financial expenses	78.1% (Latvia) 62.3% (Lithuania) 43.6% (Estonia)	The level of economic security and quality of life decreased compared to the previous years	60% (Latvia) 53.2 % (Lithuania) 31.6% (Estonia)	The level of economic security and quality of life increased compared to 2010
Arrears on mortgage or rent payments	5.8% (Latvia) 2.7% (Estonia) 1.3% (Lithuania)	The level of economic security and quality of life decreased compared to the previous years	2.7% (Latvia) 1.8% (Estonia) 1.4% (Lithuania)	The level of economic security and quality of life increased compared to 2010
Population in arrears	25.2% (Latvia) 13.3% (Estonia) 11.9% (Lithuania)	The level of economic security and quality of life decreased compared to the previous years	14.9% (Latvia) 8.9% (Estonia) 10.7% (Lithuania)	The level of economic security and quality of life increased compared to 2010
Employment rates of recent graduates	73.7% (Lithuania) 64.5% (Estonia) 63.4% (Latvia)	The level of economic security and quality of life decreased compared to the previous years	82.4% (Lithuania) 77.1% (Estonia) 81.4% (Latvia)	The level of economic security and quality of life increased compared to 2010

Source: author's analysis.

The table shows very clearly that tendencies in all three Baltic states are very similar: the level of economic security in context of life quality has decreased after the financial crisis in 2008, but the situation has improved since, and in 2016 all the indicators show better situation than in 2009 – the ability of the population to face unexpected expenses has improved, the population in arrears has dropped, and the employment rate of recent graduates has slightly increased.

Conclusions, proposals, recommendations

1. There are certain links between economic security and quality of life. Economic security is often being referred to as one dimension of life quality. The indicators which characterize quality of life are different for various regions, cultures and societies.

2. There are different methods mentioned in the academic literature how to analyse and calculate quality of life. The authors have described the methods which take into account the economic security dimensions. The authors propose to use five indicators (population unable to face unexpected financial expenses; arrears on mortgage or rent payments; population in arrears; population with income below the subsistence level; employment rate of recent graduates) to analyse economic security in context of life quality. The modifications of this model is possible after further discussions.

3. Authors have used the model to analyse the economics security in context of life quality in the Baltic states. The main conclusion is that the economic security of people in Baltic states has increased in post crisis period (ability to face unexpected expenses has increased, but the population in arrears has decreased), yet the situation is different in various fields of economic security.

4. The inability of citizens to face unexpected financial expenses decreased in all three Baltic states after the recent financial crisis. The ability to face unexpected expenses had not returned to the pre-crises level in 2016 yet.

5. The number of population in arrears increased dramatically after the recent financial crisis, which could be explained with the historical factor – after regaining independence in 1991, a significant part of the population in the Baltic states took loans to improve their life quality (buying apartments, houses etc.). The number of population in arrears have almost returned to the pre-crises level in 2016.

6. Employment level of recent graduates is an important indicator as it reflects the possible economic security of the recent graduates in all three Baltic states. The employment level decreased sharply after the recent financial crisis, but has improved in 2016.

7. Authors have several recommendations for policy makers based on the analysis described above. Firstly, it is necessary to improve the ability of individuals to face unexpected financial expenses in Latvia and Lithuania. It could be achieved by raising the minimum wages or decreasing the tax burden on employees. Secondly, it would be necessary to reduce the population in arrears, especially in Latvia. To achieve this aim, a comprehensive policy is necessary by the government to improve the overall economic situation, monitor the rates of utility bills (and intervene if necessary) and educate the society in household budget planning. Thirdly, the government should participate in increasing the employment rates of recent graduates (for example, by setting priority study fields based on market demand, running support programs for new professionals etc.).

8. Authors suggest that further research in this filed is necessary to develop the theoretical background and improve the research methods (for example, approbate the model of five indicators described in this paper in other countries and make further improvements to the model, changing/adding new indicators in order to get more reliable depiction of the economic situation).

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THE THEORETICAL AND PRACTICAL ANALYSIS OF TURNOVER RATIOS MODIFICATION FOR THE COMPANY'S BUSINESS ACTIVITY

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Abstract. The financial aspect of the business activity of an enterprise firstly appears in the speed of turnover ratios. In order to analyze the business activity, one must study the levels and dynamics of various turnover ratios. This article's perspective - indicators of turnover are based on the data of the financial reports of the companies from the 19th century. Eventually the annual statements of the companies were enhanced with new components such as: *Accrued income, Accrued liabilities, Non-current assets held for sale and discontinued operations, Investment property* which in the 19th century were not shown on debtors and liabilities reports. Studying international scientific literature and articles – the authors analyzed methods of turnover ratio calculations from various schools of financial analyses. In the analyses of financial statements not all the components of turnover ratios should be used for an accurate and reliable result of turnover ratio calculations.

The aim of this research is to study methods of turnover ratio calculations and to modify the constituents of turnover ratios based on the empirical research.

The authors of this paper are using international scientific literature and articles to understand the different schools of financial analysis. For the empirical research, in order to compare the traditional and modified calculation of turnover ratios, the authors have used the data from annual statements of Latvia's most profitable companies of various industries over a five-year period. In the research the authors have applied quantitative and qualitative methods of economic analyses such as the mathematical and the statistical method, the ratio analysis, the graphical method and logically – constructive methods. At the end of the research the authors have summarized the general conclusions and findings:

- the most popular interpretation of turnover ratios to be used for financial analyses;
- in some cases, the use of book value instead of average for turnover ratios calculation gives more accurate results;
- to compare GAAP and IFRS terminology interpretation for turnover ratios;
- to modify turnover ratios based on new posts in the annual reports;
- to offer abbreviation of turnover ratios for Latvian users of financial analyses.

Key words: *accounting, modification, turnover, analysis.*
JEL code: M41, M49

Introduction

Financial analysis is broadly used at the companies to determine the financial results and performance. Financial analysis plays an important role when measuring corporate performance and financial management of company. The financial aspect of the business activity of an enterprise firstly appears in the speed of turnover ratio. The analysis of the business activity is to study the level and dynamic of various turnover ratios.

We often can heart that accounting is the language of business. Financial analysis means different things to practitioners across a wide range of industries disciplines, regulatory authorities and standard setting bodies (Brammertz and etc., 2009).

This article's perspective - indicators of turnover ratios are based on the data of the financial reports of the companies from the 19th century. Eventually the annual statements of the companies were enhanced with new components such as: *Accrued income, Accrued liabilities, Non-current assets held for sale and discontinued operations, Investment property* which in the 19th century were not shown on debtors and liabilities reports.

The aim of this research is to study methods of turnover ratio calculations and to modify the constituents of turnover ratios based on the empirical research.

The research tasks are as follows:

- To analyze the turnover interpretations by different schools of financial analysis, to choose most popular turnover ratios interpretation from fifteen researchers of financial analysis from American, French, Russian, English and German schools;

- To underline the same components of balance sheet used under different name, when translated from other languages or when different terms are used in British or American English applying different standards in work GAAP or IFRS;

- To offer modification of four turnover ratios, where authors see result changes possible: accounts receivable, inventory, accounts payable, fixed assets, turnover ratios;

- To propose an option of turnover ratio designation for Latvian users us for common use of the modifiable ratios;

- Based on the scientific literature, to compare the common and modify the calculation on the turnover ratios.

The methodology is based on scientific literature, and annual reports of nine Latvian manufacturing companies whose shares are listed on the Baltic exchange.

Data from annual statements over a five-year period from 2012 to 2016 was used for this research. Theoretical approaches starting from year 2000 have been analyzed. In this research, the authors have applied quantitative and qualitative methods of economics such as the mathematical and the statistical methods, the ratio analysis, the graphical method, logically – constructive methods.

1. Theoretical approaches of calculation turnover ratios

Such ratio essentially involves turnover relationships and express, in various forms, the relative amount of capital used to support the volume of business transacted (Helfert E.A., 2010).

Based on previous research carried out by the authors where large and medium-sized Latvian companies were selected in different types of fields of activity, the most demanded turnover ratios have been revealed and analyzed.

The authors of this paper offer definitions for each modified explorer ratio.

Accounts receivable turnover measures the ability of a company to efficiently issue credit to its customers and collect it back in a timely manner. A high turnover ratio indicates a combination of a conservative credit policy and an aggressive collections department, while a low turnover ratio represents an opportunity to collect excessively old receivables that are tying up working capital. This is useful information for a financial analyst, since a customer with its own collection problems is less likely to pay its suppliers on time (Bragg S., 2014).

The inventory turnover ratio is the rate at which inventory is used over a measurement period. This is an important measurement, for many businesses are burdened by an excessively large investment in inventory, which can consume available cash. When there is a low rate of inventory turnover, this implies that a business may have a flawed purchasing system that bought too many goods, or that stocks were increased in anticipation of sales that did not occur. In both cases, there is a high risk of inventory aging, in which case it becomes obsolete and has little residual value (Bragg S., 2014).

Inventory is frequently the largest component of a company's working capital; in such situations, if inventory is not being used up by operations at a reasonable pace, then the company has invested a large part of its cash in an asset that may be difficult to liquidate in short order (Bragg S., 2007).

Accounts payable turnover measures the speed with which a company pays its suppliers. If the turnover ratio declines from one period to the next, this indicates that the business is paying its suppliers more slowly and may be an indicator of worsening financial condition. A change in the turnover ratio can also indicate altered payment terms with suppliers, though this rarely has more than a slight impact on the overall outcome of the ratio. If a company is paying its suppliers very quickly, it may mean that the suppliers are demanding fast payment terms (Higgins, R.C., 2016).

The fixed asset turnover ratio is the ratio of net sales to net fixed assets. A high ratio indicates that a company is doing an effective job of generating sales with a relatively small amount of fixed assets. Conversely, if the ratio is declining over time, the company has either overinvested in fixed assets or it needs to issue new products to revive its sales (Bragg S., 2014).

Table 1

Summary of difference financial analyses schools of the terminology use

Nr.	Authors/ Financial Ratios Terminology	CFA Institute USA	CIA Institute USA	Dybal S.	Sheremet A. and Negashev	Giroux G.	Richard Z.	Kovalov V.	Bernstein L.	Bragg S.	Brigham E.	Helfert E.	Higgins R.	Palepu K.	Richard Z.	Jefimova O.
1.	*Accounts Receivable Turnover Ratio*															
1.1.	Sale												X	X		X
1.2.	Net Sale				X	X	X			X	X	X			X	
1.3.	Net Credit Sale								X							
1.4.	Accounts Receivable								X			X		X		
1.5.	Total Revenue	X	X	X				X								
1.6.	Average Accounts Receivable	X	X	X	X	X	X	X		X	X				X	X
2.	*Inventory Turnover Ratio*															
2.1.	Sale														X	X
2.2.	Net Sale			X					X			X				
2.3.	Costs of Goods Sold	X	X	X	X	X	X	X		X	X	X	X	X		
2.4.	Inventory						X			X			X	X		
2.5.	Average Inventory	X	X	X	X			X	X	X	X				X	X
3.	*Accounts Payable Turnover Ratio*															
3.1.	Cost of Goods Sold	X	X	X		X	X	X					X	X		X
3.2.	Sales														X	
3.3.	Net Sale				X						X	X				
3.4.	Total Purchases								X	X						
3.5.	Accounts Payable						X			X			X	X	X	
3.3.	Average Accounts Payable	X	X	X	X	X		X	X		X					X
4.	*Fixed Assets Turnover Ratio*															
4.1	Sale								X				X	X	X	X
4.2.	Net Sale			X	X	X	X	X		X	X	X				
4.3.	Total Revenue	X	X													
4.4.	Fixed Assets						X			X						
4.5.	Average Fixed Assets	X	X	X	X	X		X	X				X	X	X	X

Source: author's construction based on CFA Institute USA, 2017, CIA Institute USA, 2016, Dybal S., 2009, Giroux G.,2003, Kovalov V., 2016, Bernstein L.,2000, Bragg S., 2014, Brigham E., 2016, Helfert E., 2010, Higgins R. 2016, Palepu K., 2007, Richard Z., 2000, Jefimova O.2002, Sheremet A. and Negashev E., 2013.

From the Table 1, where the researchers have analyzed fifteen authors of difference financial analysis schools, it can be concluded that for the use in modification the authors have taken as a basis: *Net Sale, Accounts Receivable, Average Inventory, Costs of Goods Sold and Average Accounts Payable.*

International Financial Reporting Standards (IFRS) is the accounting method that's used in many countries across the world. It has some key differences from the Generally Accepted Accounting Principles (GAAP) implemented in the United States, but for financial analyzes – turnover ratios calculation it is mostly a terminology problem, where the same thing is used with different meaning, different schools are based on GAAP or IFRS standards. Analyzing different scientific literature and articles the authors can conclude that in most Russian school's majority of the scientists use GAAP standard terminology, while German and French use IFRS terminology. The Authors offer to use the following terminology dictionary:

Table 2

Terminology difference between GAAP and IFRS standards to calculation Turnover Ratios

Nr.	IFRS	GAAP	Difference
1	Sale	Net Sale, Net Credit Sale	-
2	Accounts Receivable	Total Revenue	X
3	Costs of Goods Sold	Costs of Goods Sold	-
4	Inventory	Inventory	-
5	Accounts Payable	Total Purchases	X
6	Fixed Assets	Total Revenue	X
7	Trade Receivable	Trade Receivable	-
8	Trade Accounts Payable	Trade Accounts Payable	-
9	Fixed Assets	Fixed Assets	-
10	*Accrued Income*	*Accrued Revenue*	*X*
11	*Accrued Liabilities*	*Accrued Liabilities*	
12	*Non-Current Assets Held for Sale and Discontinued Operations*	-	*X*
13	*Investment Properties*	*Investment Properties*	-

Source: author's construction based IFRS and GAAP, 2017.

Generally Accepted Accounting Principles or GAAP refers to the standard framework, principles and procedures used by the companies for financial accounting. The principles are issued by Financial Accounting Standard Board (FASB). It is a set of accounting standards that consist of standard ways and rules for recording and reporting of the financial data i.e. balance sheet, income statement, cash flow statement, etc. The framework is adopted by publicly traded companies and a maximum number of private companies in the United States.

GAAP principles are updated at periodical intervals to meet with current financial requirements. It ensures the transparency and consistency of the financial statement. The information provided as per GAAP by the financial statement is helpful to the economic decision makers such as investors, creditors, shareholders.

IFRS is short for International Financial Reporting Standard is a globally adopted method of financial reporting issued by International Accounting Standard Board (IASB). Formerly, it is known as International Accounting Standard (IAS). The standard is used for the preparation and presentation of the financial statement i.e. balance sheet, income statement, cash flow statement, changes in equity and footnotes, etc.

IFRS ensures comparability and understandability of international business. It is aimed to provide users with information about the financial position, performance, profitability and liquidity of the company, to help them in making rational economic decisions.

At present around 120 countries have adopted IFRS as a framework to govern accounting statement. With the adoption of IFRS, the presentation of financial statement will be better, easier and similar to the overseas competitors.

As efforts are continuously made to converge these two standards, so it can be said that there is no comparison between GAAP and IFRS. Moreover, the differences between the two are as per a particular point of time that may get a change in the future.

2. Modification of Turnover ratios calculation

Despite the fact the traditional methods for calculation of turnover ratios have been used for a significant amount of time by the experts of financial analyses. the financial statement of the enterprise which serves initial materials for the analysis was not once replenished with new posters. Based on the fact, the authors offer to use modification of the most common turnover ratios to use for specification of calculations

In the ratios calculation exist two possibilities of calculation - book or average value. Based on the Table 1, the authors conclude, that most of the authors prefer to use average value. But analyzing book and average value calculation, the authors have compared results of disparities and suggested to use book value, from figure 1 it can be seen that the differences exist between methods, but the difference of range is parallel and proportional.

For economy of resources and time of the enterprise it is better to use book value for the financial analysis ratio calculation.

Table 3

Accounts Receivable Turnover - <u>Book or Average</u>

Production enterprise	AS Grindex	AS Olainfarm	AS SAF Tehnika	AS Valmieras Stikla Šķiedra	Rīgas Elektromašīnbūves rūpnīca	Tosmares kuģubūvētava	Rīgas Kuģu Būvētava	AS Latvijas Balzams	Diton Pievadķēžu rūpnīca	Performance indicators modification
Nr.	1	2	3	4	5	6	7	8	9	10
2012	2,75	2,50	7,67	7,70	19,32	3,73	55,38	111,76	1,85	Net Sales/Accounts Receivable
	3,10	*3,08*	*6,41*	*8,00*	*9,88*	*3,21*	*65,02*	*106,21*	*2,60*	*Net Sales/Average Accounts Receivable*
	-0,35	*-0,58*	*1,27*	*-0,30*	*9,44*	*0,52*	*-9,64*	*5,55*	*-0,75*	*Difference*
2013	3,14	2,40	5,10	7,00	10,00	4,08	14,42	112,26	1,23	Net Sales/Accounts Receivable
	3,03	*2,40*	*6,06*	*8,09*	*12,66*	*3,25*	*2,23*	*115,05*	*1,24*	*Net Sales/Average Accounts Receivable*
	0,11	*0,01*	*-0,95*	*-1,09*	*-2,65*	*0,83*	*12,19*	*-2,79*	*-0,01*	*Difference*
2014	2,28	3,04	6,36	9,28	14,38	3,64	9,94	49,62	3,31	Net Sales/Accounts Receivable
	2,21	*3,01*	*5,34*	*8,97*	*11,79*	*3,23*	*6,42*	*60,82*	*3,09*	*Net Sales/Average Accounts Receivable*
	0,06	*0,03*	*1,02*	*0,32*	*2,59*	*0,41*	*3,52*	*-11,19*	*0,21*	*Difference*
2015	1,77	3,17	12,87	14,58	8,21	7,42	12,20	117,98	9,09	Net Sales/Accounts Receivable
	1,85	*3,17*	*8,62*	*14,65*	*6,64*	*5,85*	*12,54*	*70,36*	*3,74*	*Net Sales/Average Accounts Receivable*
	-0,08	*0,01*	*4,25*	*-0,07*	*1,57*	*1,58*	*-0,34*	*47,62*	*5,35*	*Difference*
2016	2,32	84,15	11,21	11,96	11,04	5,02	13,02	83,33	5,16	Net Sales/Accounts Receivable
	2,26	*3,20*	*12,17*	*12,40*	*11,81*	*2,77*	*12,73*	*98,71*	*6,93*	*Net Sales/Average Accounts Receivable*
	0,05	*80,95*	*-0,96*	*-0,43*	*-0,76*	*2,25*	*0,29*	*-15,38*	*-1,77*	*Difference*

Source: author's calculations based on Nasdaq Baltic data

In Table 3 authors summarize the results of data collection based on scientific literature and current financial annual enterprise report analyses. Based on most common ratio and its interpretation, while analyzing the fifteen authors from Table 1, the authors of the paper at the beginning analyze *Basic Ratios* and then *Modified Ratio,* which contain more accurate interpretation, results of the differences can be seen in chapter 3.
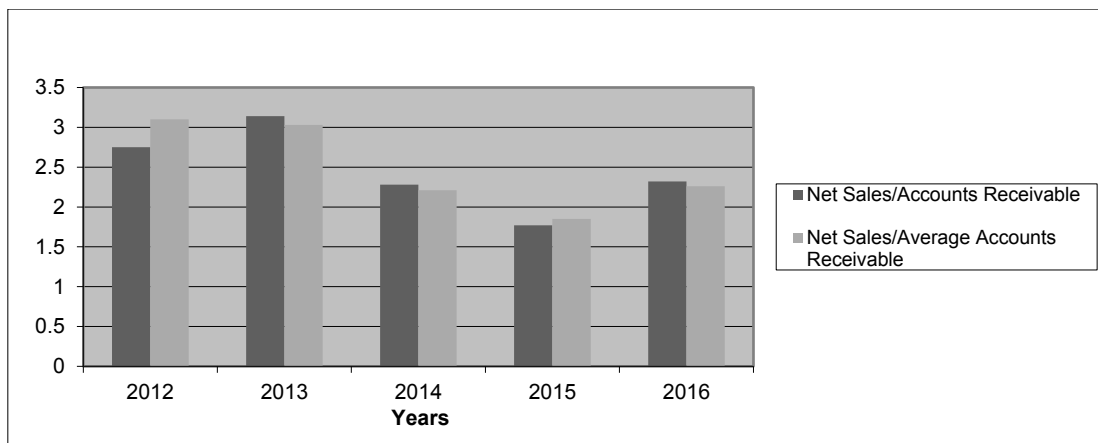
Source: author's construction based on Nasdaq Baltic data

Fig. 1 **SIA "Grindex" Accounts Receivable Turnover book or average calculation**

In Figure 1, the authors analyze a large scale Latvian medicine manufacturing enterprise. The diagram shows the difference between average and book value in turnover accounts receivable turnover ratio calculation. In the ratio calculation there is a difference, but it is proportional. Summarizing the research book or average value, the authors consider to use book value for it is the cheapest and the most universal method of calculation. The average value is also correct, but more time consuming.

To provide more convenience for Latvian users, the authors have made the abbreviation for turnover ratios as for modified ratios too, which should be checked for convention use in further researches.

Table 4

The common Turnover ratio modification based on the balance sheet data

Nr.		Ratios	Basic Ratio	Modified Ratio
1	A_1	**Accounts Receivable Turnover**	Net Sale / Accounts Receivable $A_1 = NA /$ **DP Atl**	Net Sale / **Trade Receivable + Accrued Income** $A_{1_m} = NA /$ **(PPP + UI)**
2	A_2	**Inventory Turnover**	Net Sale / Inventory $A_2 = NA /$ **K Atl**	Net Sale / Inventory-**Non - Current Assets Held for Sale and Discontinued Operations** $A_{2_m} = NA /$ **KAtl - PTII**
3	A_3	**Accounts payable turnover**	Cost of Goods Sold / Accounts Payable $A_3 = PPRI /$ **Kr Atl**	Costs of Goods Sold / **Trade Accounts Payable + Accrued Liabilities** $A_{3_m} = PPRI /$ **PPD + US**
4	A_4	**Fixed assets turnover**	Net Sale / Fixed Assets $PA = NA /$ **P Atl**	Net Sale / Fixed Assets – **Investment Properties** $PA = NA /$ **P Atl – IĪ**

Source: table made by the authors of this paper

A_1 – *Accounts receivable turnover;* A_2 - *Inventory turnover;* A_3 – *Accounts payable turnover;* A_4 – *Fixed assets turnover;* **NA** – *Net sale;* **DP Alt-** *Accounts Receivable;* **PPP -**; *Trade Receivable;* **UI -** *Accrued Income;* **K Atl** – *Inventory;* **PTII** - *Non - Current Assets Held for Sale and Discontinued Operations;* **PPRI** - *Cost of Goods Sold;* **Kr Atl** - *Accounts Payable;* **PPD** - *Trade Accounts Payable;* **US -** *Accrued Liabilities;* **P Atl -** *Fixed Assets;* **IĪ** - *Investment properties.*

Based on modified ratios the authors analyze new calculation interpretation.

IFRS 15 Revenue *from Contacts with Customers* indicates clearly known settlement amounts with buyers and customers for the supply of goods or services in the reporting year for which, according to the terms of the contract, the deadline for submission of the justification document (invoice) for payment has not yet arrived at the balance sheet date. These settlement amounts are calculated on the basis of the price specified in the contract and the actual delivery of the goods or the provision of services (IFRS 15, 2017)

IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations or Accrued Income* outlines how to account for non-current asset held for sale (or for distribution to owners). In general terms, assets (or disposal groups) held for sale are not depreciated, are measured at the lower of carrying amount and fair value less costs to sell and are presented separately in the statement of financial position. Specific disclosures are also required for discontinued operations and disposals of non-current assets (IFRS 5, 2017).

IFRS 5 focuses on 2 main areas:

- It specifies the accounting treatment for **assets (or disposal groups) held for sale**, and
- It sets the presentation and disclosure requirements for **discontinued operations**.

Accrued liabilities are usually expenses that have been incurred by a company as of the end of an accounting period, but the amounts have not yet been paid or recorded in Accounts Payable. The accrued liabilities and their related expenses are recorded as of the end of the accounting period through the use of adjusting entries.

Some examples of accrued liabilities include accrued wages, accrued fringe benefits, accrued management bonuses, accrued advertising and promotion, accrued product warranty costs, and accrued interest on loans payable.

IAS 40 *Investment Property* applies to the accounting for property (land and/or buildings) held to earn rentals or for capital appreciation (or both). Investment properties are initially measured at cost and, with some exceptions. may be subsequently measured using a cost model or fair value model, with changes in the fair value under the fair value model being recognized in profit or loss.

3. Analysis of Empirical results

To achieve the aim of current research, authors compare results of theoretical chapter - Modification of Turnover ratios calculation by empirical analysis. In this part of the paper basic turnover ratios and its' modify interpretation are compared. In the Table 4 and Table 5 are shown only *Accounts Receivable Turnover* and *Accounts Payable Turnover*, in *Inventory Turnover* – Non – Current Assets Held for Sale and Discontinued Operation and in *Fixed Assets Turnover*-Investment Properties the posters absence in analysis companies balance sheet.

As it can be seen from Table 5 the difference between basic and modified ratio calculation is considerable if the company's balance sheet that is being analyzed contains certain posters which the authors suggest to be used in the modified ratio, for example, for *Accounts Receivable Turnover* it is Accrued Income. To summarize the results of Table 5, authors can confirm the importance of modified ratio calculation, for enterprises *AS Rīgas Kuģu Būvētava* and *AS Latvijas Balzams*.

Analyzing *AS Rīgas Kuģu Būvētava* Accounts Receivable Turnover Ratio the calculation tendencies from 2012 till 2016, a very important difference between basic and modified calculations was in 2012 - 44,43, were after ratio specification with *Accrued Income*, it can also be seen in Accounts Receivable from modified ratio in the theory chapter, Table 4, and the same tendency can also be seen if company's balance sheet has poster Accrued Income.

For company *AS Latvijas Balzams* Accrued Income was only in 2014 year, even thou the difference was not as significant as for *AS Rīgas Kuģu Būvētava*, a difference of 0,71 can be seen in the results.

Analyzing the tendencies of those calculations, the authors have decided to analyze common and modified Accounts Receivable Turnover Ratios and, in the future to analyze the companies with Accrued Income in balance sheet, as there can be seem a more thorough difference between basic and modify ratio results the results.

Table 5

Accounts Receivable Turnover Ratio

Production enterprise	AS Grindex	AS Olainfarm	AS SAF Tehnika	AS Valmieras Stikla Šķiedra	Rīgas Elektromašīnbūves rūpnīca	Tosmares kuģubūvētava	Rīgas Kuģu Būvētava	AS Latvijas Balzams	Diton Pievadķēžu rūpnīca	Performance indicators modification
Nr.	1	2	3	4	5	6	7	8	9	10
2012	2,75	2,50	7,67	7,70	19,32	3,73	55,38	111,76	1,85	Net Sales/Accounts Receivable
	36298070	26392610	1789536	9225329	1948307	2416066	4734499	891485	7570681	**Trade Receivable**
	0,00	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**19211840**	**0,00**	**0,00**	**Accrued Income**
	2,75	*2,50*	*7,67*	*7,70*	*19,32*	*3,73*	*10,95*	*111,76*	*1,85*	*Net Sales/Trade Receivable+ Accrued Income*
	0,00	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*44,43*	*0,00*	*0,00*	***Difference***
2013	3,14	2,40	5,10	7,00	10,00	4,08	14,42	112,26	1,23	Net Sales/Accounts Receivable
	31527840	27857348	2609938	12632298	3356431	1599352	3802358	900860	7757403	**Trade Receivable**
	0,00	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**17683348**	**0,00**	**0,00**	**Accrued Income**
	3,14	*2,40*	*5,10*	*7,00*	*10,00*	*4,08*	*2,55*	*112,26*	*1,23*	*Net Sales/Trade Receivable+ Accrued Income*
	0,00	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*11,87*	*0,00*	*0,00*	***Difference***
2014	2,28	3,04	6,36	9,28	14,38	3,64	9,94	49,62	3,31	Net Sales/Accounts Receivable
	29837908	26837000	1890122	11711664	2331157	1273342	1799976	1472183	3233920	**Trade Receivable**
	0,00	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**4075557**	**21503**	**0,00**	**Accrued Income**
	2,28	*3,04*	*6,36*	*9,28*	*14,38*	*3,64*	*3,05*	*48,91*	*3,31*	*Net Sales/Trade Receivable+ Accrued Income*
	0,00	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*6,90*	*0,71*	*0,00*	***Difference***
2015	1,77	3,17	12,87	14,58	8,21	7,42	12,20	117,98	9,09	Net Sales/Accounts Receivable
	32818750	26701000	952143	8336962	1581491	827161	1745808	625461	699195	**Trade Receivable**
	0,00	**0,00**	**0,00**	**0,00**	**0,00**	**249661**	**1159499**	**0,00**	**0,00**	**Accrued Income**
	1,77	*3,17*	*12,87*	*14,58*	*8,21*	*5,70*	*7,33*	*117,98*	*9,09*	*Net Sales/Trade Receivable+ Accrued Income*
	0,00	*0,00*	*0,00*	*0,00*	*0,00*	*1,72*	*4,87*	*0,00*	*0,00*	***Difference***
2016	2,32	3,01	11,21	11,96	11,04	5,02	13,02	83,33	5,16	Net Sales/Accounts Receivable
	31413134	30293000	1082564	10384974	1816016	1016567	1586286	908697	1360156	**Trade Receivable**
	0,00	**0,00**	**0,00**	**0,00**	**0,00**	**612745**	**3331241**	**0,00**	**0,00**	**Accrued Income**
	2,32	*3,01*	*11,21*	*11,96*	*11,04*	*3,13*	*4,20*	*83,33*	*5,16*	*Net Sales/Trade Receivable+ Accrued Income*
	0,00	*0,00*	*0,00*	*0,00*	*0,00*	*1,89*	*8,82*	*0,00*	*0,00*	***Difference***

Source: author's calculations based on Nasdaq Baltic data

Table 6 shows Accounts Payable Turnover Ratio analyses, where the difference between basic and modified calculations can be seen. For some companies modified calculations make up significant difference in results as for *AS Latvijas Balzams* in 2012 and 2013 where the difference between basic and modified ratio calculation were 3,25 and 2,51.

Table 6

Accounts Payable Turnover Ratio

Production enterprise	AS Grindex	AS Olainfarm	AS SAF Tehnika	AS Valmieras Stikla Šķiedra	Rīgas Elektromašīnbūves rūpnīca	Tosmares kuģubūvētava	Rīgas Kuģu Būvētava	AS Latvijas Balzams	Diton Pievadķēžu rūpnīca	Performance indicators modification
Nr.	1co	2	3	4	5	6	7	8	9	10
2012	11,06	0,32	6,67	7,52	11,03	3,81	7,62	16,80	7,45	Costs of Goods Sold/Accounts Payable
	3958732	**2648655**	**1562457**	**7333012**	**2532609**	**1539630**	**34965484**	**5162202**	**1507538**	**Payables to Suppliers and Employees**
	118696	**883440**	**21824**	**353433**	**0,00**	**0,00**	**922349**	**1238836**	**128637**	**Accrued Liabilities**
	10,74	*0,24*	*6,58*	*7,17*	*11,03*	*3,81*	*7,42*	*13,55*	*6,87*	*Costs of Goods Sold/Accounts Payable-(Payables to suppliers and employees +Accrued Liabilities)*
	0,32	*0,08*	*0,09*	*0,35*	*0,00*	*0,00*	*0,20*	*3,25*	*0,59*	***Difference***
2013	9,88	0,37	8,12	7,75	11,88	6,78	10,69	15,56	3,70	Costs of Goods Sold/Accounts Payable
	4693644	**9001962**	**1259132**	**9051412**	**2166120**	**938590**	**5129262**	**5661346**	**2323504**	**Payables to Suppliers and Employees**
	128615	**1150423**	**87836**	**1458728**	**0,00**	**0,00**	**612147**	**1089476**	**104321**	**Accrued Liabilities**
	9,62	*0,33*	*7,59*	*6,68*	*11,88*	*6,78*	*9,55*	*13,05*	*3,54*	*Costs of Goods Sold/Accounts Payable-(Payables to suppliers and employees +Accrued Liabilities)*
	0,26	*0,04*	*0,53*	*1,08*	*0,00*	*0,00*	*1,14*	*2,51*	*3,33*	***Difference***
2014	6,84	3,52	10,53	7,02	10,63	4,71	4,69	27,11	5,11	Costs of Goods Sold/Accounts Payable
	5627049	**6474000**	**880883**	**9998210**	**2676029**	**983161**	**3802808**	**2084209**	**1817615**	**Payables to Suppliers and Employees**
	134027	**2106000**	**14643**	**1542290**	**0,00**	**0,00**	**675313**	**0,00**	**120576**	**Accrued Liabilities**
	6,68	*2,66*	*10,35*	*6,08*	*10,63*	*4,71*	*3,98*	*27,11*	*4,79*	*Costs of Goods Sold/Accounts Payable-(Payables to suppliers and employees +Accrued Liabilities)*
	0,16	*0,86*	*0,17*	*0,94*	*0,00*	*0,00*	*0,71*	*0,00*	*0,32*	***Difference***
2015	5,61	4,78	13,73	9,97	8,54	6,83	7,42	91,13	2,80	Costs of Goods Sold/Accounts Payable
	6701509	**5436000**	**624386**	**9778885**	**1451492**	**742266,00**	**2622742**	**625461**	**2870055**	**Payables to Suppliers and Employees**
	134027	**3161000**	**18211**	**1690342**	**0,00**	**1900,00**	**485795**	**0,00**	**98830**	**Accrued Liabilities**
	5,50	*3,02*	*13,34*	*8,50*	*8,54*	*6,81*	*6,26*	*27,11*	*2,71*	*Costs of Goods Sold/Accounts Payable-(Payables to suppliers and employees +Accrued Liabilities)*
	0,11	*1,76*	*0,39*	*1,47*	*0,00*	*0,02*	*1,16*	*0,00*	*0,09*	***Difference***
2016	5,10	4,61	12,43	7,23	9,38	5,04	6,77	12,50	0,16	Costs of Goods Sold/Accounts Payable
	7482404	**6434000**	**719896**	**13926521**	**1817873**	**908850**	**2907665**	**4681238**	**42222997**	**Payables to Suppliers and Employees**
	134027	**3840000**	**15759**	**2316493**	**230766**	**0,00**	**495934**	**0,00**	**121658**	**Accrued Liabilities**
	5,01	*2,89*	*12,16*	*6,20*	*8,32*	*5,04*	*5,78*	*12,50*	*0,16*	*Costs of Goods Sold/Accounts Payable-(Payables to suppliers and employees +Accrued Liabilities)*
	0,09	*1,72*	*0,27*	*1,03*	*1,06*	*0,00*	*0,99*	*0,00*	*0,00*	***Difference***

Source: author's calculations based on Nasdaq Baltic data

Analyzing theoretical sources and based on calculations the authors have agreed to continue research and have decided to use for research only those companies, whose annual reports consist of modified posters for analyses – to check and show results significance as a result.

Conclusions

Estimating the results of the current research, authors have reached the following conclusions:

1. While studying and analyzing fifteen researchers of difference schools of financial analysis, the authors have selected the most commonly used interpretation of the turnover ratios and have decided to use bases on IFRS standards in future researches.

2. Based on the scientific literature and articles the authors can conclude that using book or average value in turnover ratio calculations the result of research showed no significant differences. In the order authors prefer to use book value of because of smaller required data as a result of process optimization.

3. To analyze the turnover interpretations by different schools of financial analysis the authors suggest using various terminology for the same ratios as different terminology is used in different countries to describe the same thing, same with GAAP or IFRS standards. So, to analyze *accounts receivable turnover, inventory turnover, accounts payable turnover, fixed assets turnover ratios* theoretical material for the ratios calculation should be carefully interpreted.

4. The modification of the accounts receivable, inventory turnover, accounts payable turnover and fixed assets bases on new posters in the annual report of enters as: *Accrued Income, Non - Current Assets Held for Sale and Discontinued Operations, Accrued Liabilities and Investment Properties* if they exist in balance - can in some cases show considerable differences in the results of financial analyses.

5. Studying scientific literature and articles of the theoretical guidelines for the turnover calculations the authors have decided to offer coefficients abbreviation of formulas for convenient use in the daily analysis for the Latvian users of financial analyses.

6. Based on the empirical research using the annual financial reports of Latvian manufacturing companies, the difference of the commonly used and modified poster interpretation is not always obvious, as not all the companies include such posters in their annual reports, therefore the authors suggest the usage of modified poster as the most accurate option. If the modified posters exist in the reports, it can be seen that the difference is quite substantial. But according to authors it might depend on the chosen types of the analysis.

7. To conclude, the authors plan to continue empirical research in different industries in Latvia and use other important ratio modifications of financial analysis.

8. In the following work authors will submit an article where book and average value of ratios is empirically compared.

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MARKETING ON THE PART OF THE CONSUMER AND C2B PARTNERSHIPS

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Abstract. The interest in marketing at the company level has been reflected in many studies covering a wide spectrum of scientific and business interests. However, marketing carried out by consumers remains outside the scope of such studies. The application of new technologies over the past decade and the over-supply of products have made the consumer stronger in doing their own marketing. Products resulting from mass production are not among the most desirable for consumers with income above average. These major changes, along with the increasing public interest in formal and non-formal education and mobility have contributed to the formation of individuals who are able to develop and execute their own marketing in their relationships with companies. The purpose of this paper is to present the prerequisites for the emergence of consumer made marketing, its specific applications and potential partnerships, and the benefits to all parties.

Due to the specificity of the scope of the study, methods based on secondary sources of information, quantitative and qualitative methods for collecting primary data were used. An online consumer survey was conducted, using the convenience sample method, which identified important outcomes related to the application of marketing on the part of consumers. The focus group interview, comprising active and innovative consumers, highlighted key aspects of the potential of C2B partnership and possible consumer impact on company marketing.

The role of the consumer in carrying out marketing and the positive aspects thereof are presented herein. The potential opportunities for consumer engagement in B2C marketing and its benefits for consumers and companies are being discussed. The paper also looks into at the future of the consumer/s – company/ies relationships.

Key words: *marketing, consumer made marketing, innovations*.

Introduction

The marketing of companies has changed significantly over the past decade. The application of new technologies has an impact on the scale, speed and effectiveness of any marketing activity. Changes have also occurred in consumer behavior. The role of the consumer has gone beyond the traditional scope of their marketing passivity. In addition to communicating, reacting, choosing, buying and consuming, users have started to actively implement marketing by developing their own marketing strategies to get the offer they have fully or partially formatted in advance. The targeted marketing activity of consumes does not go unnoticed by the companies, on the contrary, companies are starting to use it to update the supply of goods and services on consumer markets. Users are actively involved in generating ideas for developing new products. This form of cooperation is starting to acquire organizational and systemic development in highly developed markets.

There are several changes that raise interest in studying the problem of using consumer made marketing. First, this is the widespread use of new technologies by businesses and households, which has a positive impact on both groups of subjects. Companies offer their products more efficiently, using marketing innovations. Consumers make their choice in a more favorable environment in terms of awareness, alternatives, transparency and security. It is argued in the marketing literature that information technology increases the interaction between the company and the customer, increases market

knowledge and assists in segmentation, customization and personalization (Grimal L. & Guerlain P., 2014). Secondly, oversupply and growing competition between companies going beyond local borders is seen as a favorable change for the consumer in terms of an alternative as to what and where to buy. At the same time, this change spells uncertainty, risk and additional costs of marketing differentiation for companies. It is believed that "enormous economic and financial benefits achieved by the pursuit of increasing economies of scale sometimes lead firms to neglect demand satisfaction", which in turn may lead to a reduction in the competitive strength of companies with a global coverage (Lambin J. & Brondoni S., 2000-2001). These two aspects of the problem raise the question of whether companies' efforts to change supply are adequate and whether consumers' requirements are being taken into account.

Special attention is paid to sources of consumer power: demand, information, network and crowd-based power (Labrecque L. et al., 2013). The power of the consumer in a situation of oversupply is undeniable, and there is no reason for companies to overlook it. Particular attention should be paid to above-average-income consumers who are not satisfied with mass-produced products but are persistently seeking their product beyond the boundaries of where they live and beyond traditional search and purchase channels.

Thirdly, an opinion has been voiced that "the elevation of education and consumerist culture has helped to make consumers more experienced and more professional in their purchasing behavior" (Lambin J. & Brondoni S., 2000-2001). Increasing interest in formal and informal education with marketing components creates well-educated users who apply their marketing knowledge not only at their workplace but also as consumers. These individuals, and sometimes not only they, are actually developing their marketing strategy to solve their problem and they have specific product and sales conditions requirements.

The study was planned and carried out in two stages. In the first stage a research was conducted with end users in Bulgaria through an online survey. The purpose of the first study was to determine the marketing activity of consumers on the variables of interest related to the subject of the study. The sample consists of 385 individuals using convenience/volunteer sampling (the first 385 individuals who complete the online survey). The number of respondents in the sample has been planned in advance in order to achieve some representativeness of the collected information for the consumers in Bulgaria (the adult population of the country). The information gathering was conducted between 20th January and 18th February 2018. Data collection was discontinued after the proportionality was achieved by demographic variables with the general aggregation and reaching the planned number of respondents.

The second study includes an interview with a focus group consisting of consumers who identify themselves as active and innovative. It was held in mid-February among a focus group of eight individuals. The purpose of the second study was to identify the C2B partnership opportunities that consumers see.

1. Marketing on the part of the consumer

Marketing on the part of the consumer has not been in the direct focus of researchers, who have studied mainly company marketing and efficiency. Interest in consumer engagement in marketing is yet to be developed. Several important aspects have been researched in this paper: What does consumer involvement mean, why customers do it and what happens if their requirements are not taken into account by companies. It is also interesting whether consumer requirements are applied in the company marketing of future offers and whether consumers recognize them as changes made in response to their ideas and insistence.

The role of users in generating ideas is among the well-researched problems in modern marketing. However, the focus of published research is primarily on how companies organize consumer research into the generation of ideas and the positive effects of this activity. Researchers also focus on studying the impact of labeling crowdsourced new products and marketing the product as "customer-ideated" at the point of sale on actual market performance (Nishikawa H. et al., 2017) and make company-based conclusions based on various experiments.

It is argued that consumers are no longer perceived to be passive participants in the marketing and new product development process (Roberts D. & Darler W., 2017). The role of engaging customers in co-creation is growing (Fernandes T. & Remelhe P., 2016). This paper examines the effects of consumer participation in product design in terms of competition and differentiation (Katona Z., 2015). Companies are highlighted that allow consumers to select a range of options to complete the product design process (Lee H. & Chang E., 2011). The researcher's attention also focuses on "evaluating the competence and engagement in co-creation of lead users and emerging nature consumers by comparing them to ordinary consumers" (Vernette E. & Hamdi-Kidar L., 2013). Subject of the study is the relationship between firms and consumers in open business models (Kortmann S. & Piller F., 2016) and customer motivations as drivers of engagement in collaborative innovation (Fernandes T. & Remelhe P., 2016).

Another aspect of consumer engagement, however, remains outside of the scope of this paper, namely that consumers are the initiators of changes in products and the terms of sale and that companies benefit from those changes that have the potential for success. Deloitte have established an increasing pressure on the part of the consumer as to what they want, when and where (Deloitte, 2015). Based on research data (U.K., U.S. and Japan), it is found that millions of people innovate to create and modify consumer products to better fit their needs (Hippel E., Ogawa S. & De Jong J., 2011).

Over the past decade consumers have become more and more demanding towards the products offered. Some of them are not satisfied with the product offered and they have additional requirements for its structure, functionality, shape and other characteristics (Table 1).

Table 1

Initiating product change

Product	Consumer activity related to searching a suitable product
Structure/Product composition	Inquiry/insistence by the consumer concerning the product's structure/composition that are different from those supplied on the mass market.
Functionality	Search for additional functionality arising from the specificity of the problem and the consumer's experience and/or competence.
Form	Requirements on the part of the consumer for a specific form of the product.
Other product characteristics	Change in other product parameters, arising from the problem specificity, consumer preferences, etc.

Source: author's research design

In recent years researchers have found that consumers put more emphasis on the longevity of the product, as well as giving it new functionalities (Lewandowska A., Witczak J. & Kurczewski P., 2017). Personal requirements for the product can be summarized in two directions: the first one is related to product development and improvement ideas, while the second is about function elimination, product volume reduction, structure changes, design simplification, etc. Companies can take advantage of users' demands in both directions as long as changes are possible and the associated costs show potential for increased efficiency.

However, user activity is not only associated with initiating a change in the product. Consumers can also focus their efforts on changing the terms of sale to more favorable ones.

Table 2

Initiating a change in the terms of sale

Terms of sale	Consumer activity related to searching for more advantageous terms of sale
Prices and price conditions	Efforts to get an additional discount or more advantageous payment conditions.
Conditions related to promotions	Insistence on getting a bonus in exchange for making the purchase.
Conditions related to distribution	Requirements related to purchasing from a specific channel, outlet, subject, etc. In the case of distance channels there could be requirements for the product to be delivered by a specific logistics partner.
Other sale conditions	Requirements related to formalizing the terms of the sale, e.g. contracts, guarantee conditions, etc.

Source: author's research design

It is supposed that highly educated users and those who identify themselves as "powerful" are more active in promoting and asserting their own marketing. As a result of increased consumer empowerment, consumers nowadays desire to play a greater role in the process of value creation (Hoyer W. et al., 2010).

The motives for marketing activities on the consumer's part may be different. By taking the benefit /cost/risk ratio as a determinant of consumer choice, self-marketing motives can be recognized in search of greater benefits, cost reductions, risk mitigation, and combinations thereof.

Table 3

Motives for carrying out own marketing in market search of products

Consumers' motives	Specifics
Opportunity to increase the benefits for themselves	In the offer designing and market realization companies are aiming to maximize their usefulness. On the other hand, users are also looking for higher usefulness. They can also format an offer they are looking for, which responds to the problem and market conditions.
Opportunity to reduce the overall costs	In cases of high price sensitivity and / or high price variation, users can focus on looking for opportunities to reduce their overall costs of purchasing and consuming the product.
Opportunity to reduce the risk associated with the purchase and / or consumption of the product	Consumers can purposefully seek to reduce the risks associated with the purchase and consumption of the product. They may produce specific product requirements and / or sales conditions to reduce the expected risks to them.
Search for an opportunity to apply their own experience and knowledge	It is supposed that some consumers will want to use their knowledge in a specific sphere and try to influence companies to make a change for a better product and terms of sale.

Source: author's research design

And while sales pressure (Zboja J., Clark R. & Haytko D., 2016) on the part of companies is a well-researched issue, consumer pressure has been left outside of the researchers' focus so far.

Some reputable consultancies warn that "the importance of customer effort is further amplified in an 'always connected' world where customers have immediate access to competitive products from companies who may have simplified processes that make it easier for the customer to purchase a product or obtain support" (Oracle, 2015).

Accenture determine the current situation as an emerging consumer-to-business (C2B) era, in which consumers are creating value that businesses can then exploit (Accenture, 2016) .

Favorable changes in the technological environment are a powerful driver for the development of the C2B partnership in a vertical or functional format. Facilitating access to information, speed of communication, and its security create an excellent environment for the consumer - company and consumer - other consumers relationship. Attention is also directed to the powerful voices of customers (Rasul T., 2018), which can influence consumer choices of consumers looking for information to solve a specific problem. Attention is also drawn to the prosumer, a type of consumer, who is not a passive market player, but rather becomes a partner for companies, taking an active part in the market development and participating in a continuous dialogue with companies (Lebiejko A., 2011). Prosumerism is defined as a market trend that requires a thorough change of the way manufacturers and sellers communicate with potential clients (Pourbaix P., 2016).

2. Research results and discussion

The results of the two surveys will be presented in sequence. Within the online survey of 385 respondents questioned about the satisfaction with the products on the market, consumers gave answers that formed the following distribution: 12.7% were fully satisfied, 75.6% were partially satisfied and 11.7% were not satisfied with the products offered. The results show that consumers are predominantly partially satisfied, which suggests certain attempts on their part to improve the products that are made available to them. In this respect an interesting result is that 62.6% of respondents have developed their strategy to get a better product and purchase conditions. This means that they did not accept the mass offer announced, and that their efforts were directed at seeking a change. Only 26.8% of respondents did not develop their own marketing strategy in the purchase process, and 10.6% could not judge whether they carried out such an activity.

Self-marketing in the form of additional product requirements was performed by 59.5% of respondents in the sample, 40.5% practicing self-marketing in connection with improved sales conditions, only 15% who did not carry out their own marketing and 6.8% who could not say whether they carried out such an activity. The information gathered highlights the high percentage of consumers who do their own marketing to claim their product requirements and/or sales conditions.

Respondents who made special product requirements have the following distribution in terms of the product characteristics for which they required a change (Table 4).

Table 4

Relative share of respondents bringing specific requirements to the product characteristics included in the survey

Characteristics	Relative share in %
Structure/composition/content	68.8
Functionality	55.6
Form	16.0
Other characteristics	7.6

Source: author's calculations based on primary research data

Note: The sum of the relative shares exceeds 100 because respondents gave more than one answer.

The results show that the highest activity in bringing special requirements by consumers is observed with regards to the structure / composition / content and functionality of the product (68.8% of consumers). These values show a great deal of consumer interest in product performance, which in turn can be used by companies to design product adaptation and customization of the products they offer.

Respondents making special requirements for the terms of sale have the following distribution in terms of the components for which they were seeking change.

Table 5

Relative share of respondents bringing specific requirements to the terms of sale by components

Components	Relative share in %
Price-related terms	66.4
Terms related to communication and promotions	53.7
Terms related to distribution	28.3
Other terms	2.4

Source: author's calculations based on primary research data

Note: The sum of the relative shares exceeds 100 because respondents gave more than one answer.

The distribution of respondents by reason for bringing specific product requirements and purchase conditions (Table 6) shows that the most common reason for bringing special product requirements is the possibility of reducing the risk to the consumer, while as regards the demand for special conditions when buying, the most common reason is related to price/total cost reduction, followed by the possibility of reducing the risk for the consumer and seeking additional benefits.

Table 6

Distribution of respondents by reason for bringing specific product and sale terms requirements

Reasons	Special product requirements Relative share in %	Special sale terms requirements Relative share in %
Looking for additional benefits	32.3	38.7
Reducing the risk to consumers	41.7	41.8
Reducing the price/total costs for the consumer	40.7	47.1
Applying the consumer's own experience to get a product that is better than the mass offer available on the market or terms that are better than the announced ones	39.6	26.6

Source: author's calculations based on primary research data

Note: The sum of the relative shares exceeds 100 because respondents gave more than one answer.

An interesting result is the high relative share of the individuals who claimed requirements for the product and the companies' sales conditions, using their own experience to gain better sales conditions than the previously announced ones (39.6% and 26.6% of respondents respectively).

The researcher's interest has been drawn also to the breakdown of respondents according to how they believe companies take into account their requirements for the products and the sale conditions (table 7).

Table 7

Distribution of respondents according to how they believe companies take into account their requirements for the products and the sale conditions

Scale significance	Refusal related to a change in the product	Refusal related to a change in the sale terms
Yes, I get refusals often	30.7	28.2
Yes, I rarely get a refusal	42.3	41.6
I have not received a refusal	15	17.9
I cannot say	12.1	12.4

Source: author's calculations based on primary research data

In general, the cases of "refusal" relating to the product and to the terms of sale prevail, which means that the majority of companies do not accept the suggestions for a change in their offer initiated by consumers. In this regard, it is interesting how consumers respond to the companies' refusal to take into account their requirements. The breakdown is as follows: 28.6% of respondents withdraw from purchasing a specific offer, 6.3% buy although their requirements are not taken into account and 64.9% of respondents continue to look for their offer among other firms on the market.

It is noteworthy that 44.1% of respondents read the standard contracts and insist on a partial change thereof when such contracts are mandatory for the purchase / use of products / services, which is encouraging in terms of achieving symmetry between rights and obligations of both parties: companies and consumers.

It is also interesting how consumers would react if they were given the opportunity to be involved in designing a product and setting the terms of sale.

Table 8

Distribution of respondents by consumer involvement provided that the company provides an opportunity for the consumer to make their own product design and to determine their own sale terms.

Scale significance	Distribution in % Product design	Distribution in % Determining the purchase conditions
Yes, absolutely	41.1	68.7
Maybe	54.5	29.7
No	4.5	1.6

Source: author's calculations based on primary research data

It is worth noting the large percentage of people who would definitely be involved in determining purchase terms (68.7%) and product design (41.1%) if companies allowed such options. Extremely low is the relative share of people who would not benefit from such options (1.6% for purchase terms and 4.5% for involvement in product design).

Data from the survey shows that for 8.5% of the respondents, a request on their part has led to a change in a product and for 17.2% a request on their part has led to a change in the terms of sale. Other respondents who submitted product requirements and terms of sale requirements do not have information about a change that resulted from their specific requirements.

Consumer distribution by their self-rating as "powerful", "proactive", "innovative", and "price sensitive" is presented in the following table:

Table 9

Consumer distribution by their self-rating as "powerful", "proactive", "innovative", and "price sensitive"

Characteristic	Relative share of respondents having the respective characteristic (в %)
Powerful	52.4
Proactive	76.1
Innovative	50.0
Price-sensitive	78.4

Source: author's calculations based on primary research data

It is interesting to note the high relative share of price sensitive consumers and active consumers, who account for over two thirds of all respondents in the sample. These results are definitely encouraging for the future involvement of consumers in formatting market offers and should be taken into account by companies operating on the domestic market.

Due to the growing interest in marketing over the last decade, including non-formal digital marketing education, the issue includes a question on self-rating of respondents' basic marketing knowledge. The highest is the share of respondents who identify their knowledge as high at the level of "self-education in the field of marketing": 33.1%, followed by those who define their knowledge of marketing as "low, based on my experience as a buyer and general culture": 32.8%.

The former group of highly knowledgeable marketers at the level of "self-education in the field of marketing", which has the highest relative share, will have a strong impact on the offer of bidders in the future, together with those who have a professional knowledge of marketing and who are supposed to implement it in the buying process and in their role of buyers.

In view of the proportionality in the structure of the sample with that of the general aggregate and the sufficiently high number of respondents, several basic hypotheses related to consumer satisfaction, development of own marketing and consumer price sensitivity (Table 10) have been tested.

The following conclusions were drawn from the tests and analyzes:

• Developing own marketing strategy is more pronounced among consumers with a high and middle income. Persons falling within these groups are more likely to stand their ground and insist that companies comply with their requirements for specific products and services.

• Lower-income groups are characterized by a higher relative share of price-sensitive consumers. Consumers from these groups focus their attention predominantly on price. On the whole, however, the results of the research show a high relative share of consumers that define themselves as being price-sensitive (78.4%).

• The share of price-sensitive consumers is higher among women than among men.

• There is no relationship between: the satisfaction of products offered on the market and respondents' income status; the satisfaction of products offered on the market and respondents' gender; the development of own marketing strategy and respondents' gender.

Table 10

Results from hypotheses testing

Variables	Hypotheses	Chi-Square test value	df	Solution
Satisfaction with the products available on the market/income status	Absence/presence of relationship between product satisfaction and respondents' income status.	9.027	8	The null hypothesis is assumed, namely that there is no relationship between the satisfaction of products offered on the market and respondents' income status.
Satisfaction with the products available on the market/gender	Absence/presence of relationship between product satisfaction and respondents' gender	0.336	2	The null hypothesis is assumed, namely that there is no relationship between the satisfaction of products offered on the market and respondents' gender.
Development of own marketing strategy/income status	Absence/presence of relationship between the development of own marketing strategy and respondents' income status.	21.619	8	The alternative hypothesis is assumed, namely that there is a relationship between the development of own marketing strategy and respondents' income status.

Developing your own marketing strategy/gender	Absence/presence of relationship between the development of own marketing strategy and respondents' gender.	0.135	2	The null hypothesis is assumed, namely that there is no relationship between the development of own marketing strategy and respondents' gender.
Price sensitivity/income status of respondents	Absence/presence of relationship between price sensitivity and the income status of respondents.	12.519	4	The alternative hypothesis is assumed, namely that there is a relationship between price sensitivity and respondents' income status.
Price sensitivity and respondents' gender.	Absence/presence of relationship between price sensitivity and respondents' gender.	6.250	1	The alternative hypothesis is assumed, namely that there is a relationship between price sensitivity and respondents' gender.

Source: author's calculations based on primary research data

Note: Only the test results of hypotheses tests for crosstabulations that meet the condition of using the χ^2 test are shown.

In order to determine the possibilities for C2B partnerships as seen by customers, a focus group interview was conducted. They are defined as C2B partnerships due to the fact that consumers have a leading role in the process of seeking cooperation and more advantageous purchase conditions. The eight participants were selected so as to represent as much as possible the general aggregate as per gender, age, educational and income status. The individuals responded to the requirement to identify themselves as proactive and innovative. Four main issues related to the possibility of partnerships with the companies that offer them products and services were put forward sequentially for discussion:

- Do consumers believe that companies are interested in partnership with respect to product design and the terms of sale?
- Do consumers see a benefit for themselves and for the companies from such a partnership?
- What forms of partnership do they have in mind that could be useful for both parties?
- How should such partnerships be organised?

Table 11

Results from the content analysis of the interview within the focus group

Main issues	Results through the use of content analysis
Do consumers believe that companies are interested in partnership with respect to product design and the terms of sale?	All participants support the idea of partnering with companies and believe that both parties would benefit from consumer ideas for change in the product and sales conditions. An opinion was voiced that companies currently do not use new technologies effectively to learn about product search, purchase and consumption, which information is actively exchanged between customers.
Do consumers see a benefit for themselves and for the companies from such a partnership?	The majority of people in the focus group support the opinion that benefits can be drawn from such partnerships. Benefits are primarily sought to match supply with what they are looking for and a higher degree of co-ordination in the purchase process. Particular attention is paid to the possibility of changing the product characteristics at the customer's request, especially when it does not present a difficulty to companies and does not entail additional costs. Customers

	believe that the offers of companies that take into account "reasonable" consumer requests will be among the most demanded in the market.
What forms of partnership do they have in mind that could be useful for both parties?	Among the discussed forms of partnership are: maintaining after-sales feedback, giving the consumer greater freedom to choose, organizing platforms for generating ideas and sharing experiences by customers, training consumers and paying special attention and doing more in-depth research into consumer complaints and returned goods. Or, to sum up, to make the partnership effective, it should be sought in each of the phases: from generating ideas to after-sales consumer behavior.
How should such partnerships be organised?	The discussion shows different views regarding the organization of these partnerships. Some individuals support the idea of partnerships being organized by companies, while others believe that they would be more effective if customers had the lead in the organization. All participants agree that the potential of new technologies should be exploited to effectively organize different forms of C2B and B2C partnerships. Consumers believe that they need to associate so that companies hear their demands and better terms of contracts and purchases are achieved.

Source: results from focus group content analysis

The results of the focus group interview are encouraging from the point of view of initiation and inclusion in C2B partnerships. Customers are positive about working with companies on issues that directly affect them. Overall, there is a consensus that useful ideas for product change and sales conditions should go to the marketing decision makers in companies who could forward them towards market implementation after relevant impact assessments.

Conclusions

Consumers' activities carrying out their own marketing in the buying process is encouraging in terms of improving the supply on consumer markets. Consumers' ideas in the form of specific product requirements and terms of sale have already been recognized by themselves as marketing practices introduced by companies. Demand for the exact product, formatted according to consumer requirements and expected sales conditions, will be a powerful driver to improve the marketing of companies over the next decade. In order to use the consumers' resource and potential for change it will not be enough to carry out research, it will also be necessary to organize new forms of C2B partnerships and to maintain flexible communication to help consumers' demands be noticed and taken into account. While consumer marketing in this paper is narrowed to addressing the marketing aspect of their impact, in practice the problem is also related to ecology, personal finances, and resource efficiency that can be the subject of future research.

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THE NEED FOR REGIONAL BALANCING OF INVESTMENTS

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Abstract. The need for regional balancing of investments has been partially researched and analyzed. The increased investment activity of companies over the last few years poses important questions about their balancing by economic activities. The comparative advantages of the regions as a prerequisite for attracting investors can lead to the concentration of investment interests in the same sphere. This could be a problem for the future socio-economic development of the regions in several important aspects. The purpose of this paper is to analyze the structure of investments in Bulgaria and to make specific recommendations to overcome the established forms of imbalance. The study is based on secondary data from official information sources and covers the period 2012-2016.

Different forms of investment imbalance can be critical to the return on investments and their cost-effectiveness. In this connection, research interest is focused on the need to balance the investments and benefits for the target audiences: businesses, consumers, residents, visitors and society as a whole. The efforts of country and municipalities to create a favorable investment environment will continue to be an important incentive to attract the right investors. Coordination, synchronization and alignment of investment intentions and processes will contribute to the sustainable development of regions and the efficient use and reproduction of resources.

Key words: *investments, balance, foreign direct investments, regional development.*

JEL code: R58, H72, O1

Introduction[*]

Investments are a powerful driver for the economic and social development of regions. Factors that determine investment interest are the subject of a great amount of interdisciplinary research. Investments are primarily viewed from the investors' perspective. The focus of these studies is on factors, risks and investment patterns. Research in developing countries shows a strong influence of previous domestic investments on foreign investors (Lautier M. & Moreaub F., 2012). However, the other aspect is the balance of investment activity and incentive factors, and this aspect is not so well researched from the perspective of the state and municipal administration.

There are several reasons to focus our research on the need for regional balancing of investments. First, over the past decades there has been an increased investment activity of private capital that is being pursued in the interest of private investors. Over the past 20 years, a policy competition for attracting foreign direct investment (FDI) has been observed (Ma J., 2013). According to UNCTAD, most new investment policy measures are based on liberalization and promotion, and in 2015 85 percent of the measures are considered favourable to investors (UNCTAD, 2016). The increased interest in investing has actually contributed to the impact of the following two issues: balancing investments by region and balancing by sector. Secondly, investing as a process that does not take into account the proportions needed for the socio-economic development of the region can put at risk both companies and the population. The third reason is related to the protection of the environment and the orientation towards investment in "green economy" and organic production

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(Plotnikova M. & Bogoyavlenska Y., 2014). However, some of the investments are planned and implemented in industries that pollute the environment and, under certain circumstances, can cause environmental catastrophes.

In order to balance the investments on a regional level, a targeted policy at country level is needed. Particular attention is paid to the effectiveness of the interaction between investors and companies through means, guidelines, forms and methods of regulatory impact at country or region level (Turekulova A. et al., 2016).

The problems presented focus our research interest on investments in Bulgaria. The aim of the study is to present an analysis of the structure of investments in a regional and structural cross-section, on the basis of which recommendations to the administration and companies should be presented in support of the desired balance and in the interest of all interested parties in the region. The survey is based on secondary data from official sources of information and covers the period 2012-2016.

1. Problems and risks arising from the forms of regional imbalance in the investments

Apart from the undoubted positive aspects of private investment in the regions, e.g. improving the economic efficiency, greater competition, transfer of technology, know-how and managerial skills, some significant issues related to imbalances can be highlighted in the available literature as well. Research in the field of foreign direct investments (FDI) shows that "the irregularities of FDI inflows can destabilize the country's economic development and complicate the application of economic policy instruments" (Vissak T. & Roolaht T., 2005). Different aspects of real and potential FDI-related issues are presented, ranging from their concentration in certain sectors to uneven regional development, fiscal conflicts and increased unemployment. The risk of FDI destroying local capabilities and extracting natural resources without adequately compensating poor countries (Velde D., 2006) is also in the focus of discussion.

Some of the studies (Voicilas D., 2007) show a significant imbalance between inbound and outbound FDIs for Romania and Bulgaria (these countries are defined as receivers due to their needs and attractiveness). Researchers' focus also includes public investments, which are defined as critical for an individual's life satisfaction and a prerequisite for positive economic development (Arnold F. et al., 2016). The authors' comparative analyzes of public investments for two cities show a significant imbalance in value for individual spheres. The studied sources have served as a basis for identifying five major forms of imbalance (Table 1).

Table 1

Forms of imbalance of investments and potential problems for the development of the regions

Forms of imbalance	Potential problems for the development of the regions
Imbalance in the regional distribution of investments	The concentration of investments in certain regions involves risks related to the internal migration of the population and significant differences in the socio-economic development. Moreover, the concentration of large-scale investments in a particular area determines the future investment interest in it. This will further strengthen the disproportion in the development of other territorial units. What is more, different regions within a given country interact in the capital, labor, and product markets (Moll B. et al., 2017).
Imbalance in the distribution of investments by sector	The imbalance of investments by sector of the economy can create major obstacles to the development of the territorial unit. Different cases can be given as examples. Investing companies can generate profits and market power that are not used to benefit the development of the region and adversely affect the business of other companies. Such an example may be

Forms of imbalance	Potential problems for the development of the regions
	investments in the commercial infrastructure of large companies in a region with low investments in manufacturing. In this case, two problems emerge: • Increased interest in investing in commercial infrastructure without investing in production contributes to long-term problems that will affect local producers and consumers in the area. • Such a type of investment disproportion can lead to an unfavorable distribution of income and profits between retailers and producers, which could adversely affect the economy, including the income of the population and its purchasing power. European Central Bank experts have reported on Bulgaria that „non-tradable sectors, such as services and construction, expanded at the expense of sectors producing tradable goods and services, weighing negatively on the competitiveness of the latter sectors" (European Central Bank, 2016).
Imbalance between private and public investments	This type of imbalance could jeopardize the success of any investment. For example, private companies' investments in tourism could be subjected to risk if the state or municipalities do not invest enough in transport infrastructure and communications. The Economic Development Benefits of Transport Investment are extensively discussed in the literature (Wallis I., 2009). An opinion has been expressed that "economic prosperity is generated by investment and trade, which depend on legal protection and public infrastructure that must be provided by the government" (Myerson R., 2014). Furthermore, a controversy between the private and public interest can also be observed in the implementation of each investment.
Imbalance between domestic and foreign direct investments	Some studies claim that "both domestic as well as foreign direct investments contribute to the economic growth of the countries of Central and Eastern Europe" (Hlavacek P. & Bal–Domanska B., 2016). However, their imbalance can lead to some unfavourable consequences like a considerable difference in remuneration and in the overall economic development of regions with such disproportion.
Imbalance between inbound and outbound investments	A problem of this type is associated with the development of markets, the availability and use of resources, the preferred administrative and legal conditions and other factors that impact the direction of investment flows. The search for balance between inbound and outbound FDI has been covered by the specialized literature (Kumar N., 1998). However, the information officially provided by the institutions about the imbalance between inbound and outbound investments, is on country level without any data to determine the imbalance by regions within the specific country.

Source:authors' research and literature review

The forms of imbalance presented and the problems that characterize them raise the question of the need to look for opportunities for balancing them in the short and long term.

2. A look at the distribution of investments in Bulgaria

In order to trace and outline the peculiarities in the regional distribution of investments in Bulgaria, official statistics covering the five-year period from 2012 to 2016 are used. The main indicators: foreign direct investments and costs of acquisition of tangible fixed assets have been studied. The data for these two indicators are collected by the Bulgarian National Statistical Institute at region level (NUTS2) and at district level (NUTS3).

In the study period, the amount of foreign direct investment is relatively constant. They amount to an annual average of about EUR 22.705 million (Table 2), which is above their pre-crisis level. Another positive trend is that the total value of foreign direct investments as a share of GDP remains relatively constant.

The main part (over 60%) of the foreign direct investments in the country are directed to one of the regions, namely to the Southwest region, where the capital of the country is located. Next, there are two other regions with an average annual share of about 11%. These two regions are located in the southern part of Bulgaria. Therefore, there is a significant imbalance, not only between the region of the capital and the other five regions, but also between North and South Bulgaria. Only 1/6th of foreign direct investments are realized in the region of Northern Bulgaria.

Table 2

Direct foreign investments in non-financial companies by region for the period 2012-2016

No.	Region	2012		2013		2014		2015		2016	
		Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share
1.	North Western	573	2.6%	700	3.0%	664	3.1%	620	2.7%	512	2.2%
2.	North Central	841	3.8%	879	3.8%	905	4.2%	876	3.8%	981	4.2%
3.	North Eastern	2024	9.2%	2041	8.7%	2093	9.7%	2271	9.8%	2359	10.0%
4.	South Eastern	2866	13.1%	3385	14.5%	2057	9.5%	2897	12.5%	2847	12.1%
5.	South Western	13611	62.0%	13959	59.8%	13561	62.8%	14053	60.7%	14238	60.6%
6.	South Central	2033	9.3%	2372	10.2%	2298	10.7%	2443	10.5%	2568	10.9%
7.	Total for the country	21948	100%	23336	100%	21578	100%	23160	100%	23505	100%

Source: authors' calculations based on Information System INFOSTAT of the Bulgarian National Statistical Institute,

https://infostat.nsi.bg/infostat/pages/external/login.jsf

At district level, there is also a considerable imbalance (Figure 1). During the last year of the studied period (2016), just over half of foreign investment is concentrated in one of the districts, namely the district where the capital city is located. Nearly one-third of investments are targeted to five other districts, and only 16% are invested in the remaining 22 districts.

Fig. 1. **Direct foreign investments in companies from the non-financial sector by districts as at 31.12.2016**

There are similar results for the other main indicator of investments - costs of acquisition of tangible fixed assets (TFA). With some fluctuations, the country's annual average is EUR 19.233 million. During the studied period up to 2015, there is a pronounced trend of increase in the cost of acquiring tangible fixed assets, but in 2016 the expenditure is lower than the previous year by 17% on average in all regions. Slightly less than half of TFA costs are incurred in the capital city region. Under this indicator South Bulgaria again significantly outstrips the North. Only a quarter of all annual costs of tangible fixed assets acquisition are realized in Northern Bulgaria, respectively 3/4 in Southern Bulgaria.

Table 3

Costs for the acquisition of tangible fixed assets by region for the period 2012-2016

No.	Region	2012		2013		2014		2015		2016	
		Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share
1.	North Western	1163	6.1%	1091	6.0%	1174	5.8%	1519	7.2%	1048	5.9%
2.	North Central	1279	6.7%	1356	7.5%	1503	7.5%	1771	8.4%	1311	7.4%
3.	North Eastern	1855	9.7%	2068	11.4%	1980	9.8%	2555	12.1%	1700	9.6%
4.	South Eastern	2996	15.7%	2954	16.3%	3198	15.9%	2839	13.4%	2015	11.4%
5.	South Western	9119	47.8%	8278	45.8%	9511	47.3%	9606	45.3%	8740	49.5%
6.	South Central	2679	14.0%	2343	12.9%	2758	13.7%	2901	13.7%	2857	16.2%
7.	Total for the country	19091	100%	18089	100%	20124	100%	21191	100%	17672	100%

The imbalance between the different districts is also very pronounced. Here, too, the largest costs for acquisition of tangible fixed assets are in Sofia district (capital) and in 2016 their relative share was 41.7% of all costs (Bulgarian

National Statistical Institute, 2016). In the second-ranking district the expenditures for FTA are four times lower than in Sofia district. In the top five districts with the highest expenditure for acquisition of tangible fixed assets are the same districts as in the previous indicator, concentrating 70% of the investments, respectively the remaining 23 districts benefit from 30% of the tangible fixed assets expenditure.

The regional profiles developed by the Institute for Market Economics show that "the district of Sofia (capital city) has the highest GDP per capita, the largest average annual income per household member, the highest average salary, and the lowest poverty level" (Nikolova D. et al., 2016) under circumstances of best condition labor market and leader in the size of domestic and foreign investments. In the same study a relationship is made between poverty, low income, and low employment rates with insufficient fixed tangible assets or foreign direct investment in the respective districts.

Although we do not have data about the division of investments into urban and rural, which would be useful for the analysis on country and districts level, we can quote conclusions from a study by World Bank Group, that urban production in Bulgaria is 12 times larger than rural production while urban population is only 2.7 times larger than rural population (World Bank Group, 2014). Such disproportion is significant and is subject to correction through the use of investment instruments.

The need for regional balancing of investments can be judged not only by the analysis of the geographical distribution of investments and the outlined inequalities at region and district level, but also by the levels of investments by economic sectors. The limitation imposed here which concerns the scope of the analysis and conclusions is connected with the lack of official data about direct foreign investment by economic sector at regional/district level. Nevertheless, the available and accessible official data allow making significant conclusions about the distribution of FDI in non-financial companies by economic activity. As can be seen from the data presented in Table 4, the share of foreign direct investments in the Industry sector is the highest during the studied period, with a slight increase in their relative share. A report by the European Commission concerning Bulgaria highlights the importance of attracting FDI in sectors of production, to avoid creating imbalances in the economy (European Commission, 2015). Secondly, there is the sector of Trade, Transport, Hotel and Restaurant Services, showing a growth of four percentage points between the first and the last year of the period. The sectors Creation and Dissemination of Information and Creative Products; Telecommunication and Real Estate Transactions, remained in the third and fourth place respectively, with decreasing investments in both sectors. A significant decrease, both in absolute terms and as a relative share, is also seen in foreign direct investment in the Construction sector. In three economic sectors, namely Agriculture, Forestry and Fisheries, Government; Education; Human Health and Social Work and Culture, Sports and Entertainment, Household Goods Repairs and Other Activities, only 1.1% of foreign direct investment are targeted annually.

Table 4

Foreign direct investments in non-financial companies by economic activity in the period 2012-2016

No.	Economic activity	2012		2013		2014		2015		2016	
		Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share
1.	Agriculture, Forestry and Fisheries	106.1	0.5%	128.2	0.5%	170.7	0.8%	113.3	0.5%	83.9	0.4%
2.	Industry (excl. Construction)	8030.0	36.6%	8548.7	36.6%	8633.2	40.0%	8905.8	38.4%	9075.1	38.6%
3.	Construction	915.7	4.2%	929.1	4.0%	917.4	4.3%	755.0	3.3%	608.8	2.6%
4.	Trade, Transport, Hotel and Restaurant Services	4602.1	21.0%	4801.6	20.6%	4985.9	23.1%	5596.3	24.2%	5866.9	25.0%

No.	Economic activity	2012		2013		2014		2015		2016	
		Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share
5.	Creation and Dissemination of Information and Creative Products; Telecommunica-tions	2013.3	9.2%	2132.8	9.1%	1750.3	8.1%	1760.8	7.6%	1831.9	7.8%
6.	Real Estate Activities	3177.9	14.5%	3318.5	14.2%	3045.0	14.1%	3216.8	13.9%	3136.5	13.3%
7.	Professional Activities and Scientific Research; Administrative and Auxiliary Activities	1086.2	4.9%	1654.3	7.1%	1661.0	7.7%	1045.5	4.5%	1691.8	7.2%
8.	Government; Education; Human Health and Social Work	12.3	0.1%	12.9	0.1%	11.7	0.1%	27.6	0.1%	29.3	0.1%
9.	Culture, Sports and Entertainment, Household Goods Repairs and Other Activities	92.9	0.4%	107.8	0.5%	103.8	0.5%	127.8	0.6%	139.7	0.6%

Source: authors' calculations based on Information System INFOSTAT of the Bulgarian National Statistical Institute,

https://infostat.nsi.bg/infostat/pages/external/login.jsf

Similar is the situation with the cost of acquiring tangible fixed assets (table 5). Investments in the Industry sector invariably have the largest share, followed by investments in the sector of Trade, Transport, Hotel and Restaurant Services. While there is a decrease in the Industry sector, the share of the Trade sector increased by 8 percentage points during the period and was the highest in the last year. In these two sectors, about 55% of the costs of purchasing tangible fixed assets during the respective years are concentrated. In the other economic sectors the acquisition cost of tangible fixed assets is relatively evenly distributed, and the results are above 1% in all sectors.

Table 5

Expenditure for acquisition of TFA by economic activity for the period 2012-2016

No.	Economic activity	2012		2013		2014		2015		2016	
		Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share
1.	Agriculture. Forestry and Fisheries	757	7.8%	782	8.5%	737	7.2%	968	8.9%	673	7.4%
2.	Industry (excl. Construction)	3887	39.8%	3049	33.0%	3234	31.4%	3055	28.2%	2910	32.2%
3.	Construction	556	5.7%	665	7.2%	973	9.5%	775	7.1%	550	6.1%
4.	Trade. Transport. Hotel and Restaurant Services	1835	18.8%	2064	22.3%	2558	24.9%	2637	24.3%	2426	26.9%
5.	Creation and Dissemination of Information and Creative Products; Telecommunications	316	3.2%	299	3.2%	394	3.8%	392	3.6%	344	3.8%
6.	Financial and Insurance Activities	189	1.9%	200	2.2%	213	2.1%	156	1.4%	208	2.3%

No.	Economic activity	2012		2013		2014		2015		2016	
		Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share	Mln EUR	Relative share
7.	Real Estate Activities	969	9.9%	860	9.3%	697	6.8%	785	7.2%	794	8.8%
8.	Professional Activities and Scientific Research; Administrative and Auxiliary Activities	400	4.1%	380	4.1%	511	5.0%	625	5.8%	494	5.5%
9.	Government; Education; Human Health and Social Work	738	7.6%	772	8.4%	810	7.9%	1225	11.3%	500	5.5%
10	Culture. Sports and Entertainment. Household Goods Repairs and Other Activities	115	1.2%	178	1.9%	162	1.6%	216	2.0%	136	1.5%

Source: authors' calculations based on Information System INFOSTAT of the Bulgarian National Statistical Institute,

https://infostat.nsi.bg/infostat/pages/external/login.jsf

The distribution of the cost of acquiring tangible fixed assets by regions and economic sectors is also of interest. Again most of the investments are realized in the Southwestern region where the capital is located. The only region where the cost of FTA in the Trade sector exceeds that in the Industry sector is that of the capital. For all other regions Industry is the sector with the largest relative share of FTA expenditure. The Southwestern region is also distinguished by the fact that the expenses in the real estate sector are the third largest, followed by the expenses in the sector Professional Activities and Scientific Research. These two sectors occupy more backward positions in the rest of the regions. Interestingly, the fact that only in the Northwest region the costs of acquiring tangible fixed assets in the Agriculture, Forestry and Fisheries sector come second only to those in the Industry sector and are followed by the expenditure in the Trade sector.
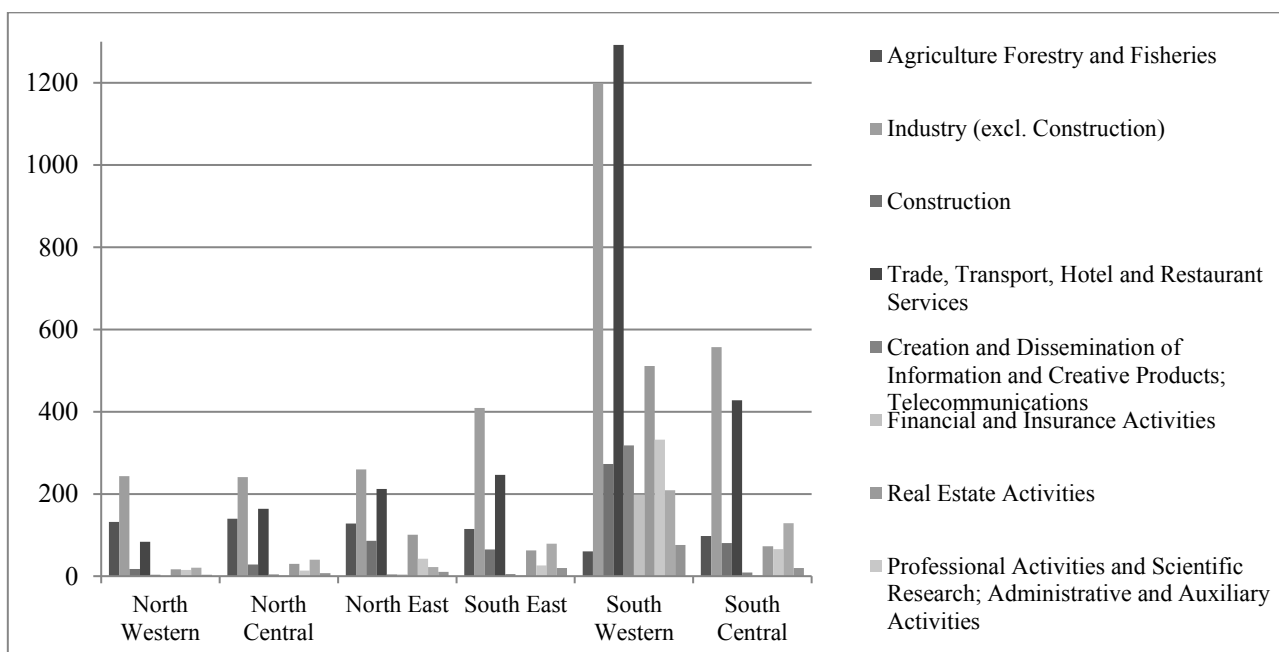
Source: Information System INFOSTAT of the Bulgarian National Statistical Institute, https://infostat.nsi.bg/infostat/pages/external/login.jsf

Fig. 2 **Costs for the acquisition of TFA by region and economic activity as at 31.12.2016 (Mln EUR)**

In summary, it can be concluded that, against the backdrop of the steady trend towards stabilizing the FDI amount and their share of GDP over the period analyzed, there is no uniform and balanced distribution of investments by the examined cross-sections.

Conclusions and recommendations

The analysis of foreign direct investment and the costs of the companies to acquire fixed assets clearly show that there is an imbalance in their distribution by regions and industries. The concentration of investment activity in Southern Bulgaria and especially in the capital region is a prerequisite for the significant lag in the economic and social development of the regions in Northern Bulgaria. The disproportions in the development of the regions lead to the migration of the population in these regions and their depopulation. The economic and social infrastructure of the regions of Northern Bulgaria is constantly deteriorating due to a lack of funding from both the budget and the private businesses.

One of the most important functions of state policy is to ensure adequate redistribution of resources, which will favor the balanced development of the regions. In doing so, state interventions should be directed not to individual industries but to providing a complex infrastructure that encourages the investment activity of economic agents. Balanced regional development is a function of the coordinated interaction between state policy, local administration and private initiative. The recommendations aimed at overcoming the identified imbalances in the investment activity by regions and industrial sectors can be divided into two levels - state policy and local self-government. Regarding the state policy pursued, the following initiatives could be taken as first steps:

• Development of a strategy for balanced development of the territories;

• Planning the necessary resources and including them as "items" in the annual budget and the long-term budget programs of governments;

• Creating the necessary administrative capacity with structural units to coordinate and synchronize the activities between the central government and the local authorities.

The following activities are recommended at the local government level:

• Carrying out initiatives for wide public discussion in the local community in order to promote ideas for development of the region;

• Exploring the views of foreign and local businesses on the investment opportunities of the regions and their recommendations for improving the administration of the investment process and taking legislative initiatives in the local parliaments for changes in the legal framework aimed at promoting investment activity;

• Organizing joint teams and initiating pilot projects to promote investment activity developed jointly with local businesses, interested foreign investors and the state administration.

An important aspect of policy implementation is not to favor investment in economic infrastructure at the expense of underestimating the importance of social and environmental investments. To increase the attractiveness of the regions as an investment destination, long-term investments in human resources in less developed regions are needed and a favorable environment for their development in every aspect - improving the material status, increasing the satisfaction of professional employment and leisure time.

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AGRICULTURAL LAND TRADE RESTRICTIONS IN EUROPE AND THE LAND MARKET SITUATION IN LATVIA

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Abstract. Land grabbing is a topical issue in many parts of the world. In the European context, it is a particularly pressing matter in Eastern Europe. The European Parliament recently highlighted the need to examine the agricultural land market beyond the boundaries set by the principles of free movement of goods, services, capital and people. The purpose of this study is to investigate the diversity of trade restrictions on agricultural land in 17 European countries and the market situation in Latvia before and after the liberalisation of the agricultural land market. A relationship between the rigidity of the regulatory framework, the share of agricultural activities in national economy, and the sales price of agricultural land was found. While most countries have restrictions for agricultural land trade to non-EU natural and legal persons, a third of the examined countries prohibit agricultural land sales to non-EU natural and legal persons. The impact of the current agricultural land trade restrictions on agricultural land market in Latvia over the period 2012–2016 was analysed by using data on agricultural land sales transactions obtained from the State Land Service of Latvia. The analysis reveals signs of agricultural land concentration, with a substantial increase of legal persons in the agricultural land transaction structure. At the same time, natural persons who are citizens of Latvia have been active in selling their agricultural land properties. The conclusions of this study provide an insight into the effects of agricultural land market restrictions and characteristics of the land market in general.

Key words: *agricultural land, agricultural land market, agricultural land transactions*

JEL code: Q15, R52

Introduction

Issues pertaining to land and water resource accessibility are constantly on the global agenda in various contexts, including such global challenges as food safety and threats to sustainable development. These threats arise not only from the insufficiency of relevant resources, but also from the efficiency of their use and the distribution of their ownership. The accumulation of land in the hands of a few owners (i.e., land concentration or land grabbing) can be viewed as dangerous from an economic, social and environmental point of view, and yet it is a widespread phenomenon in Central and Eastern Europe (Constantin C. *et al.*, 2017; Haerlin B. & Fuchloch S., 2016). Favourable conditions for land concentration and land grabbing may arise out of existing regulations or due to deficiencies therein. Studies show that these processes have intensified in recent years in the European Union in general and the new member states in particular (Constantin C. *et al.*, 2017; Kay S. *et al.*, 2015). European level surveys have found that 3% of large agricultural land owners (more than 100 ha) own 52% of the total agricultural land area, whereas 75% of small agricultural land owners (less than 10 ha) own only 11% of the available agricultural land (TNI, 2016). The large farms in the European Union have expanded at the expense of small farmers (DG IP, 2015; Eurostat, 2011). These tendencies not only facilitate the degradation of the land and environment, but have an adverse effect on European food safety and local food culture as

well. In Europe, traditional farming practices are being replaced by the intensive agriculture methods of large corporations (UN FAO, 2011; DG IP, 2015).

In 2014, several EU member states lifted the moratorium on sale of agricultural land to other EU nationals. On 14 April 2011, Latvia also amended the Law "On Land Privatization in Rural Areas" (hereinafter referred to as the Law), allowing, as of 1 May 2014, nationals and duly-registered legal entities of other EU member states to buy agricultural land in Latvia under the same conditions as Latvian nationals and legal entities. To avoid uncontrolled purchase of agricultural land after the lifting of the moratorium, several new member states of the European Union introduced restrictions on the purchase of agricultural land by imposing different requirements on the buyer and seller of land (Ciaian P. *et al.*, 2012). The amendments also established a series of restrictions on the purchase of agricultural land by natural and legal persons (Law On Land…, 1992). A study on the regulation of land recommends that Eastern European countries find a balance between a highly liberal and protectionist approach (Swinnen J. *et al.*, 2016). Recognising the strategic importance of the land resource, the European Parliament has also highlighted the need to look at the agricultural land market more broadly than in the framework of free movement of goods, services, capital and people (European Parliament, 2017).

Therefore the purpose of this study is to investigate the diversity of trade restrictions on agricultural land in 17 European countries and the market situation in Latvia before and after the liberalisation of the agricultural land market.

The presented results are based on a report prepared by the Analytical Service of the Saeima of the Republic of Latvia, titled "Trading Restrictions of Agricultural Land in Europe and the Situation in Agricultural Land Market in Latvia" (Grumolte-Lerhe I. *et al.*, 2017). Using various sources of information, this study summarises the experience and approach to overseeing agricultural land transactions and agricultural land market regulations in 17 European countries, identifying differences in the ways these countries restrict sales of agricultural land. The information used for the purposes of characterising the agricultural land market in Latvia and changes therein from 2012 to 2016 was obtained from the State Land Service (hereinafter referred to as the SLS). In order to characterise purchase and sale transactions with land parcels containing agricultural land, information on completed transactions was obtained from the SLS Real Estate Market Information Data Base for the period from 1 January 2012 to 31 December 2016. For the purposes of this study, the selection of agricultural land transactions included information about transacted land parcels containing agricultural land, their sellers and buyers, that is, natural persons (with an indication "citizen of Latvia", "non-citizen of Latvia", "stateless person of Latvia" or "foreign citizen") or legal entities. The data extraction regarding properties containing agricultural land was also based on the following criteria: (a) land parcels where the land use is agricultural land (arable land, fields, pastures, and orchards); (b) land parcel has a status of "real estate"; (c) land parcel is owned by a natural person or legal entity; (d) land parcel is not divided into apartment properties. In order to identify the presence of foreign capital within the equity capital of legal entities which have concluded sale or purchase transactions involving agricultural land, information was requested from "Lursoft IT", Ltd.

Research results and discussion

1. Agricultural land trade restrictions in Europe

The assessment of agricultural land trade restrictions in 17 European countries was performed by analysing the relevant requests made to the European Centre for Parliamentary Research and Documentation (ECPRD), national legislation, research papers and other publications. A detailed list of the sources used in the creation of this overview is available in Grumolte-Lerhe I. *et al.* (2017). After analysing restrictions in the studied countries, they were grouped according to the amount of requirements applicable to different entities purchasing agricultural land, using such

restrictions or criteria as the type of agricultural property (size and location), buyer's legal status and previous track record in the sector, details of transactions, and transaction controls (Fig. 1). In 2016, a similar grouping was created in a research paper focusing on regulatory frameworks for agricultural land sales and rent markets (Swinnen J. *et al.*, 2016).

Source: authors' construction based on the analysis of relevant agricultural land legislation in European countries

Fig. 1. **Main types of restrictions imposed upon the sales of the agricultural land in 17 European countries**

EU Member States use various methods to resolve deficiencies in the agricultural land market. They try to retain land for agricultural production, protect farmer communities, restrict land concentration and speculations through various regulations and support instruments. The Treaty on the Functioning of the EU provides that the system of property ownership is within the competence of each member state, i.e. member states take all requisite measures to prevent infringements of national law and regulations, or to take measures which are justified on grounds of public policy or public security (TFEU, 2012). Thus the 17 European countries analysed in the study range from relatively liberal, for example, Finland, Greece, and Estonia, to ones with heavy agricultural land sales restrictions or even bans, such as Hungary, France, and Poland (Table 1). Croatia is another EU member state with heavy restrictions. Even though Croatia is now a member of the EU, it still has the moratorium in place and does not allow foreigners to buy agricultural land. Hungary does not allow foreign legal entities to buy agricultural land. The agricultural land sales restrictions imposed by Latvia can be described as moderate compared to other countries analysed here.

In most of the countries, agricultural land sales restrictions apply equally to their own nationals and citizens of the EU, European Economic Area (EEA), and the Swiss Confederation. However, some countries apply additional requirements or restrictions towards EU, EEA and Swiss Confederation citizens. Seven out of the 17 countries included in the study prohibit third-country nationals to buy agricultural land, except in cases specifically regulated by legislation, i.e., when the governments of two countries have signed specific agreements or association agreements allowing such purchase of agricultural lands. Inheritance cases and transactions concluded between family members are usually exempted from such restrictions.

When it comes to agricultural land sales restrictions, the groupings of countries are not determined by geographical factors (e.g., the location on either the East–West or North–South gradient). At the same time, the analysis clearly shows that heavier restrictions are more commonplace in countries with larger agricultural land areas, a higher share of agriculture in gross domestic product (GDP), and a relatively low price of agricultural land. In comparison, there are almost no regulations of the agricultural land market in Belgium and the Netherlands (even though rent is regulated), but the high price of agricultural land in these countries serves as a self-regulatory mechanism (for this reason these countries have been excluded from further analysis). Such differences can be attributed to the varied economic structures of the analysed countries, as well as the diverse historical legacies (Swinnen J. *et al.*, 2016; Swinnen J. *et al.*, 2011).

In order to regulate agricultural land sales, European countries limit the sellable area and impose specific requirements for acquisition of agricultural land in particular parts of the country. The goal of such an approach is to preserve the structure of traditional agriculture and to protect local farmers and investors in the international market (Ciaian P. *et al.*, 2012). It is for this reason that most of the studied countries have protectionist policies when it comes to the purchase of agricultural land in specific parts of the country, for example, areas crucial for the protection of national or economic interests (border areas or coastal regions, areas close to military infrastructure, valuable mineral deposits, etc.). At the same time, there are national restrictions regarding the maximum size of agricultural land which can be owned and purchased by a single entity in one transaction. For instance, Poland and Lithuania limit a single agricultural land transaction to 300–500 ha, whereas federal states like Austria and Germany have varying single transaction area limits in different federal lands. The agricultural land purchase limits imposed by Poland and Lithuania include restrictions concerning the total area of agricultural land owned by a single entity. Whereas Latvia, Romania, and Hungary only have restrictions regarding the maximum area of an agricultural land property. In Romania, a single entity can own up to 100ha, whereas in Hungary natural persons can purchase agricultural land of up to 1 ha and, if they register as farmers, they can own up to 300 ha of agricultural land. Latvia has opted to apply less demanding restrictions, i.e., a single natural person or legal entity can own up to 2 000 ha and affiliated entities can own up to 4 000 ha. Between 2012 and 2017, there were only 16–18 owners of agricultural land in Latvia who owned more than 2 000 ha of agricultural land. All of them were legal entities. Moreover, in 2017, 13 of those entities represented foreign capital. Thus, the analysis shows that there are few opportunities to apply the current restrictions in practice.

Table 1

Characteristics of agricultural activities and regulation for agricultural land transactions in 17 European countries

Country	Stringency of regulation for agricultural land transactions	Share of agricultural land (% of the total area of the country) in 2015	Share of agriculture in GDP (%) in 2016	Employment in agriculture (% of total employment) in 2016	Agricultural land price (EUR/ha) in 2014
Hungary	Stringent approach	57.5%	2.94%	5.0%	1 267–2 865
France	Stringent approach	53.5%	1.10%	2.8%	5 940
Poland	Stringent approach	46.1%	1.83%	10.5%	5 280–7 723
Croatia	Stringent approach	27.2%	2.04%	7.6%	1 255–3 744
Romania	Medium stringency	58.0%	3.73%	23.1%	1 744–3 021
Lithuania	Medium stringency	46.0%	2.20%	8.0%	1 373–2 330
Czech Republic	Medium stringency	44.3%	0.81%	2.9%	2 591–3 202
Slovakia	Medium stringency	39.2%	0.64%	2.9%	3 100–5 300
Austria	Medium stringency	32.4%	0.77%	4.3%	–
Latvia	Medium stringency	29.2%	1.15%	7.7%	1 371–2 552
Slovenia	Medium stringency	23.5%	1.16%	5.0%	14 332–16 009
Germany	Liberal approach	46.8%	0.43%	1.3%	18 099
Portugal	Liberal approach	40.1%	1.20%	6.9%	–
Greece	Liberal approach	38.6%	2.78%	12.4%	4 877–18 978
Estonia	Liberal approach	22.0%	0.81%	3.9%	2 006–2 426
Sweden	Liberal approach	6.9%	0.36%	1.9%	2 814–7 408
Finland	Liberal approach	6.7%	0.32%	3.9%	8 090

Source: authors' construction based on the research results and data from Central Statistical Bureau…, 2017. European Commission, 2016, European Commission 2017

Most countries included in the study often have special requirements towards potential buyers of agricultural land. First, the countries may have specific minimum residency requirements that buyers of agricultural land need to meet to become eligible to purchase such land. However, only a few countries – such as Estonia, Lithuania, Poland, Hungary, and Slovakia – have such a requirement. Second, most of the countries have pre-emptive rights, which both natural persons and legal entities need to take into account. Pre-emptive rights apply when other farmers are interested in buying the land. Unless a buyer is also a farmer, like in Austria, other farmers who have registered their interest in a transaction, may apply for preferential treatment. In Portugal, pre-emptive rights can be exercised by owners of adjacent parcels; in Slovakia, by inhabitants of the near-by area; in Slovenia, by persons with a farmer status; in Latvia, by tenants. 12 out of the 17 countries included in the study allow municipalities or the state to exercise pre-emptive rights and purchase agricultural land, delegating this task to a foundation, national or local government units, or an agency. Third, most of the analysed countries require buyers to have previous experience in farming; some countries also require agricultural background or professional qualifications in agriculture. Potential agricultural land buyers in Estonia, Poland, and Romania are required to provide evidence of their previous experience in farming. And, for example, Hungary requires agricultural land buyers to have at least 3 years of agricultural experience. In Lithuania, to avoid youth migration away from rural areas, only buyers older than 40 years are required to prove prior experience in farming. There are few countries where buyers of agricultural land are formally required to present evidence of official language skills, but it is commonly and culturally expected (for instance, in France) that buyers of agricultural land speak the local language.

In most countries, a permit for purchasing agricultural land is needed, and specific requirements and restrictions for obtaining such permits are in place. For example, a permit will be granted to a buyer who: pledges to use the land himself and only for the purposes of agricultural production (Hungary); pledges to manage the purchased land for an extended period of time and not resell it (Romania and Poland – 10 years; Lithuania and Hungary – 5 years); or has submitted a plan for the future use of the agricultural land (Austria, Lithuania, and Poland). In Latvia, a plan for the future use of the agricultural land must be presented to the municipal committee upon its request for transactions above the agricultural land area threshold. Restrictions on transactions with agricultural land and control models thereof also differ from country to country. The most frequently used model is general monitoring of transactions, usually implemented by ministries. More complex models are also used, including centralised control and regulation at the municipal level. The control functions are carried out by public structures, foundations, municipal committees in collaboration with stakeholders and experts. In most cases, a threshold for the area of agricultural land is set at which control over transactions is to be exerted and the matter of the pre-emptive rights of the state or municipality is to be considered. The threshold may apply to the area of agricultural land to be purchased, as well as the total area of agricultural land owned by the buyer after the conclusion of the transaction. This is the model used, for example, in the Baltic States. A differentiated control system is used, for example, in Romania; small scale transactions (purchasing less than 30 ha of agricultural land) are monitored by municipalities, while larger transactions are monitored by the Ministry of Agriculture and Rural Development, and the pre-emptive rights are held by the State Domain Agency. In Poland, the Agricultural Property Agency is authorised not only to monitor transactions with agricultural land, but also monitor transactions by capital companies if these transactions are related to agricultural land.

Latvia has introduced instruments aimed at ensuring that larger areas of land are used for agricultural purposes and the amount of neglected agricultural land is reduced. To this end, the Land Fund of Latvia has been established (Order on the Manager of the Latvian Land Fund, No.119, 2015), which monitors agricultural land purchasing transactions for areas above the threshold stipulated in the Law. The Land Fund also holds pre-emptive rights to agricultural land. In turn, France has some of the strictest conditions in Europe for purchasing agricultural land, with the French land agency SAFER (*Société d'aménagement foncier et d'établissement rural*) being tasked with monitoring at the national level and holding

broad authority to decide on all agricultural land transaction at the local level. The agency monitors transactions with land, supports farmer communities and farm consolidation, as well as restricts uncontrolled expansion of farms and prevents speculative transactions (Latruffe L. *et al.*, 2013).

2. Characteristics of agricultural land market in Latvia over the period 2012–2016

In the given period, 5158 legal entities and 28 699 natural persons were identified as unique buyers of agricultural land. It was concluded that, during this five year period, several persons were involved in more than one transaction, and several units of land were purchased and sold more than once. Two agricultural land parcels were even sold 10 and 11 times during the period.
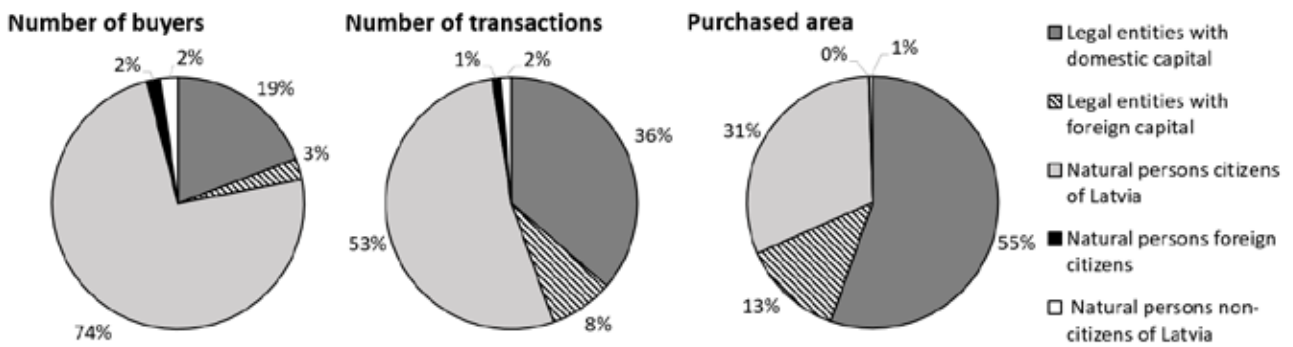
Source: authors' construction based on data from "Lursoft IT", Ltd and SLS

Fig. 2. **Agricultural land purchase transaction structure in Latvia over the period 2012–2016**
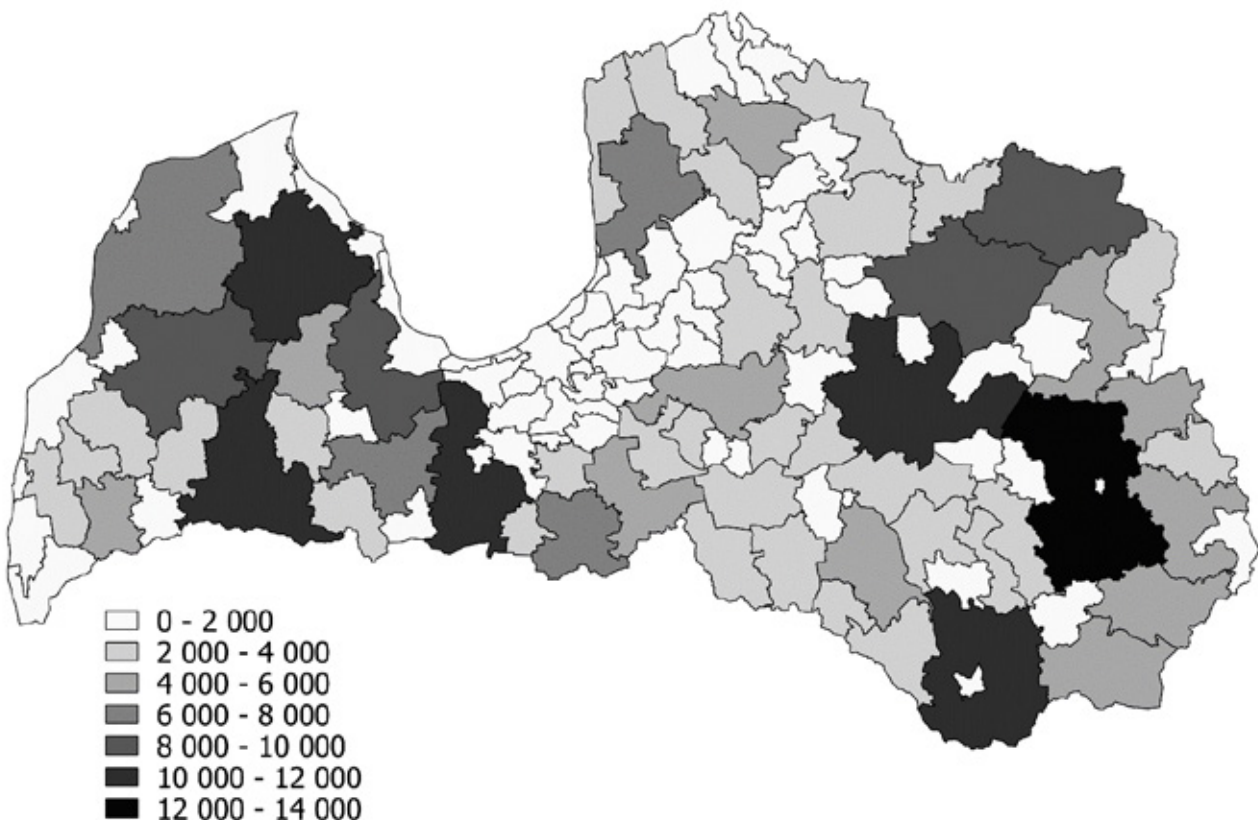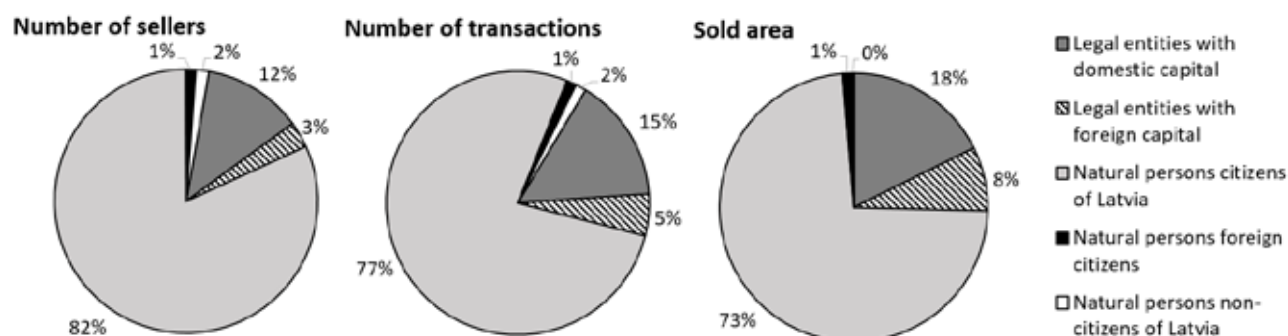

Source: authors' construction based on data from SLS

Fig. 3. **Regional breakdown of total purchased agricultural land area (ha) in Latvia over the period 2012–2016**

The majority (74%) of agricultural land buyers were citizens of Latvia (Fig. 2), whereas the second largest group was legal entities with domestic capital (19.3%). In terms of the number of transactions, again Latvian citizens were the most active. Legal entities with domestic capital were also the second largest group in terms of the number of transactions with agricultural land (36.4%), while these transactions accounted for the majority (55.4%) of the total agricultural land area purchased. In turn, the activity of legal entities with foreign capital in agricultural land purchasing transactions was generally lower. The activity of natural persons who were non-citizens of Latvia or foreign citizens, was also low.

Overall, the largest areas of agricultural land were purchased in the Rezekne, Daugavpils, Jelgava, Talsi and Madona municipalities (Fig. 3), which were also the leaders in terms of the number of transactions. Foreigners purchased the most agricultural land in the Dundaga and Vecumnieki municipalities, while non-citizens of Latvia purchased the most land in the Ligatne and Olaine municipalities. However, the areas purchased by these two groups were relatively small. Latvian citizens purchased the largest areas of agricultural land in the Rezekne, Daugavpils, Madona, Gulbene and Talsi municipalities. Legal entities with domestic capital purchased the largest areas in the Saldus, Jelgava and Talsi municipalities, while legal entities with foreign capital purchased the most in the Tukums, Madona, Auce, Kandava and Ogre municipalities.

Source: authors' construction based on data from "Lursoft IT", Ltd and SLS

Fig. 4. **Agricultural land sales transaction structure in Latvia over the period 2012–2016**

Overall during the period, there were 88 557 sales transactions with land parcels containing agricultural land, with a total area of 325 107 ha of agricultural land. During the period, the most active sellers of agricultural land were Latvian citizens; they constituted the majority of sellers, were involved in the majority of transactions and, as a result, sold 73.3% of the total area of agricultural land sold (Fig. 4). It must be noted that legal entities with domestic capital sold less agricultural land than they purchased: they sold 17.7% of the total area of agricultural land (57 432 ha), whereas they purchased 55.4% (183 218 ha). The indicators regarding sales transactions for other groups were relatively low.

3. Dynamics of transactions with agricultural land in Latvia over the period 2012–2016

In 2014, the Law "On Land Privatisation in Rural Areas" was amended, establishing various restrictions for natural and legal persons to purchase agricultural land. In order to determine how the agricultural land market responded to the legislative amendments, a detailed analysis of the dynamics of transactions with agricultural land in Latvia in 2012–2016 was performed.

The legislative amendments introduced stricter conditions for buyers, setting an upper limit on the area of agricultural land that may be purchased. Overall, the average amount of agricultural land purchased in one transaction is small (0.1– 3.2 ha) for all groups (Table 2). Although the value of the maximum area of agricultural land purchased by citizens of Latvia and foreign citizens may seem quite high, it must be taken into consideration that these are individual transactions,

with the majority of transactions involving small areas of agricultural land. The average and largest areas of agricultural land purchased by non-citizens of Latvia are small, which may indicate that purchases of large areas of agricultural land are not characteristic to this group.

Table 2

Characteristics of agricultural land purchase transactions by natural persons in Latvia over the period 2012–2016

Parameters	Natural persons	2012	2013	2014	2015	2016
Average area (ha) of agricultural land purchased in one transaction	Citizens of Latvia	3.2	2.8	2.6	2.0	2.0
	Foreign citizens	0.7	0.5	1.2	2.8	1.7
	Non-citizens of Latvia	0.8	0.2	0.2	0.2	0.1
Maximum area (ha) of agricultural land purchased in one transaction	Citizens of Latvia	96.8	101.3	53.3	81.5	134.8
	Foreign citizens	33.8	10.9	51.9	61.7	15.7
	Non-citizens of Latvia	27.8	5.3	3.0	1.5	1.6
Number of purchase transactions exceeding 10 ha of agricultural land	Citizens of Latvia	590	512	465	256	279
	Foreign citizens	3	2	10	9	5
	Non-citizens of Latvia	3	–	–	–	–
Total area (ha) of agricultural land purchased, exceeding 10 ha	Citizens of Latvia	9 840	8 079	7 470	4 289	4 771
	Foreign citizens	70	21	211	283	53
	Non-citizens of Latvia	76	–	–	–	–

Source: authors' calculations based on data SLS

The Law sets 10 ha as the limit at which requirements are increased for potential buyers who are natural persons. Analysis of the number of transactions and the total purchased area of agricultural land reveals both of these indicators decreasing for transactions by natural persons with agricultural land exceeding 10 ha. For citizens of Latvia, the number of transactions with agricultural land exceeding 10 ha as a proportion of the total number of transactions for the group steadily decreased from 6.7% (590 transactions) in 2012 to 2.8% (279 transactions) in 2016. Concurrently, the proportion from the total area of agricultural land purchased by this group of parcels exceeding 10 ha also decreased: from 41.9% (9840 ha) in 2012 to 28.1% (4771 ha) in 2016. In turn, the activity of foreign citizens in transactions with agricultural land exceeding 10 ha is insignificant throughout the period. For the non-citizens of Latvia group no such transactions were found in 2012.

Table 3

Characteristics of agricultural land purchase transactions by legal entities in Latvia over the period 2012–2016
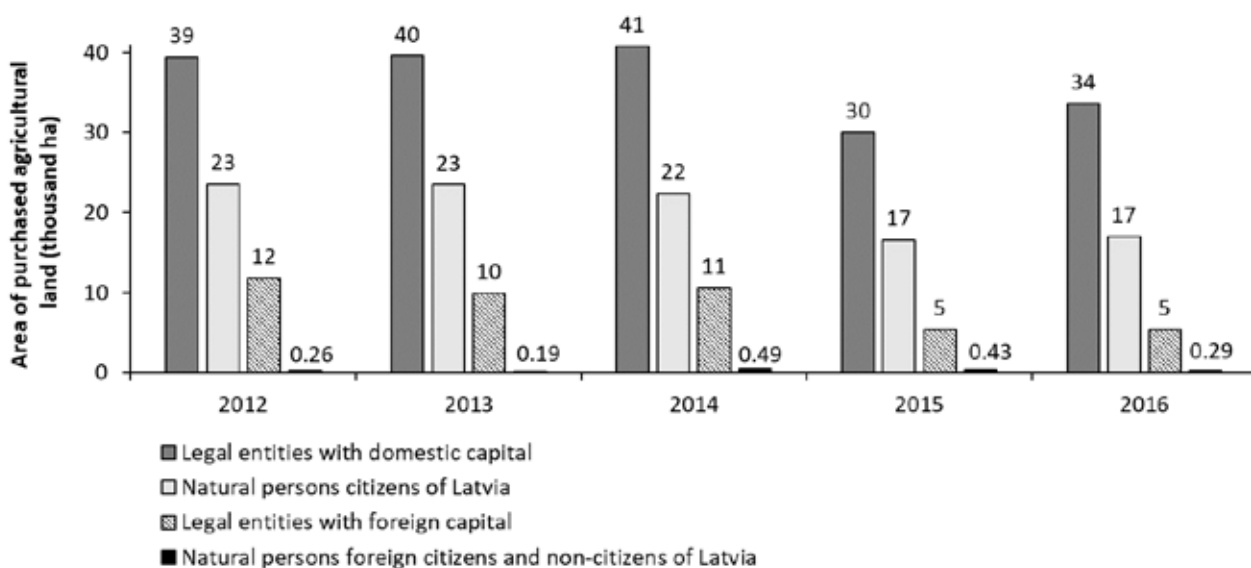
Parameters	Legal entities	2012	2013	2014	2015	2016
Average area (ha) of agricultural land purchased in one transaction	With domestic capital	6.8	6.8	6.7	6.4	6.7
	With foreign capital	7.8	7.4	7.2	5.5	5.2
Maximum area (ha) of agricultural land purchased in one transaction	With domestic capital	296.3	118.3	190.4	106.1	97.3
	With foreign capital	180.0	97.4	134.8	98.1	65.3
Number of purchase transactions exceeding 5 ha of agricultural land	With domestic capital	2984	3140	3035	2149	2468
	With foreign capital	729	665	677	317	384
Total area (ha) of agricultural land purchased exceeding 5 ha	With domestic capital	32 835	33 121	32 430	24 346	27 914
	With foreign capital	10 210	8 520	8 866	4 241	4 114

Source: authors' calculations based on data from "Lursoft IT", Ltd and SLS

Table 3 illustrates the tendency in terms of area of agricultural land per transaction in the legal entities buyer group. The average amount of agricultural land purchased by legal entities with domestic capital has remained relatively stable
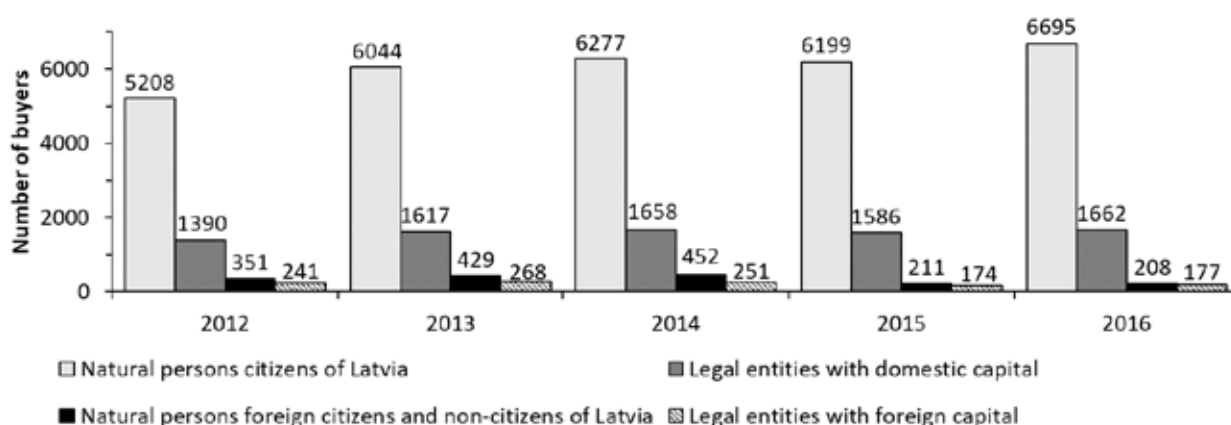
(6.4–6.8 ha), however, the analysed 5 year period shows a decreasing tendency in the maximum area of purchased agricultural land. In turn, both the average and maximum area of agricultural land purchased by legal entities with foreign capital decreased steadily. Furthermore, the absolute values of agricultural land purchased by legal entities with foreign capital have been lower than the indicators for legal entities with domestic capital throughout the period.

Although for legal entities the majority of transactions with agricultural land were below the 5 ha threshold stipulated by the legislative amendments, large transactions account for a significant percentage of the total transactions. The proportion of transactions with parcels over 5 ha out of the total number of transactions with agricultural land is relatively stable for legal entities with domestic capital – above 40% throughout the period. However, for legal entities with foreign capital, this indicator decreased in 2016 both in terms of percentage (31.6% compared to 42% in 2012) and real numbers (384 and 729 transactions, respectively). It must be noted that, in absolute values, the total area of purchased agricultural land exceeding 5 ha had decreased in 2016 as compared to 2012 for both groups of legal entities.

Legend:
- ■ Legal entities with domestic capital
- □ Natural persons citizens of Latvia
- ▨ Legal entities with foreign capital
- ■ Natural persons foreign citizens and non-citizens of Latvia

Source: authors' calculations based on data from "Lursoft IT", Ltd and SLS

Fig. 5. **Purchased area of agricultural land by buyer group in Latvia over the period 2012–2016**

Legend:
- □ Natural persons citizens of Latvia
- ■ Legal entities with domestic capital
- ■ Natural persons foreign citizens and non-citizens of Latvia
- ▨ Legal entities with foreign capital

Source: authors' calculations based on data from "Lursoft IT", Ltd and SLS

Fig. 6. **Number of buyers of agricultural land by buyer group in Latvia over the period 2012–2016**

The general purchasing tendencies for all buyer segments show that the total area of agricultural land purchased has decreased since 2014 (Fig. 5). The dynamics of the number of agricultural land buyers demonstrate that the amendments to the Law have had only a slight impact on overall buyer activity (Fig. 6). By comparing indicators for natural persons and legal entities, it can be observed that legal entities with domestic capital play a larger role in purchase transactions,

having purchased the largest amount of agricultural land in terms of area during the period. The second largest group – citizens of Latvia – show a high level activity in terms of the number of transactions, but the areas purchased are relatively small.

It was concluded that during this period, the proportion of area of agricultural land purchased (from the total area of agricultural land purchased in the relevant year) decreased across all groups. The only exception were legal entities with domestic capital, for whom the proportion of purchased area steadily increased from 56.2% in 2012 to 59.7% in 2016. The percentage of agricultural land purchased by Latvian citizens has remained above 30% throughout the period. The proportion of agricultural land purchased by legal entities with foreign capital constituted only 9.6% in 2016. Compared to the other groups of buyers, the percentage of agricultural land purchased by non-citizens of Latvia and foreign citizens is insignificant.

Analysis of the changes in the sold area of agricultural land and number of transactions in 2012–2016 shows that for the largest group of sellers – citizens of Latvia – the proportion of sold area of agricultural land (around 72–76%) and the proportion of the number of transactions (around 77–79%) has not changed significantly throughout the period. However, a decrease was seen in 2014: 69.8% and 74.4% respectively. It is important to note that, in 2014, legal entities accounted for a larger portion of sold agricultural land than in other years, i.e., 19.6% for legal entities with domestic capital and 9.2% for legal entities with foreign capital. The proportion of legal entities in the number of sales transactions was also higher in 2014 as compared to other years. For foreign citizens and non-citizens of Latvia, these indicators were relatively low throughout the period.

4. Impact of legislative amendments on sales transactions with agricultural land in 2014

On 1 November 2014, amendments to the Law came into effect, stipulating the agricultural education requirement and limiting the area of agricultural land that can be bought and sold. The dynamics in the number of transactions by month (Fig. 7) supports the findings of the State Land Service (SLS, 2016) that many agricultural land sales transactions which took place in 2015 were officially registered as having taken place prior to 1 November 2014.
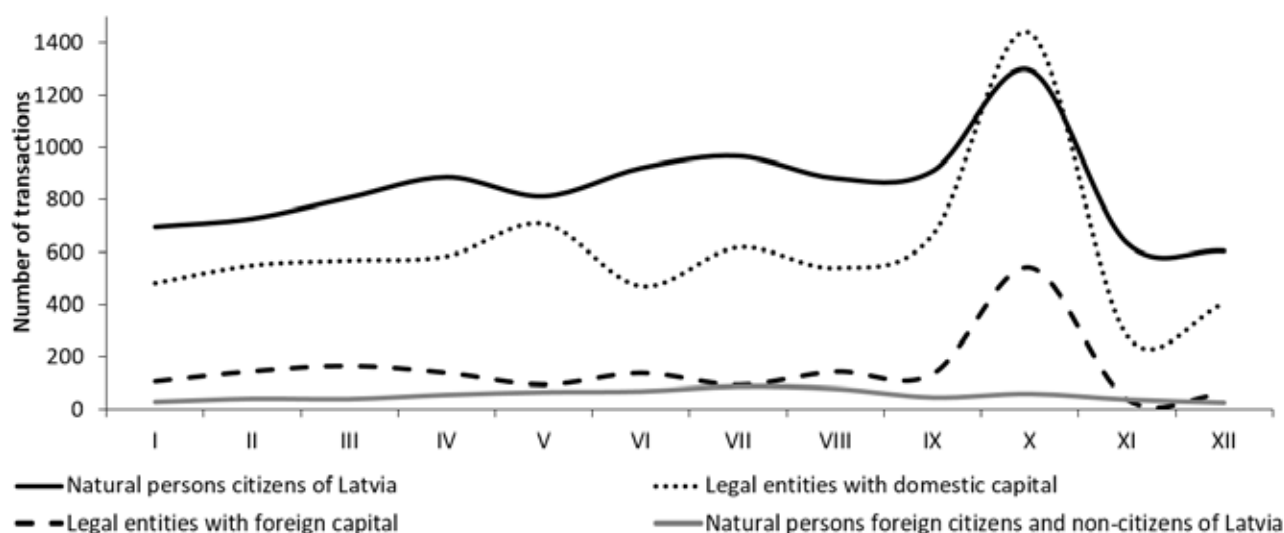
Source: authors' calculations based on data from "Lursoft IT", Ltd and SLS

Fig.7. **Number of transactions with agricultural land in Latvia in 2014**

The identified tendencies demonstrate the decrease in the number of sales transactions and purchased area across all buyer groups in 2015 and the subsequent increase in 2016 (see Fig. 5 and 6). This confirms the findings of the SLS (SLS, 2016) regarding the overall market activity decrease of approximately 20–30% after the legislative amendments came

into effect in 2014. At the same time, the results also confirm the findings of the SLS that the amendments to the Law approved on 14 April 2011 providing that, as of 1 May 2014, citizens of EU member states and legal entities registered in EU member states would be subject to the same conditions for purchasing land as citizens of Latvia and legal entities registered in Latvia, have had practically no impact whatsoever on the number of sales transactions with agricultural land and the area of agricultural land sold (SLS, 2016).

Conclusions

1. In response to the liberalization of the agricultural land market, which equalized the requirements for the acquisition of the agricultural land by citizens of EU countries, the new EU Member States have tightened the terms for agricultural land acquisition.

2. Several specific conditions for the buyer of agricultural land have been set by EU countries. In one third of the analysed countries third-country nationals are forbidden from purchasing agricultural land. Agricultural land buyers – legal entities – must, for the most part, be registered as taxpayers in the country where the property is purchased. While in some countries the requirements for agricultural land buyers involve having an experience in agriculture, requirements for formal education or professional qualification are less common. Formal proof of knowledge of the state language is not common.

2. Transaction restrictions set by the EU countries are mainly aimed at ensuring the long-term sustainable use of agricultural land for agricultural purposes. Therefore, a common requirement is to develop and present a plan for the future use of the purchased agricultural land. Stricter restrictions impose a ban on selling the agricultural land for a defined period of time after its purchase, or even to provide a certain level of income from its use.

3. There is a link between the rigidity of the regulatory framework, the share of agricultural activity in the national economy and the price of the agricultural land. Market restrictions are milder in countries with higher prices for agricultural land.

4. The analysis of the agricultural land market in Latvia over the period 2012–2016 illustrates the dominant groups within the agricultural land transaction activities. Legal persons with domestic capital dominated the purchase side of the agricultural land market. The second largest group – citizens of Latvia – was quite active in terms of both the number of transactions and the number of purchased agricultural land properties; however, it must be noted that the areas of the purchased agricultural land were mainly small. At the same time legal persons with foreign capital have had a substantial impact on the agricultural land market, while the groups of non-citizens and foreigners in Latvia have transacted comparatively small agricultural land areas.

5. The agricultural land purchase restrictions adopted in Latvia in 2014 have lowered the market activity in terms of sold agricultural land area and the number of transactions, the only exception being legal persons with domestic capital – the area of agricultural land purchased by them has steadily grown. Whereas natural persons – citizens of Latvia – have sold more agricultural land than they have bought over the period of interest.

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COMPETITIVENESS OF EUROPEAN UNION'S AUTOMOTIVE INDUSTRY

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Abstract. Automotive sector plays a key role in the EU, that provides around 12,6 million jobs and creates 4% of the EU's GDP. The EU accounts 20% of global vehicles production, the EU's automotive sector is the largest private investor in R&D. EU policy aim to strengthen the competitiveness of the EU automotive industry. In 2014 European Automobile Manufacturers' Association (ACEA) presented policy manifesto, which pointed out three main pillars necessary to improve competitiveness of automotive industry. Those pillars are: driving innovation, fostering growth through international trade and building a supportive regulatory framework.

The main goal of the article is to analyse competitiveness of the EU automotive sector. The economic performance of the EU automotive sector is evaluated. In the first part of the paper main indicators for automotive sector will be presented, for instance production, employment, trade. Authors will focus on innovation, as a key factor for economic growth. In second part of the article major challenges for automotive sector will be presented. The article is based on critical review of the literature of the subject and international reports and analysis. The statistical data is sourced from the main international statistics. Main research method employed are comparative studies.

In conclusion authors emphasized that the main challenge for EU automotive industry is raising world share of Chinese automotive sector. In addition huge challenge will be adaptation new technologies – electric, hybrid and e-gas (CNG and NGV) cars, as this will require huge R&D investments. However this may gain the leadership position for EU in the global chain in automotive industry. This research can be used by policy makers in developing countries for the purposes of advancing conditions for automotive sector and stimulating economic growth.

Key words: *Automotive Industry, Competitiveness, Productivity, Innovation*

JEL code: F40, L91, O14,

Introduction

The automobile industry is one of the driving force of economic growth in European Union. However due to increasing global competition there is a need to strengthen its position. European Union emphasized that 80% of the growth in the automotive sector is expected to occur outside the EU. Therefore EU should focus on concluding and enforcing preferential trade and investment agreements. Such actions may facilitate to access markets and benefit from economies of scale. European Commission is currently working on global technical harmonisation, which could help to reduce development costs and avoid duplication of administrative procedures. Such harmonisation may be key to strengthening EU competitiveness. EU's goal is to take leader position in technological leadership in the automotive sector. For that reason Commission has more than doubled the funds for R&D in the automotive sector for the period 2014-2020. The funding is intended for green vehicles, decarbonisation of conventional engines, safety, and information technology infrastructure.

Also European Automobile Manufacturers' Association (ACEA) in 2014 presented "A Manifesto for a Competitive European Automobile Industry". Three main pillars necessary to improve competitiveness of automotive industry were pointed out: driving innovation, fostering growth through international trade and building a supportive regulatory framework. Moreover ACEA emphasize that European economy is slowly recovering after crisis and it's about time for European automotive sector to take back leading world position. Automotive industry has large direct employment and job multiplier in the supply chain, as well as the industry's economic contribution to exports and technology development in general. The automotive industry has significant multiplier effect in the economy. It is important for upstream industries such as steel, chemicals, and textiles, as well as downstream industries such as ICT, repair, and mobility services. Policy makers should focus on reforms necessary to sustain and improve the conditions in which automotive business and industry operate. This could lead to job creation, raising demand, greater prosperity and finally overall economic growth. In addition automotive sector is huge source of technological, industrial and commercial innovations. Moreover the climate change agenda is rushing technological change to provide innovative solutions.

The aim of the study is to analyse competitiveness of the EU automotive sector. For that reason economic performance of the EU automotive sector is evaluated. Authors examined available data for motor vehicle production, employment in automotive industry and trade. Moreover number of patent application of automotive sector was analysed, as indicator of innovativeness. Second part of article focus on main challenges for European automotive sector, which are growing world share of Chinese automotive sector, adaptation of new technologies and environmental policy restrictions.

Main research method employed is critical review of the literature, international reports and analysis. Moreover comparative studies are used for data presentation. Statistical data is from European Automotive Manufacturing Association.

Performance of Automotive sector in EU

Automotive is an important sector for EU economy. The EU automotive industry consists of two major segments: manufacturing (production of cars, parts, components) and non-manufacturing (services related to automobile use as sale, repair etc.; automotive transport; constructions for automotive infrastructure). Automotive is a strategic industry in the EU, where 19.2 million cars, vans, trucks and buses are manufactured per year. There are more than 300 vehicle assembly and production plants in 26 countries across Europe. The turnover generated by the automotive sector represents 6.8% of EU GDP. Moreover automobile industry supports a vast supply chain and generate an selection of business services. (ACEA,2018)

Table 1

World motor vehicle production (in 1,000 units)

	2015	2016	% change 16/15	% share 2015	% share 2016
Europe	21 494	22 090	2,77%	23,44%	22,98%
Greater China	24 931	28 413	13,97%	27,19%	29,56%
Japan/Korea	13 629	13 237	-2,88%	14,86%	13,77%
Middle East/Africa	1 963	2 323	18,34%	2,14%	2,42%
North America	18 013	18 299	1,59%	19,64%	19,04%
South America	3 183	2 856	-10,27%	3,47%	2,97%
South Asia	8 485	8 911	5,02%	9,25%	9,27%
WORLD	91 698	96 129	4,83%	100,00%	100,00%

Source: author's calculations based on ACEA 2017

In 2016 European vehicle production increased by 2,77% , totalling to 22 million units, which is 23% of global production. Europe is second largest producer of motor vehicles. Since 2011 leadership position was taken over by Grater China, which is increasing its share in the world market rapidly. In EU vehicle production increase was mainly driven by high domestic demand and almost reach pre-crisis levels. This is positive trend was reached despite political instability and economic uncertainty caused by Brexit or the Italian referendum. EU production focused mainly on passenger cars, which are 86% of EU automotive production, 11% light commercial vehicles and 3% heavy and medium commercial vehicles. Overall car production in EU is increasing each year. Italian car production recorded the highest increase (20.4%), followed by the UK (9.0%), France (4.4%), Spain (4.3%) and Germany (0.2%). From the other hand Europe lost its leading position in the car manufacturing (23% of world production), while China is increasing share in world production (29% of world production).

Table 2

Employment in Automotive industry in EU in million

EU automotive employment	2011	2012	2013	2014	2015	% change 15/14	% change 15/11
Manufacturing direct	2,23	2,29	2,30	2,37	2,45	3,26%	9,71%
Manufacturing indirect	0,85	0,83	0,81	0,82	0,82	0,70%	-3,38%
Automobile use	4,41	4,30	4,26	4,26	4,35	1,99%	-1,49%
Transport	4,05	4,07	4,31	4,35	4,36	0,18%	7,73%
Construction	0,65	0,62	0,59	0,60	0,60	0,10%	-8,03%
TOTAL	12,20	12,11	12,27	12,40	12,58	1,42%	3,14%

Source: author's calculations based on ACEA 2017

More than 12,5 million Europeans work directly or indirectly in the automotive sector in 2016, representing 5,7% of total EU employment. 4,35mln people work in services related to automobile use, 4,36 million are employed in transport and 3,3 million are employed in automotive manufacturing, which represents 10.9% of EU's manufacturing employment. During period 2011-2015 employment was raising the most in direct manufacturing and transport. The highest employment in direct automotive manufacturing is in Germany, France, Poland, Romania, Czech Republic and Italy. (ACEA, 2017)

Table 3

EU Trade in Automotive sector

	PC	LCV	CV&BC	Total
2016 Trade in value [mln EUR]				
Import in value	37 991	5 874	1 828	45 693
Export in value	125 005	4 088	6 305	135 398
Trade balance in value	87 014	-1 786	4 476	89 704
% change16/15				
Import in value	16,8%	17,1%	17,1%	16,8%
Export in value	-3,2%	3,3%	-1,0%	-2,9%
Trade balance in value	-9,9%	68,3%	-6,9%	-10,6%
2016 Trade in volume [units]				
Import in volume	2 852 367	443 587	90 465	3 395 419
Export in volume	5 498 518	347 108	491 610	6 337 236
% change16/15				
Import in volume	15,8%	13,7%	-45,4%	11,8%
Export in volume	-1,5%	8,7%	136,4%	3,8%

Source: author's calculations based on ACEA 2017

EU countries are highly representative in world automotive trade. The EU exported more than 6.3 million vehicles in 2016, 33% to Asia-Oceania and 33% to North America, more than 20% to EFTA and Eastern Europe. In 2016, the EU exported about 5.5 mln passenger cars worth around 125 billion EUR. At the same time, the value of EU imports strongly increased to 38 billion EUR (growth by 16.8%). Most passenger cars imported into the EU came from Turkey, Japan, South Korea and United States. The European auto industry is a global player, delivering quality products around the world, and creating 90 billion EUR trade surplus. However this trade surplus is declining over last years.
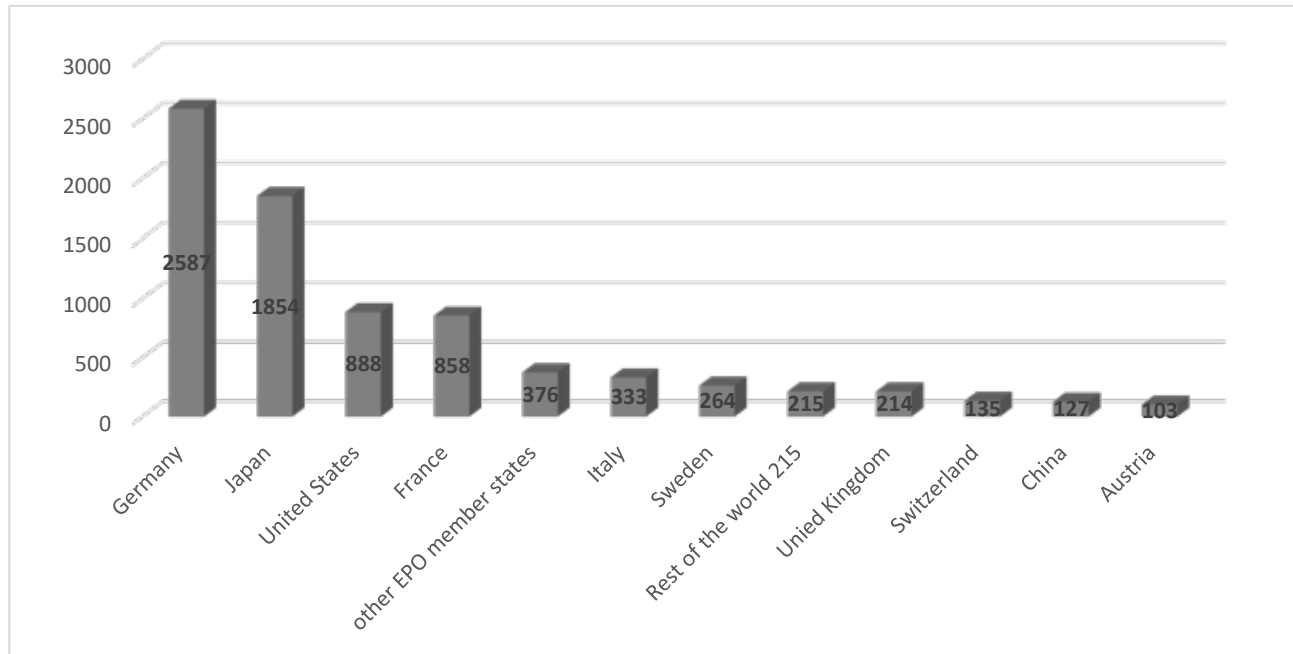
Source: author's construction based on ACEA 2018

Fig. 1. **Automotive patents from European Patent Office by country in 2016**

Not only automotive industry make a significant contribution to powering economic growth and creating jobs, but also spurs innovation. The automotive sector invests 50.1 billion EUR in R&D each year, which is 27% of all R&D expenditures in EU. The EU is the world's largest investor in automotive R&D. EU's R&D expenditures in automotive sector are growing each year by 6-8%. In 2016, about 8,000 patents were granted by European Patent Office to the automotive sector, out of which more than half was from EU countries. 27% of those patent application were from Germany and 11% from France.

Challenges for EU Automotive sector

Nowadays, mobile devices enable connection between drivers and their vehicles, which in turn are connected to car makers and dealerships. This connectivity creates big opportunities for a more personalized and customized driving-ownership experience, and a very complicated system of relationships between the technologies as well. Moreover, this will drive completely new approaches for mobility and car ownership. Regulatory authorities and environmental limitations are also putting pressure for the auto manufactures that must leverage the latest technology to help them meet new requirements in the automotive sector (Kastensson, 2014). Mobility approaches connected, smart cars, environmentally designed and manufactured, and a production process more and more are becoming dependent on technology. In order to find the right partner, car makers put efforts to help meet these challenges has led several of the largest global automotive brands. The automotive industry has been affected by changes and trends which are reshaping key aspects of the traditional business models, both core and auxiliary. Some of the aspects that can have a significant

impact in the automotive industry are the increasing economic power of emerging economies, which can significantly impact not only the markets, but the entire supply chain (Bohnsack et al., 2014). The introduction and broad acceptance of sharing economies is changing consumer behaviors in terms of lifestyle, travel and work, which has rising implications for current business models (Kompalla et al., 2017). An immediate implication of the above is that investments and growth potential are shifting in geographies. Some companies are better prepared than others to adapt new technologies in the automotive sector. The technological innovations in particular are affecting the industry. Currently, worldwide more powerful and enabling technologies in the value chain are enhancing the customer experience, with capabilities far beyond the reach of science only a few years ago are now realities in the marketplace within the automotive industry.

The EU's auto industry nowadays is facing challenges both in the West and in the East. Tesla, Google and Uber represent three trends that may shape the future – Tesla is electrifying the car fleet, Google is working on autonomous cars, whereas Uber provides new concepts of mobility. Meanwhile, there is a challenge in the East – Chinese technological frontiers such as Baidu and Alibaba develop driverless cars, China's Uber, Didi Chuxing, enter foreign markets. According to McKinsey research, Chinese manufacturers produced 43 percent of the 873.000 electric vehicles made globally in 2016, becoming an industrial leader in electric mobility and startups in the auto industry. As reported by the European Commission, European producers provide 6 models of electric cars, whereas Chinese – around 400 (Kefferpütz, 2018).

Emerging markets, with special regard to China, dominate in the global auto industry these days, with forecasted 18.8-million increase in vehicle assembly volumes in years 2016-2023. Their shares in the global light vehicle assembly will increase from 50.9 to 66.5 percent in years 2016-2021. The Chinese auto industry recorded double-digit sales growth, enjoying government support in the form of purchase tax incentives. In 2016 sales growth exceeded 15 percent – the highest annual rate since 2013, with demand on the small-engine vehicles rising year-to year by 22.5 percent (Stürmer, Lau, 2017). This, in turn, induced dynamic increase in local production – by 3.5 million units, expanding market shares of domestic brands.

Four-brand oligopoly

In fact, auto industry in China is moving toward four-brand oligopoly, consisting of Great Wall Motor Co. located in Henan Province, Geely Automobile Holdings, SAIC Motor Corp. in Shanghai and Guangzhou Automobile Group. According to Guotai Junan Securities' analysts, aforementioned oligopoly's shares will increase from the current 45 to more than 60 percent in the next few years, assuming both rising prices and volumes. The average price of vehicle sold in China increased over a decade by 30 percent up to 127,600 yuan in 2016. Furthermore, quality gain in importance over price factor, including the case of niche market of SUVs under 150,000 yuan – for instance, sales volume of Great Wall Motor's SUVs increased by 44 percent year to year in 2016, up to 98,62 billion yuan, whereas Geelly's – by 74 percent. Both Great Wall Motor and Geely Automobile Holdings are expected to enter market for prices ranging from 150,000 to 200,000 yuan (Li, 2017).

By 2023 annual production of the light vehicles in China would reach 35 million units, however, if there will be no significant changes in regards of export initiatives. Then, the total number of vehicles in China might increase from 350 up to 500 million units by 2023, although it would be still relatively low national motorisation rate from the global perspective.

Electric and hybrid cars

Among major challenges for the EU's auto industry nowadays there is a China's strategy of introduction of electric and hybrid cars. According to strategy, both electric and hybrid cars would account for at least 20 percent of the Chinese

auto sales by 2025, including system of quotas launched in 2018[*]. Therefore, an agreement reached formerly by the German Chancellor and the Chinese Prime Minister seems to be out of date already, with Beijing attempting to assist locals in catching up with the Western producers of internal combustion engines. The competitive pressure seems to be shared among European, American, Japanese, as well as Korean producers of electric cars. As it was stated in the letter sent by Europe's ACEA carmakers association to euractiv.com, electric motors are much less sophisticated than turbo engines, thus, Chinese manufacturers are able not only to compete but to overtake some European competitors. What expected is that Chinese enterprises may be ready to meet the European standards and penetrate these overseas market soon. The ACEA submitted a set of recommendations to Chinese government, including fuel efficiency, greenhouse gases emissions, as well as penalties for not achieving quotas such as plan to ban producers from importing and manufacturing non-new energy vehicles and equal treatment of domestic and foreign producers in regards of access to subsidies for new energy vehicles and batteries (Radosavljevic, 2017). In case of the latter, disadvantaging imports would result in international trade disputes.

Toward global dominance

There is a question, whether China's auto industry would return to moderate growth rates after episodes of significant expansion, considering possible implications of withdrawal from the country's tax cut policy (PricewaterhouseCoopers, 2017, 4). In fact, auto industry tend to be heavily supported by the government of China, even though foreign acquisitions in overall were suppressed recently.

As a consequence, China's overseas auto industry investments amounted to 34 billion USD since 2008, with significant acceleration in the first half of 2017, when eight deals totaling more than 5.5 billion USD were made (Table). In years 2005-2017 there were 70 investments valued at 100 million USD or more, including 13 in auto manufacturers, 30 in auto parts suppliers and 27 in manufacturing facilities.

Among others, there was an acquisition of 5 percent stake in Tesla Inc. by Tercent for 1.8 billion USD, as well as the Japanese air bag producer Takata Corp. by Ningbo Joyson Electronic Corp. The latter purchase amounted to 1.59 billion USD, being the fourth purchase of this Chinese enterprise within two years, preceded by 920 million USD acquisition of Key Safety Systems Inc., producer of air bags and the other auto safety equipment, located in Michigan. Consequently, Chinese enterprise placed itself in the global top three in the field of vehicle safety segment.

Ningbo Joyson tend to invest in cutting-edge technology these days instead of taking over the assets of the Western counterparts moving into more high-tech fields of the auto industry, including automation and connectivity. The example of the latter might be German Bosch GmbH, that sold its starter motor division to the Chinese Zhengzhou Coal Mining Machinery Group Co. in 2017. As an auto analyst Robin Zhu from Bernstein Research claimed, instead of diversification, Chinese enterprises tend to double down on specific subsectors of the auto parts in order to secure global dominance. For instance, among the Chinese manufacturers gaining in importance in their specialization these days there are auto glass producer Fuyao, car trim producer Minth Group Ltd. and vehicle interior supplier Yanfeng.

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[*] In September 2017 the Ministry of Industry and Information Technology announced new rules that required all the auto manufacturers selling over 30,000 vehicles annually in China to gather NEV (new-energy vehicles) credits being equivalent to 10 percent of their sales volume by 2019 and 12 percent by 2020. In fact, auto manufacturers lobbied successfully against the NEV targets initially proposed for 2018 in order to adjust to new rules. However, 10 percent target appears to be unachievable – of the 26 million cars to be sold in 2018 in China, there will be around 3 percent NEVs („Double challenge…, 2017).

Table 4

China's investments in the global auto industry, 01.2005-06.2017, valued at 100 million USD or more

Investor (year)	Target	Type of investment	Value (USD)	Investor (year)	Target	Type of investment	Value (USD)
Jiangsu Yuejin (2005)	MG – vehicle designs (United Kingdom)	Auto manufacturer	100 million	SAIC (2006)	Ssangyong (Republic of Korea)	Auto manufacturer	792 million
BAIC (2009)	Saab US – vehicle designs (United States)	Auto manufacturer	200 million	Great Wall Motor (2009)	Litex Motors (Bulgaria)	Manufacturing facility	120 million
Shougang Group (2009)	Delphi Corp. brake and suspension unit (United States)	Manufacturing facility	100 million	SAIC (2009)	GM India – 50 percent (India)	Manufacturing facility	350 million
SAIC (2010)	GM – 1 percent (United States)	Auto manufacturer	500 million	Chery Auto (2010)	Investment in Brazil	Manufacturing facility	400 million
Geely (2010)	Volvo Cars (Sweden)	Auto manufacturer	2,700 million	Sinomach (2010)	Investment in Cameroon	Manufacturing facility	500 million
Tempo Group (2010)	Nexteer Auto (United States)	Auto parts supplier	440 million	First Auto Works (2010)	Investment in South Africa	Manufacturing facility	100 million
CITIC (2010)	Investment in Kazakhstan	Manufacturing facility	150 million	Wolong Holding (2011)	ATB Group (Austria)	Auto parts supplier	140 million
Ningbo Joyson (2011)	Preh (Germany)	Auto parts supplier	100 million	Fuyao Glass (2011)	Investment in Russia	Manufacturing facility	200 million
JAC Motors (2011)	SHC (Brazil)	Auto parts supplier	100 million	BYD (2011)	Investment in Indonesia	Manufacturing facility	200 million
Chery Auto (2011)	Socma (Argentina)	Auto parts supplier	170 million	Chery Auto (2011)	Investment in Venezuela	Manufacturing facility	200 million
CITIC Dicastal (2011)	KSM Castings (Germany)	Auto parts supplier	420 million	Qingdao Tianzhong (2011)	Investment in Vietnam	Manufacturing facility	100 million
BAIC (2011)	Inalfa Roof Systems (Netherlands)	Auto parts supplier	270 million	Guangxi Liugong Machinery (2012)	Huta Stalowa Wola (Poland)	Auto parts supplier	100 million
Sichuan Bohong (2012)	Westcast Industries (Canada)	Auto parts supplier	250 million	SAIC (2012)	CP Group (Thailand)	Manufacturing facility	150 million
JAC Motors (2012)	Investment in Brazil	Manufacturing facility	450 million	Chery Auto (2012)	Investment in Turkey	Manufacturing facility	120 million
Shandong Linglong Tyre (2012)	Investment in Thailand	Manufacturing facility	120 million	Sailun Tire (2012)	Investment in Vietnam	Manufacturing facility	100 million
BAIC (2012)	Investment in Brazil	Manufacturing facility	300 million	Geely (2013)	Manganese Bronze (United Kingdom)	Auto manufacturer	150 million
Wanxiang (2013)	A123 Systems (United States)	Auto parts supplier	257 million	Wanfeng Auto (2013)	Meridian (Canada)	Auto parts supplier	170 million
Zhuzhou Times (2013)	ZF Friedrichshafen auto plastics unit (Germany)	Auto parts supplier	400 million	China South Industries (2013)	Investment in United Kingdom	Manufacturing facility	100 million
Wanxiang (2014)	Fisker Automotive (United States)	Auto manufacturer	150 million	CITIC Dicastal (2014)	Investment in United States	Manufacturing facility	140 million
Geely (2014)	Emerald Automotive (United Kingdom)	Auto manufacturer	200 million	Fuyao Glass (2014)	Investment in United States	Manufacturing facility	200 million
Dongfeng (2014)	Peugeot – 14 percent (France)	Auto manufacturer	1,100 million	Lifan (2014)	Investment in Russia	Manufacturing facility	290 million

Investor (year)	Target	Type of investment	Value (USD)	Investor (year)	Target	Type of investment	Value (USD)
SAFE (2014)	FIAT – 2 percent (Italy)	Auto manufacturer	280 million	Great Wall Motor (2014)	Investment in Russia	Manufacturing facility	340 million
AVIC (2014)	Hilite (Germany)	Auto parts supplier	640 million	BAIC (2014)	Investment in India	Manufacturing facility	300 million
AVIC (2015)	Henniges (United States)	Auto parts supplier	800 million	Ningbo Joyson (2015)	Quin (Germany)	Auto parts supplier	110 million
ChemChina (2015)	Pirelli (Italy)	Auto parts supplier	7,860 million	Geely (2015)	Investment in United States	Manufacturing facility	500 million
Anhui Zhongding (2015)	Wegu (Germany)	Auto parts supplier	110 million	Geely (2015)	Investment in United Kingdom	Manufacturing facility	370 million
SAIC (2015)	Weststar Maxus (Malaysia)	Auto parts supplier	280 million	ZYNP (2016)	Incodel (United States)	Auto parts supplier	101 million
Wanfeng Auto (2016)	Paslin (United States)	Auto parts supplier	300 million	BAIC (2016)	Industrial Development Co. (South Africa)	Auto parts supplier	520 million
Ningbo Joyson (2016)	Key Safety Systems (United States)	Auto parts supplier	920 million	Anhui Zhongding (2016)	AMK Holding (Germany)	Auto parts supplier	150 million
Yinyi (2016)	Punch Powertrain (Belgium)	Auto parts supplier	1,100 million	Fuyao Glass (2016)	Investment in United States	Manufacturing facility	250 million
Ningbo Joyson (2016)	TechniSat Digital (Germany)	Auto parts supplier	200 million	BAIC (2016)	Investment in South Africa	Manufacturing facility	770 million
Geely (2017)	Terrafugia (United States)	Auto manufacturer	n/a	GSR Capital (2017)	Auto Energy Supply Corp. (Japan, not finalized)	Auto parts supplier	1,000 million
Tencent (2017)	Tesla – 5 percent (United States)	Auto manufacturer	1,800 million	Qindgao Doublestar (2017)	Kumho Tire – 42 percent (Republic of Korea, not finalized)	Auto parts supplier	830 million
Geely (2017)	Proton/Lotus (Malaysia)	Auto manufacturer	235 million	Ningbo Joyson (2017)	Takata (Japan, not finalized)	Auto parts supplier	1,588 million
ZMJ (2017)	Bosch starter motors unit (Germany)	Auto parts supplier	n/a	CATL (2017)	Valmet Auto – 22 percent (Finland)	Auto parts supplier	n/a

Source: Moss, 2017.

Zhejiang Geely Holding Group Co., being the most active car producer from China in terms of foreign takeovers, invested 500 million USD in Volvo plant in Ridgeville, South Carolina, purchased Malaysian producer Proton with Lotus Cars unit for 235 million USD and the U.S. flying car startup Terrafugia, whereas Fuyao Glass Industry Group Co., auto glass producer, spent 1 billion USD on manufacturing facilities in the U.S., among others, by reopening a former General Motors Co. plant in Moraine, Ohio.

China National Chemical Corp. made the largest purchase among Chinese investors to date, acquiring Pirelli, tire maker from Italy, for 7.86 billion USD in 2015, whereas the largest Chinese supplier to auto manufacturers, Wanxiang Group, claimed a 12 percent share of international auto parts market outside China in 2017.

It seems that Chinese attempt to encircle competition by taking strategic assets in order to dominate global auto industry. To do so, Chinese investors engage in acquisitions of auto parts suppliers and small car manufacturers, including the U.S. assets, as well as joint ventures with foreign entities.

Conclusions

Based on the conducted research, authors made the following conclusions and recommendations:

- During the recent years, automotive market is developing rapidly around the world. The countries that they are the most the most competitive will require huge R&D investments (e.g. : adaptation new technologies – electric, hybrid and e-gas (CNG and NGV)) to maintain their positions.

- EU countries are highly representative in world automotive trade. The EU exported more than 6.3 million vehicles in 2016. The European auto industry is a global player, delivering quality products around the world, and creating 90 billion EUR trade surplus. However this trade surplus is declining over last years.

- During period 2011-2015 employment was raising the most in direct manufacturing and transport. It is worth emphasizing that more than 12,5 million Europeans work directly or indirectly in the automotive sector in 2016, representing 5,7% of total EU employment. That is why policy makers in all UE countries must concentrate on automotive sector for the purposes of advancing conditions, which could stimulate economic growth.

- The main challenge for EU automotive industry is raising world share of Chinese automotive sector. Since 2011 leadership position was taken over by Grater China, which is increasing its share in the world market rapidly. In 2016 Europe share in the world car manufacturing production was 23%, while China obtain 29%.

- As formerly stated, China's rising position in the world automotive sector is the main challenge for EU industry, however, next to technological frontiers such as Baidu, Alibaba, Didi Chuxing expanding within foreign markets nowadays, there is a challenge related to three trends observed in the West, symbolized by electrification of the car fleet by Tesla, autonomous cars by Google and new concepts of mobility by Uber. Chinese producers accounted for 43 percent of the global supply of electric cars in 2016, occupying the leading position in electric mobility and startups in the auto industry. Moreover, further increase of the China's shares in the global light vehicle assembly is forecasted, as well as the market shares of domestic brands. Authors identified an oligopoly in the China's auto industry established by four domestic enterprises, namely, Great Wall Motor Co., Geely Automobile Holdings, SAIC Motor Corp. and Guangzhou Automobile Group, accounting for, when combined, 45 percent of the market shares, with perspective of further growth up to 60 percent in the next few years.

- Among key areas of Chinese expansion in the auto industry there is a segment of electric cars, in which Asian producers may not only compete, but even overtake some European counterparts due to lower sophistication of electric engines. Consequently, it is probable that Chinese brands would be able to meet the European standards and penetrate overseas markets soon.

- Importantly, China's auto industry is gaining importance in the global scale due to numerous overseas investments – as formerly indicated, in years 2005-2017 there were 70 projects valued at 100 million or more, including 13 auto manufacturers, 30 auto part suppliers and 27 manufacturing facilities. Ningbo Joyson, placing itself in the world top three in the field of vehicle safety segment, tend to invest in cutting-edge technology in North America, Western Europe, East and Northeast Asia, Zhejiang Geely Holding Group Co., car maker, engaged actively in foreign takeovers, including Volvo plant and Proton with Lotus Cars, whereas China National Chemical Corp. made the largest purchase among Chinese investors to date, acquiring Pirelli for 7,86 billion USD in 2015. Last but not least, Wanxiang Group accounted for 12 percent of international auto part market shares outside China in 2017.

- Authors stated that Chinese investors establish joint ventures with foreign entities, engage in acquisitions of auto parts suppliers and small car manufacturers to reach strategic assets of the global auto industry, including EU and the U.S., in order to encircle competitors and gain dominance.

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EVALUATION OF OPERATION OF LATVIAN LARGE AND SMALL & MEDIUM ENTERPRISES ACCORDING TO THE EUROPEAN BUSINESS EXCELLENCE MODEL CRITERIA

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Abstract. Enterprises implement the business excellence models being aware of the fact that these models stimulate to take over the best practice and use tools implying elaboration of quality strategies, self-assessment and continuous striving to improvement.

EFQM *(European foundation for quality management)* business excellence model is applied to ensure successful operation of the company, including increased satisfaction of the customers regarding the goods/services offered by the company, thus guaranteeing high competitiveness of the business. *EFQM* model is simple, easy-to-understand and practically applicable in any company. However, the application options may differ between large and small & medium companies.

The aim to explore the level of performance of EFQM business excellence model in Latvian enterprises, make conclusion and gives proposals for improvement performance of results of model criteria. The tasks of the research are to provide the theoretical description of EFQM model, analyse the EFQM model application level in Latvian enterprises, come to conclusions and elaborate proposals. Methodology of the research includes studies and analysis of relevant literature and EFQM model-survey carried out in the companies.

First, the company shall start with the general assessment of current situation, identifying the areas of problems and potential improvement. Besides, the company must be aware that copying of methods applied by other successful companies never lead to success. The company must firstly understand the methods applied by the successful competitor and then customize them according to their own profile.

The results of the survey shows that the level of compliance to the EFQM criteria depends on a lot of factors of the company - size, awareness of management etc.

Key words: *business excellence model, large and small and medium companies, criteria.*
JEL code: L15, L26

Introduction

The authors Kim D.Y., Kumar V. and Murphy S.A. and Rusjan B. considers that organizational excellence are as a set of principles and approaches that produce the best overall results and support a sustainable future for any organizations. (Kim D.Y., Kumar V. and Murphy S.A., 2010; Rusjan B., 2005). In order to understand what organizational excelence actually is, closer attention has been paid to business excellence models. Dahlgaard J. J. *et al.,* pointed out that existing business excellence models have been developed or supported by national bodies as a basis for award programs that disseminate quality management. In 2012, there were approximately more than hundred national business excellence models in use, the majority of which were inspired by either the European Foundation for Quality Management (EFQM)/European Business Excellence model or the Malcolm Baldrige National Quality Award (MBNQA).(Dahlgaard J.J., *et al.*, 2013) The models underlying these awards encompass the adoption of a collection of best quality management practices and the measurement of stakeholder-related performance. Kanji G.K. pointed out,

that EFQM Business excellence models is as instrument to assess what an organization does and to identify its achievements, thus the models assume a causal relationship between performance and quality management of enterprises. (Kanji G.K., 2002).

Heras I., Marimon F. and Casadesús M. focused on the EFQM Business excellence model, but Karimi A., Safari H., Hashemi S.H. and Kalantar P. on the Malcolm Baldrige National Quality Award, and founded positive associations between quality management and performance of organisation. (Karimi A., Safari H., Hashemi S.H. and Kalantar P., 2014). Their empirical evidence, therefore, suggests that excellence in the management of enablers-criteria is associated with excellence in results. Heras I., Marimon F. and Casadesús M.; Hendricks K.B. and Singhal V.R.; Zhao X., Yeung A.C. and Lee T.S., considered that successful quality management implementations are likely to depend on factors such as type of industry, size of enterprises, degree of EFQM Business excellence model implementation and characteristics of environment. (Heras I., Marimon F. and Casadesús M., 2012; Hendricks K. B. and Singhal V.R., 2001; Zhao X., Yeung A.C. and Lee T.S., 2004). Hendricks K.B. and Singhal V.R., Zhao X., Yeung A.C. and Lee T.S., stated that institutional networks impact management practices, and highlighted that inertia tends to be positively associated with enterprises age and size.(Hendricks K.B. and Singhal V.R., 2001; Zhao X., Yeung A.C. and Lee T.S., 2004).

The author Dahlgaard-Park S.M. pointed out for the need to address impacting factors. (Dahlgaard-Park S.M., 2008). To the analysis of the joint use of practices embedded in EFQM Business excellence model and how different configurations can emerge according to characteristics of enterprises has been mainly undertaken regarding sectors, by area of enterprises: high education (Hides M.T., Davies, J. and Jackson, S., 2004), public and private enterprises (Talwar B., 2011), services and manufacturing enterprises (Gómez J., Martínez M. and Martínez A.R., 2011). The author Calvo-Mora, A., Picón-Berjoyo, A., Ruiz-Moreno, C. and Cauzo-Bottala, L. considered the effect of size, but he did not investigate how size could have affected the adoption of the EFQM Business excellence model criteria nor their interrelationships. (Calvo-Mora A., Picón-Berjoyo A., Ruiz-Moreno C. and Cauzo-Bottala L. 2015). How the EFQM Business excellence model varies with the size of enterprises is an actual question of research.

The aim of the research to investigate the effect of size on the use of the European Foundation for Quality Management model by organizations in Latvia, uncover the imperfections and elaborate proposals for improvement of model application, basing on theory and survey results.

First, the company shall start with the general assessment of current situation, identifying the areas of problems and potential improvement. Besides, the company must be aware that copying of methods applied by other successful companies never lead to success. The company must firstly understand the methods applied by the successful competitor and then customize them according to their own profile.

The tasks of the research are to provide the theoretical description of EFQM model, analyse the EFQM model application level in Latvian enterprises, come to conclusions and elaborate proposals. Methodology of the research includes studies and analysis of relevant literature and EFQM model-survey carried out in the companies.

Research results and discussion

Nowadays, many countries have their own quality award as an incentive for their companies to implement Total Quality Management concepts and gain sustainable results. All of the business excellence models have definite values that help them in defining their criteria and enable them to make a quantitative judgment between companies. Many companies in the world plan for a better score in their own national quality award processes and have a serious competition for the award. The business excellence awards are helpful and inspiring in enterprises improvement and growth. The Fig.1 shows the EFQM model criteria and their weightings.
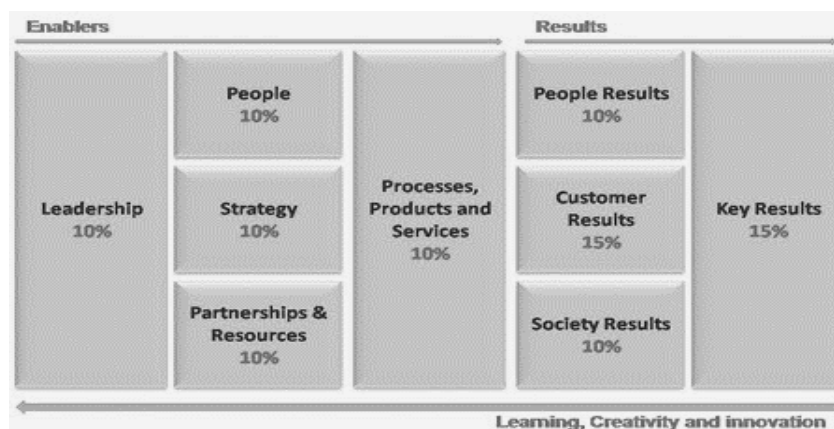
Fig. 1. **The EFQM model criteria**

The model is supported by 9 criteria. Each criterion includes sub-criteria (in total, there are 32 sub-criteria). that entail best practices, based on which organizations are assessed in their pursuit of excellence. Model has 2 parts: enablers (500 points) and results (500 points). As the part of enablers criteria are leadership; people; strategy; partnerships; resources; processes, products and services), The part of results criteria are customer related results (responsiveness, image of the organization, communication etc.), people related results (recognition, motivation, involvement, awards etc.), company related results (responsiveness in contacts, image of the company etc.), main operation results (financial results of economic activities of the enterprises – share of market, turnover, prices etc.). For each criterion (leadership; people; strategy; partnerships; resources; processes, products and services; people results; society result) be obtain 100 points but consumer results and key results 150 points.

The criteria can be used either as a self-assessment tool, to identify its strengths and areas for improvements, a scoring model for using winners of business excellence awards, as a used for any organisation willing to assess its way to "excellence".

The authors Jayamaha N., Grigg N. and Mann R. considered that EFQM Business excellence models involve multiple paths between criteria , but the authors Suckling S. and Jacobs B. focused on the links between isolated enablers-criteria and some results of enterprises. (Jayamaha N., Grigg N. and Mann R., 2011; Suckling S., Jacobs B., 2007). Although the EFQM model does not state clear interrelationships among all individual criteria, causal relationships are implicit. That means the results achieved by an enterprises depend on a indicators of perfomance that have to be made explicit and managed.

The authors Roca V., Escrig A.B., Bou J.C. and Beltrán I. pointed out that their empirical research provides strong evidence that enterprises that have won quality awards out perform the control enterprises on operating income based measures. (Roca V., Escrig A.B., Bou J.C. and Beltrán I., 2006). Wilkes N. and Dale B. demonstrated the contribution of business excellence models in restoring failed improvement initiatives in many industrial case studies. (Wilkes N. and Dale B., 1998).

Excellence models have proven useful in enterprises of varying size and type, across a variety of cultures and languages. (Bou Llusar J.C., Escrig Tena A.B., Roca Puig V., Beltrán Martín I., 2009). Many sectors as diverse as health and the arts, education, manufacturing (Loke S.P., Downe A.G., Khalizani Khalid M.S., 2012)

The authors Angell L.C. and Corbett L.M. observed that EFQM Business excellence model entails that organizations need an effective leadership in order to set an appropriate conditions to excellence. The stakeholders-related performance results from designing services or products observing customer's expectation and having in place effective

processes, which are influenced by a strategy coupled with partnerships and resources, employee-motivational practices, such as data and knowledge-based decision making. (Angell L.C., Corbett L.M., 2009).

Roca V., Escrig A.B., Bou J.C. and Beltrán I. pointed out that large enterprises have been found to emphasize processes management and the structural component of quality management, namely, formal training and supplier cooperation. (Roca V., Escrig A.B., Bou, J.C. and Beltrán I., 2006). Haar J.M. and Spell C.S. concurred that an increase in size means greater resources and benefits from economies of scale, which would facilitate quality management implementation. Specially for the achievement of EFQM Business excellence models awards. (Haar J.M., Spell C.S., 2008). The importance of measurement systems stressed Suárez E.M., Roldán J., Calvo-Mora A., which together with the use of forecasts are more frequent in larger enterprises. (Suárez E.M., Roldán J., Calvo-Mora A., 2014)

Zhao X., Yeung A.C. and Lee T.S. pointed out that the view SMEs on average perform well on people management, possibly due to direct negotiations and closer relationships between employees and their management. (Zhao X., Yeung A.C. and Lee T.S., 2004). The leadership and people management were important drivers in the adoption of the EFQM Business excellence model. (Calvo-Mora A., Picón-Berjoyo A., Ruiz-Moreno C. and Cauzo-Bottala L., 2015). The management practices differ between large enterprises and .small and medium enterprises. By Haar J.M. and Spell C.S. opinion the formalization of human resource management in large organizations impinge on employees' perceptions of job autonomy and discretion, which are critical for problem solving and continuous improvement that are part of quality management. (Haar J.M. and Spell C.S., 2008)

Hatam N., Kohpeyma V., Kavosi Z., Kharazmi E. concluded that some features are more compatible with small enterprises, while others are independent of size. (Hatam N., Kohpeyma V., Kavosi Z., Kharazmi E., 2014). The small and medium enterprises a greater use of awareness about individual responsibility for quality and social practices facilitate of cultural change (Suckling S., Jacobs B., 2007). The small enterprises the lack of resources required for having sufficient evidence of their performance against industry benchmarks. It is a barrier to the achievement of high scores in assessments such as EFQM Business excellence models. The authors Kim D.Y., Kumar V. and Murphy S.A pointed out that the EFQM Business excellence model is time-consuming, very bureaucratic and unsuitable for small and medium enterprises. (Kim D.Y., Kumar V. and Murphy S.A., 2010).

The small enterprises can benefit more from quality management than large enterprises. (A comprehensive view on research excellence, 2015) They pointed out that being small enterprises organizational learning can be more effective as key practices such as teamwork are already present to some extent in smaller enterprises, also they can better understanding of their customers' needs and owering their costs of implementing quality management.

Talwar B. rejected size as a contingency factor for quality management. He pointed out that small and medium enterprises can utilize their strengths, specially in terms of flexibility, to implement quality management as effectively as large enterprises. In small and medium enterprises, flexibility can compensate lack of resources for monitoring and benchmarking processes. (Talwar B., 2011).

293 Latvian enterprises participated in the evaluation of the level of criteria implementation of the EFQM business excellence model. The survey was organized in 2016 year. 62 or 21 % of participating enterprises were - large. 73 or 25% - small enterprises, 158 or 54% - medium enterprises from Latvia. The participating enterprises represented different fields: car services, catering, trade, IT services, construction, financial services, and marketing services. The European Excellence Model requires each of the criteria to be evaluated according to the five defined elements of the RADAR method: (European Foundation for Quality Management, 2016) *Results*, *Approach*, *Deployment, Assessment* and *Review*. The evaluation of Latvian enterprises compliance with the EFQM model criteria was performed basing on the results of the evaluation matrix and approach criteria and their evaluation methodology.

In order to evaluate the approach criteria (leadership, staff, strategy, partnerships and resources, processes, products and services), the following values out of 100 for each criterion were used. 100 meant that comprehensive evidence of application of a particular criterion. 75 - meant that there was obvious evidence, 50 – there is relevant evidence, 25 - meant that there was some evidence; 0 meant that no evidence or they were worthless. In order to evaluate the results criteria, customer related results (image of the organization, communication, responsiveness etc.), staff related results (motivation, involvement, recognition, awards etc.), company related results (image of the company, responsiveness in contacts etc.), main operation results (financial results of economic activities of the company – turnover, price of shares etc.), the following values were applied. 0 meant that no results were obtained or information collected was not relevant; 25 meant that ¼ of the results show positive tendency and/or satisfactory performance for at least 3 years; 50 meant that around ½ of the results show positive tendency and/or consistently good performance for at least 3 years; 100 meant that all results show positive tendency and/or consistently good performance for at least 3 years. Maximum number of points in two criteria "staff-related results" and "society-related results" was 100 meanwhile the maximum number of points in criteria "customer related results" and "key performance results" was 150.

In general, the implementation of 9 European Excellence Model criteria for SMEs and large enterprises was assessed also by respondents. Half of the respondents rated the criteria in the company with a score of 75 (median -75), the most commonly reported score is 75 points (moda-75) (scoring scale 0 to 100), the mean value of the criteria ranges from 64.38 points to 72.83 points. The highest mean value scores (above 70 points) are observed in three criteria: customer-related results (arithmetic mean of 70.38, mode and median 75); partnerships and resources (arithmetic mean 71.47 mode and median 75), processes, products and services (arithmetic mean 72.83, mode and median 75).

2 of these criteria (partnerships and resources; customer-related outcomes) are part of the Opportunities (Approach) model and one (customer-related outcomes) is part of Results section. This points to the interdependence of the model's criteria, the lower the criteria for the Approach Criterion, the lower the indicators of the Results criteria. The main statistical indicators for assessment of the implementation of the European Business Excellence model criteria for large enterprises and small and medium-sized enterprises are reflected below in Table 1.

Table 1.

Main statistic indicators of assessment of European Business excellence model criteria implementation in large enterprises and SMEs *(n=293)*

Criteria	Small and medium enterprises				Large enterprises			
	Arithmetic mean	Median	Mode	Standard deviation	Arithmetic means	Median	Mode	Standard deviation
1.Leadership	63,41*	75,00	75	20,948	68,15*	75,00	75	24,864
2. Strategy	64,81**	75,00	75	22,069	75,40**	75,00	100	26,198
3. People	63,36**	50.00	50	22,794	72,58**	75,00	75	22,042
4. Partnership & resources	72,45*	75.00	75	23,740	81,05*	75,00	100	22,031

Criteria	Small and medium enterprises				Large enterprises			
	Arithmetic mean	Median	Mode	Standard deviation	Arithmetic means	Median	Mode	Standard deviation
5. Processes, products & services	71,20	75.00	75	21,077	75,81	75.00	75	21,694
6. People results	68,93	75,00	75	16,735	72,58	75,00	75	19,580
7. People results	67,35	75,00	75	20,343	68,15	75,00	75	27,225
8. Society results	64,44**	75,00	75	24,211	76,61**	75,00	75	23,025
9. Key results	63,47**	75,00	75	23,242	75,41**	75,00	75	17,965

$* \ p < 0{,}05; \ ** \ p < 0{,}001$

Source: author's calculations based on survey data.

In all criteria of the EFQM business excellence model, large enterprises have higher evaluations in comparison to small and medium enterprises. The greatest difference is observed in performance of the 8th criterion (society-related results), the arithmetic mean for the small and medium enterprises is 64.44, the mode 75 and the median 75.00, while the arithmetic mean for the large enterprises is 76.61, the mode 75 and the median 75.00. This may indicate that, in the case of large enterprises, bigger attention is paid to company's image indicators for the particular criterion; therefore, the performance is higher in comparison to the small and medium enterprises.

The second largest difference between the benchmarking level for SMEs and large enterprises is the 9th criterion (key performance results), with arithmetic mean of 63.47 for the small and medium-sized enterprises, the mode 75 and the median 75.00, meanwhile for the large enterprises the arithmetic mean is 75.41, mode 75 and median 75.00. The smallest difference is observed in the assessment of the 7th criterion (staff-related results). The arithmetic mean value for small and medium-sized enterprises is 67.35, mode 75 and median 75.00, meanwhile for large enterprises the arithmetic mean is 68.15, mode 75 and median 75.00, respectively. Can see that the arithmetic mean is higher for large enterprises compared to small and medium enterprises but standard deviation and variation are generally smaller for SMEs compared to large enterprises.

Table 1

Main statistic indicators for evaluation of European Business Excellence Model criteria implementation in large companies and SMEs *(n=293)*

Criteria	Sub-criteria	Small and medium enterprises				Large enterprises			
		Arithmetic mean	Median	Mode	Standard deviation	Arithmetic mean	Median	Mode	Standard deviation
1.Leadership	Leaders develop the mission, vision, values and ethics and act as role models	60,32*	75,00	75	20,948	68,15*	75,00	75	24,864
	Leaders define, monitor, review and rive the improvement of the organisation's management system and performance	64,20	75,00	75	20,552	68,55	75,00	75	21,201
	Leaders engage with external stakeholders	70,15	75,00	75	20,079	74,60	75,00	75	21,941
	Leaders reinforce a culture of excellence with the organization's people	60,24*	75,00	75	23,325	66,94*	75,00	75	23,423
	Leaders ensure that organization is flexible and manages change effectively	62,14*	75,00	75	21,489	68,15*	75,00	75	26,846
2.Strategy	Strategy is based on understanding the needs and expectations of both stakeholders and the external environment	66,99**	75,00	75	21,160	79,84**	75,00	100	19,119
	Strategy is based on understanding internal performance and capabilities	64,81**	75,00	75	22,069	75,40**	75,00	100	26,198
	Strategy and supporting policies are developed, reviewed and updated	59,95**	75,00	75	27,127	70,16**	75,00	100	27,100
	Strategy and supporting policies are communicated, implemented and monitored	59,10**	75,00	75	23,922	70,56**	75,00	75	21,956
3.People	People plans support the organization's strategy	63,96	75,00	75	21,864	66,13	75,00	75	22,678
	People's knowledge and capabilities are developed	63,36**	50,00	50	22,794	72,58**	75,00	75	22,042
	People are aligned, involved and empowered	65,66	75,00	75	21,258	68,55	75,00	75	21,679
	People communicate effectively throughout the organization	67,23	75,00	75	23,692	69,76	75,00	75	24,435
	People are rewarded, recognized and cared for	62,50	75,00	75	25,273	62,50	75,00	75	28,540

Criteria	Sub-criteria	Small and medium enterprises				Large enterprises			
		Arithmetic mean	Median	Mode	Standard deviation	Arithmetic mean	Median	Mode	Standard deviation
4.Partnerships and resources	Partners and suppliers are managed for sustainable benefit	70,75	75,00	75	20,737	75,00	75,00	75	21,710
	Finances are managed to secure sustained success	72,45*	75,00	75	23,740	81,05*	75,00	100	22,031
	Buildings, equipment, materials and natural resources are managed in a sustainable way	71,36	75,00	75	21,071	74,19	75,00	75	22,162
	Technology is managed to support the delivery of strategy	66,38	75,00	75	20,991	71,77	75,00	75	20,982
	Information and knowledge are managed to support effective decision making and to build the organization's capability	71,00	75,00	75	21,788	75,00	75,00	75	18,664
5.Processes, Products and Services	Processes are designed and managed to optimize stakeholder value	71,24	75,00	75	18,005	72,98	75,00	75	21,850
	Products and Services are developed to create optimum value for customers	74,15	75,00	75	22,139	71,77	75,00	75	21,465
	Products and Services are effectively promoted and marketed	71,20	75,00	75	21,077	75,81	75,00	75	21,694
	Products and Services are produced, delivered and managed	71,01**	75,00	75	17,705	80,24**	75,00	75	18,185
	Customer relationships are managed and enhanced	73,54	75,00	75	17,400	77,02	75,00	75	20,395
6.Results (customer)	Analysis of customer's perceptions of the organization	69,78**	75,00	75	17,287	77,02**	75,00	75	15,216
	Analysis of performance indicators	68,93	75,00	75	16,735	72,58	75,00	75	19,580
7.Results (people)	Analysis of people's perceptions of the organization	68,33	75,00	75	18,004	71,37	75,00	75	20,669
	Analysis of performance indicators	67,35	75,00	75	20,343	68,15	75,00	75	27,225
8.Results (society)	Analysis of society's perceptions of the organization	64,44**	75,00	75	24,211	76,61**	75,00	75	23,025
	Analysis of performance indicators	61,77**	75,00	75	25,262	75,45**	75,00	75	25,260
9.Key results	Key strategic outcomes: key financial and non-financial outcomes	67,84**	75,00	75	21,816	77,42**	75,00	75	17,942
	Key performance indicators: key financial and non-financial indicators	63,47**	75,00	75	23,242	75,41**	75,00	75	17,965

* $p < 0.05$; ** $p < 0.001$

Source: author's calculations based on survey data.

Overall, the scores of large companies tend to be higher than the results of small and medium enterprises. In several sub-criteria the mean values exceed 80 points (for instance, for sub-criterion "finances are managed to secure sustained success" arithmetic mean is 81.05, mode 100, median 75.00. The arithmetical mean of small and medium enterprises for the implementation of this criterion is 71.01 points of 100, mode-75 and median - 75 points. The second highest evaluation large companies received for the implementation of the sub-criterion "products and services are produced, delivered and managed" - arithmetic mean reached 80.24, mode 75, median - 75.00. From the perspective of criteria, the highest score in SMEs and large companies went to such criteria as "Partnership and resources" and "Products, processes and services". Highest average evaluation regarding the results criteria in large companies went to customers-related result sub-criterion "Analysis of customer's perceptions of the organization" with arithmetic mean 77.02, mode 75 and median 75,00, however, we should remember that maximum evaluation of this particular criterion is 150 points instead of 100, therefore the achieved result constitutes only half of the potential evaluation. In SMEs, the highest score went to customers-related result sub-criterion "Analysis of customer's perceptions of the organization", reaching the arithmetic mean 69.78, mode 75 and median 75.00, which is also less than half of possible score (150 points) for this particular criterion.

The arithmetic mean for sub-criterion "Key strategic outcomes: key financial and non-financial outcomes" in relation to the main results of economic activities in large companies was 77.42, mode 75, median 75.00. The reached score is not very high, because the maximum score for this criterion is 150 points. SMEs for the implementation of this sub-criterion reached the arithmetic mean 67.84 mode 75, median 75.00, which is less than half of maximum score for this particular criterion. At the same time, there is an interaction between the criteria: the higher or lower evaluations in customer-related indicators, the better or worse the indicators related to the economic activities.

Conclusions, proposals, recommendations

1. The enterprises can use EFQM Business excellence model as a framework for their quality management, as a comprehensive method to measure the performance of enterprises and as a self-assessment tool.

2. Large companies have higher evaluations of EFQM Business Excellence Model criteria/sub-criteria implementation in comparison to small and medium enterprises, which indicates the dependence of the level of model criteria implementation from the size of the enterprises.

3. The overall assessment for SMEs and large enterprises varies, SMEs show lower results, which can be caused by various problems associated with SME operations, including limited resources. Thus, the application of the EFQM model differs as well. The arithmetic mean is higher for large enterprises compared to SMEs. Standard deviation and variation are generally smaller for SMEs enterprises compared to large enterprises.

4. The application level of the EFQM Business excellence model can depend on understanding of the quality of business executives of the enterprises. All enterprises can achieve high levels of excellence in some, but not all criteria.

5. The analysis of evaluation regarding the implementation of *EFQM* Business Excellence model criteria/sub-criteria showed that the arithmetic mean of the criterion "Society-related results" in small and medium enterprises is 61.77 points out of 100, mode 75, median 75.00. In large enterprises the arithmetic mean was higher and constituted 75.45. mode 75, median 75. Author concludes that to large extent the deficiencies in the implementation of Leadership criterion occur due to the problems implementing the strategy of enterprises.

6. Through the initial evaluation using the EFQM model, a enterprises can avoid waste of resources, channeling them into procedures that will facilitate the implementation of the excellence guidelines within the enterprises.

7. The performance level of the EFQM model can depend on understanding of the quality of business executives of the enterprises; SMEs and large enterprises can achieve high levels of excellence in some, but not all criteria. The criteria for achieving high results must be in line with the particular strategy and goals of the enterprises.

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CAPITAL SOURCES OF INNOVATION FINANCING IN POLISH FAMILY BUSINESSES (THE REPORT OF OWN RESEARCH)

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Abstract. Family business plays a significant socio-economic role in Poland, accounting for about 70% of the number of companies, offering more and more jobs, systematically increasing its share in GDP. Introducing a variety of ideas and solutions significantly contributes to the improvement of innovation of the economy. This article is empirical in its nature, presenting the results of research on innovation financing in Polish family businesses conducted in 115 entities from the list of "Forbes Diamonds 2016" (Polish version). The author formulates issues and research hypotheses in the context of the possibility of functioning and development of family businesses in the economy that aspires to be referred to as knowledge-based. The research is a questionnaire with the use of CATI and CAWI techniques. The empirical material obtained was analyzed using logistic regression and linear regression. The results of the study conclude that family businesses are able and willing to invest in innovation to meet the ambitions of a knowledge-based economy. The study adds to theoretical and practical knowledge in this field and is aimed at family entrepreneurs, central and local governments and business environment institutions. This article is particularly targeted at the potential successors of family ventures.

Key words: *family business, innovations in family firms, innovation financing, family business in Poland*

JEL Codes: G30, G39, M10, M20

Introduction

The emergence of a knowledge-based economy - in general terms - is a response to the problems of globalization. This new economic quality develops gradually and particularly concerns the most developed countries. It signifies the reorientation of the modern economy from the traditional (in which capital, labour, raw materials, adequate infrastructure, efficient transport, and proper organization were the decisive factors) into the information and knowledge based one. Modern technologies, highly qualified workers, universities and research and development centres, information and communication technology (ICT), as well as state pro-innovation policies gradually become the basis for the economic development. It is a complicated, long-term and regionally varied process. There is no doubt that we are dealing with fundamental changes, and human capital plays the key role in their intellectual and social aspect. The United States, Japan, South Korea, Singapore, and among EU countries - Finland are the most advanced countries constructing knowledge-based economy (Popczyk, 2013, pp.24-28). When we consider the legitimacy and development of the knowledge-based economy (this imperative results from globalization processes), our membership of the European Union and the pro-innovative actions of state and government institutions, Poland should aspire to join the reality of the new socio-economic order taking into account the fact that 70% of businesses are family-owned. Polish family businesses gradually implement knowledge-based economy to all spheres of their activity, with finances at the forefront in such socio-economic circumstances. Having assumed that the main manifestation of a knowledge-based economy is the ability to create and implement innovations, their implementation is made possible by the appropriately used financial resources. (Jeżak, Popczyk, Winnicka-Popczyk, 2004, pp.81-93). Therefore, as **the main objective of this article** and the **empirical**

research conducted, the author has chosen to describe **the financing of the innovative activity of Polish family businesses** [1] in depth.

During the world literature studies, the author didn't find publications devoted to the question of family system influence on innovation financing in family businesses. The research problems and hypotheses have been formulated in reference to the author's long time experience, observation, earlier researches and publications. She seems to be the only researcher, who has to do with family business financing in her country.

The concept of empirical research
Purpose and scope of research

The purpose of the study was to describe the financing of innovative activity in family businesses on the Forbes Diamonds Laureates list. In the economy aspiring to a knowledge-based one, financing the enhancement of competitiveness by the development of knowledge, which is a source of innovation, is the key factor for business success. Financial outlays on research and development are the prerequisite for generating this knowledge. In addition to the barriers in business financing described in literature, in family businesses the avoidance of excessive financial risk has been observed, due to the family well-being. This may be the reason for recognizing that family businesses have low flexibility to adapt to rapidly changing, increasingly globalized and competitive environment.

The study consisted of the following sections: statistical characteristics of the family businesses surveyed; statistical characteristics of the company leader and innovations implemented by the entity; the main features of financing innovations in the family companies surveyed by creating models of dependency for financing innovation (Winnicka-Popczyk, 2016, pp.147-184).

Selection and characterization of research variables

For **the purpose of the study**, dependent variables and independent variables were determined. **Dependent variables** are as follows: *types of innovation, size of outlays for innovation, dominant sources of financing innovation, value increase.* **Independent variables** consist of: *legal form of enterprise, sector of economy, location, number of employees, number of employees with higher education; number of family members employed and co-operating with the company (total), age of the company, how many generations run the company, succession planning, level of education of the decision-maker, field of education of the decision-maker, compliance of the decision-maker education with the activity, decision-maker age, entrepreneurial background, possession of vision, mission, strategy of action, way of formulating mission statement, (along with vision and strategy), type of business* – this variable takes into account three types of family businesses : A - majority of family ownership and management; B – majority of family ownership and lack of involvement in management, C - minority ownership, majority in management (Popczyk, 2013, p.129). *The financial situation of the company, development trends of the company, source of innovation, nature of innovation expenditure, the stage of innovation, innovation motives, internationalization of business activities, nature of foreign markets, presence of a foreign shareholder.*

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[1] The terms "family business", "family company", "family firm" were given equal importance for this study.

Number of the companies surveyed - description and justification for the selection

The list of the most dynamically developing companies in our country - "Forbes Diamonds" has been prepared by Bisnode Polska in cooperation with the editors of "Forbes" magazine since 2006. The last year's ranking was the ninth edition of this prestigious award. The financial data used for this project is derived from official information provided by companies in compliance with law. The ranking includes companies that: in the last three years have dynamically increased their value; submitted financial statements to the National Court Register or published them in Monitor Polski B; achieved positive financial results and the risk ratio lower than 4, rated according to the Bisnode rating; are not bankrupt or in liquidation. The compiled list of companies includes the following: the name of the company and its place on the nationwide list, the location of the premises, the sales revenue of the last year audited, the net profit of the last year audited, and the average increase in value in the last three years, all of which are key features in the ranking.

"Forbes Diamonds 2016"

There were **1932 companies**, which were divided into three categories according to the criterion of sales revenue: small companies with revenues of 5-50 million PLN - 1309 entities (including 409 families); medium companies 50-250 million PLN - 468 entities (including 108 families); large companies with revenues of over 250 million PLN - 155 entities (including 26 families).

The above mentioned companies submitted the reports to the National Court Register in 2015, that were used by Bisnode Polska to create a database of nearly 2 thousand companies that deserve a positive rating. The decisive credibility criteria included: profitability (based on EBIT and ROA); high current liquidity and clearance certificate (verified in the National Debt Register), positive financial result and equity, in 2014 sales of at least 5 million PLN. Financial institutions, such as banks, have been eliminated, due to differences in balance sheet categories in comparison with manufacturing or trading companies. **Companies were measured by the Swiss method**, combining property and income (Starzyk, 2016). This issue will not, however, be of interest in this study.

The author of this study has identified the share of family businesses in the groups of Forbes Diamonds 2016 (small, medium and large companies) and proposed a model describing the financing of enterprise innovation from the aforementioned base. It identified 409 small, 108 medium and 26 large family companies - **a total of 543 entities.** For this purpose, the documentation of the National Court Register was used, and the criteria for the identification included: the participation of family members in the ownership or participation of family members in ownership and management. In addition, the family structure of the company was verified during the survey. The author assumes that there might be family members but their surnames are different due to the family relationship and the Diamond list does not show the family link, such as father and son-in-law, mother and married daughter, brother and sister-in-law, married sisters, etc. are not expressed in the National Court Register.

Research issues and hypotheses

The author formulated **the main research issue** (P) as follows: **do family businesses, in order to meet the ambitions of a knowledge-based economy, are able and willing to invest in innovation?**
The detailed research questions (Q) are the following:
(Q1) - Are family businesses a big group among the "Forbes Diamonds 2016" prize-winners?
(Q2) - How much finance is invested in innovation by the companies surveyed?
(Q3) - What are the main sources of funds used by the family companies surveyed for investment in innovation?

(Q4) - Are there factors related to the family nature of the company which are correlated with the intensity of innovation expenditure? What is the direction of correlation? (Q4a) - positive? (Q4b) - negative?

Literary studies and the results of previous research empowered the author to formulate the following hypotheses, which are likely responses to the research issues posed:

Main hypothesis (H) - Family businesses are able and willing to invest in innovation to meet the aspirations of a knowledge-based economy.

Supportive hypotheses (independent of one another but supporting the main hypothesis);

(H1) - Family businesses are the number one business in the Forbes Diamonds list of companies;

(H2) - Expenditures of researched family enterprises for innovation are intensive;

(H3) - The main source of financing innovation in the surveyed family companies are own funds and EU funds;

There are factors closely related to the specifics of family businesses that are connected with the intensity of innovation funding: (H4a) - positive, (H4b) - negative.

Hypothesis H1 doesn't result from a simple calculation. Majority of companies from the Forbes Diamond List are private-held ones, so research effort was needed to identified the population of family businesses among them. Because the image of this business formula in emerging economies isn't strong, the owners are reluctant to confirm their identity. The author decided to identify the origin of researched companies herself exploring their legal documents. It appeared a real research challenge.

Method and research process

With the intention of achieving the aim of the research and answering the research issues posed by verifying the hypotheses, the author carried out the research process which consisted of the following stages of the project implementation: selection of the research method, preparation of the research questionnaire; sample selection, implementation of the measurement phase of the test, preparation of a statistical report; preparation of the final report.

The whole research process lasted from June to August 2016. The questionnaire was carried out and the information about the research scope was obtained through the use of the questionnaire survey tool developed by the researcher. The questionnaire contained 25 questions on four issues: identifying the company, decision-maker / principal, innovation and funding. Most of the questions were cafeterias (systems in which people may choose from a number of available options), 10 questions were open because of the characteristic features of them. All family companies included in the "Forbes Diamonds 2016" (population survey) were contacted and **the final sample size was 115** in the full questionnaire. 543 policy makers were invited to participate in the survey.

During the interviews, the conversations were conducted in an open manner, and each participant in the study had an unrestricted ability to articulate their views without fear that the information would not be covered by the anonymity clause. The study was carried out through **the mixed mode method**, using simultaneous use of **CATI and CAWI techniques** - depending on the respondent's preferences as to how to complete the questionnaire. CATI and CAWI are contemporary, effective techniques applied in the framework of questionnaire research method. Computer-assisted telephone interviews (CATI) were carried out through the Biostat CATI-System software. The CAWI (*Computer Assisted Web Interview*) study was carried out by e-mailed questionnaires. The random use of both research techniques allowed for the highest possible responsiveness.

Research results - information on innovation financing. Models of dependency for financing innovation in the companies surveyed

Only family companies participated in the study. The average number of family members employed and / or co-operating with the company was four. In total, 52.2% of all surveyed companies employ / co-operate with no more than three relatives. In the remaining 47.8% of companies, the number of family members among people employed / co-operating with a company is at least four.

The mean launch was 1995, therefore "Diamond Forbes" was awarded after about 20 years of operation on the market. As a part of the analyzes, the companies were divided into three groups: established in 1989 or earlier (16.5%), launched in the nineties (50.4%) and established in 2000 or later (33.0%). Analysis of the study results showed that the company's age is in line with the nature of innovation spending. Firms founded in 1989 and earlier are more often characterized by the continuing nature of innovation spending rather than the younger ones.

The vast majority of companies that were awarded "Forbes Diamonds" status are currently in a good or very good financial situation, whereas only 0.9% stated the opposite. An in-depth analysis of the results showed that the financial situation was linked to the nature of innovation expenditure. It can be presumed that the companies in a better financial situation invest in innovation in a continuous way.

Generally, the family firms surveyed are at least in good financial shape and, in addition, their decision-makers are positively evaluating the development prospects of their businesses. The leaders took into account the criterion of net profit. The results show that the upward trend in net profit is observed in 65.2% of companies. Obviously, companies that are in good financial shape are more likely to report an upward trend in net income.

The origin of innovation implemented by companies was also identified during the study. 50.4% of companies independently create their own concepts within their own R & D output. 33.0% of entities implement innovations that result from the cooperation in strategic partnership with other companies. Fewer than 30% of respondents indicated buying ready-made projects or outsourcing them to other entities, such as universities or R & D centres.

31.3% of the companies surveyed innovate continuously, other decision makers pointed to the fluctuations of innovation spending. Chi-square test results have helped to determine that the nature of innovation spending is linked to:

− **company's age** - it has been shown above that the companies established before the nineties are more often characterized by continuous innovation funding;

− **financial situation** - companies in a better shape are more likely to spend their resources on innovation in a continuous way;

− **the volume of employment** - companies that are larger finance innovation in a continuous way more often;

− **legal form** - limited liability companies are more often characterized by continuous financing of innovation than entities operating under other legal forms;

− **the importance of innovation** - companies that finance innovation continually categorize these innovations as groundbreaking or significant; more often, innovation is driven by their own aspirations, and less often by pressure of competition;

− **internationalization of business activities** - higher income from foreign markets corresponds to greater attention to the continuity of innovation financing.
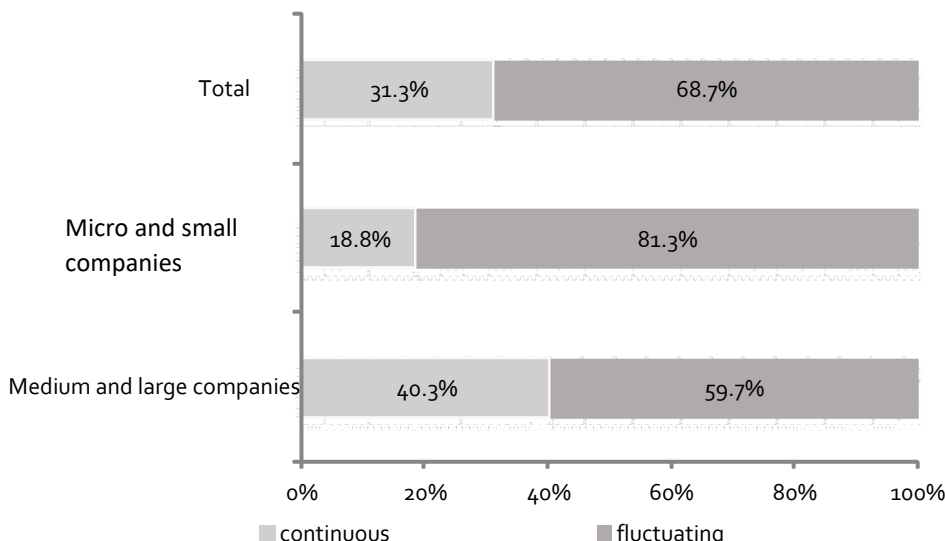
Fig. 1. Nature of expenditure on innovation and employment N = 115

Only 12.2% of the companies surveyed make innovations known as breakthroughs. Considerable number of companies introduce innovations identified as significant (39,1%) and above all adaptable (58,3%). The main motive for innovation is customer care (80.9%), less often - competition pressure (57.4%) and own aspirations (52.2%).

The following considerations include an analysis of the impact of independent variables on dependent variables identified at the beginning of the study. The impact model is based on a **logistic regression** and **linear regression** (for the dependent variable it is the increase in value for 2012-2014). This made it possible to indicate independent variables with positive or negative influence on dependent variables.

The volume of expenditure on innovation is presented in Figure 2. It shows that the majority of the respondents finance innovation aimed at maintaining market share (27.8%) or seeking new opportunities (25. 2%), and for others financial investment was insignificant (24.3%). To a lesser extent, the reasons for financing are significant expenditure (18.3%) or expansive expenditure (4.3%).
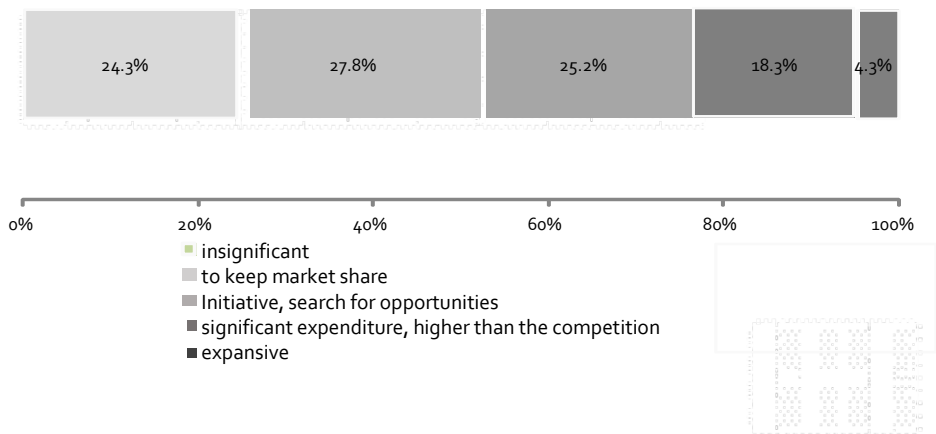
Fig. 2. The volume of finance on innovations in the companies researched N = 115

The analysis of the model has shown that the size of innovation expenditure correlates positively with variables such as the number of family members among employees / co-workers, innovation because of customer care, activity on the Eastern European market (presumably due to its size and absorption) and a foreign shareholder. The negative correlation was identified, among other things, by: the number of jobs and the age of the firm (the presumption of a traditional, expansive business model); the smooth succession (possible lack of successors' interest in further innovation financing); and adaptation innovations (probable survival strategy).

Table 1. Model of dependence prepared for innovation expenditure

Variables	Value	Odds ratio	2,50%	97,50%
(Intercept)	3,2250	4,93E+179	8,14E+81	3,61E+302
Limited company	-3,0060	0,01	0,00	0,17
General partnership	-2,7480	0,01	0,00	0,23
Volume of employment	-3,0080	0,99	0,99	1,00
Family members	2,7580	1,59	1,18	2,30
Year of establishment	-3,2380	0,81	0,70	0,91
After succession	-3,0120	0,00	0,00	0,04
Compliant with the activity	2,1480	4,61	1,22	20,77
Written vision, mission, strategy	-1,7380	0,23	0,04	1,10
R&D department	1,7040	3,78	0,90	20,29
Strategic partnership	2,2390	6,93	1,41	44,53
Fluctuations in expenditure	1,5840	4,16	0,77	27,61
Problem-solving	-2,9180	0,08	0,01	0,38
Competition pressure	-2,5150	0,14	0,02	0,57
Customer care	2,5800	24,02	2,70	359,03
Eastern Europe	3,0020	16,96	2,92	125,27
Underdeveloped countries	2,2250	41,99	1,85	1704,55
A foreign shareholder	3,2720	11104,39	100,15	9 336 726,00

Source: Own study.

The type of innovation being implemented was selected as a dependent variable. The most frequently implemented innovations are product-based (57.4% of them are introduced by the companies) and process-based, which are related to new production technologies (50.4%). Marketing innovations (33.9%), organizational (29.6%) and managerial (18.3%) were less frequent. The impact of independent variables on dependent variables has been identified in the case of four most frequent types of innovation: product, process, marketing and organizational innovation.

The study helped to identify the dominant sources of financing innovation in the companies surveyed. The vast majority of companies finance innovation from their own resources (85.2%). Other sources of funding were less frequent: investment loans were indicated by 37.4% of respondents, leasing - 35.7%, and regional funds - 24.3%. Other sources were mentioned by less than 7.0% of respondents.
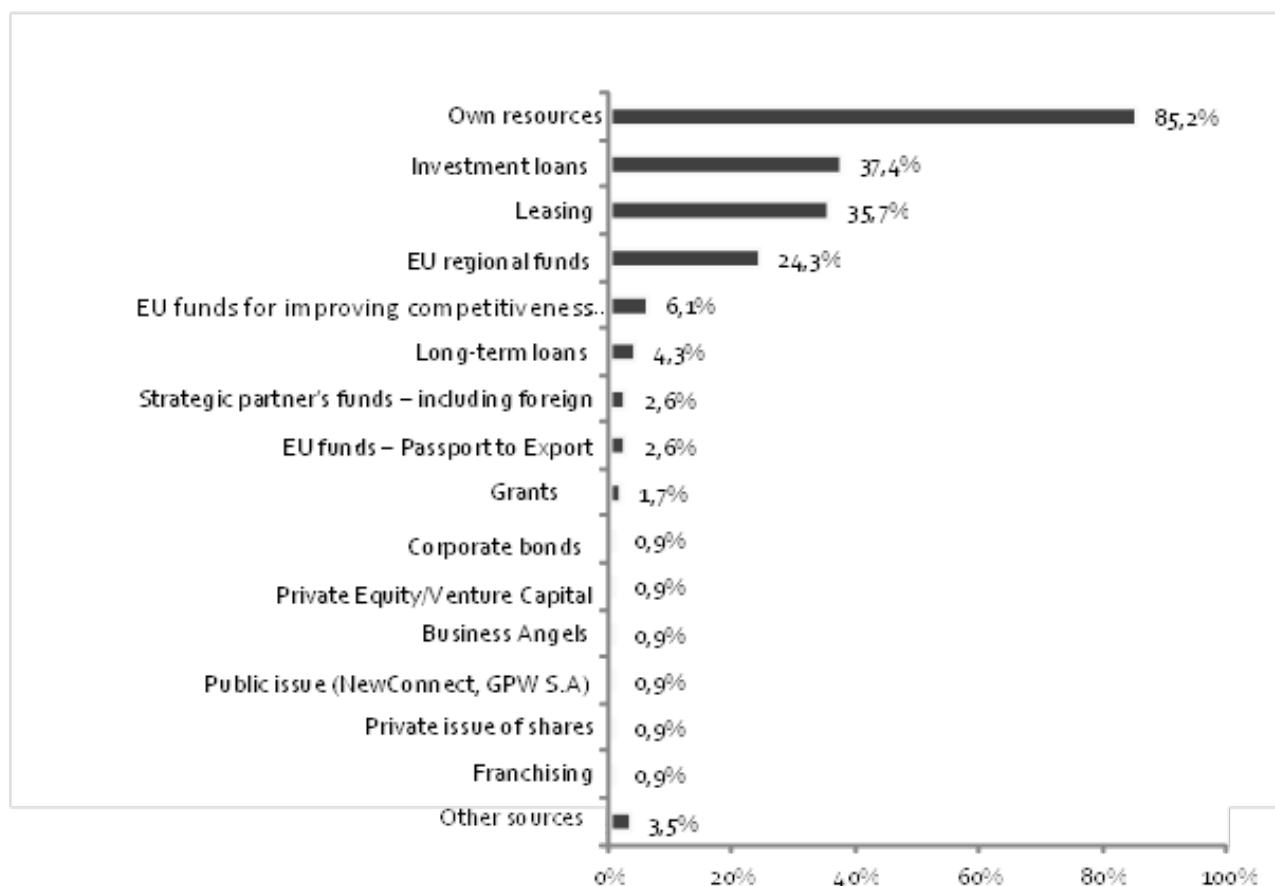
Source: Own study

Fig. 3. Main sources of financing innovation in the firms surveyed N = 115

The impact of independent variables on dependent variables for model creation was identified for two sources of financing: investment loans and leasing. The positive impact from the use of investment loans is primarily: their own aspirations and customer care as a motive for innovation, as well as the functioning of the company in the markets of less developed countries. A negative impact has been identified in the case of: affiliation of manufacturing and construction, entrepreneurial family background, income from foreign markets not exceeding 1% of total income.

Table 2. Model of relationship drawn up for financing innovation from investment loans

Variables	z value	Odds ratio	2,50%	97,50%
(Intercept)	-1,0270	0,4144	0,0701	2,1072
Industry and construction	-2,7060	0,2319	0,0752	0,6372
Decision-maker from entrepreneurial family	-2,2180	0,3135	0,1061	0,8387
Intuitive manner	-1,4350	0,5121	0,2015	1,2698
Problem-solving	-0,9560	0,6170	0,2254	1,6598
Own ambitions	3,1210	5,1440	1,9173	15,2601
Customer care	2,0170	3,9993	1,1250	17,4539
Under 1%	-2,1940	0,0175	0,0002	0,2945
Highly-developed countries	-1,9150	0,1920	0,0305	0,9527
Eastern Europe	1,3970	2,5482	0,6903	9,8262
Underdeveloped countries	2,9690	82,4328	6,3546	2818,7174

Source: Own study.

A similar statement was prepared for leasing as a source of financing innovation. It has been found here that the positive impact on the use of the lease includes, but is not limited to: industry and construction affiliation, planned succession, and innovation due to customer care. On the other hand, the negative impact was noticed by the relatively young age of the company and / or its leader, the business education of the leader or location of the company in Central Poland.

Table 3. Model of dependency drawn up for financing innovation from leasing

Variables	z value	Odds ratio	2,50%	97,50%
(Intercept)	-1,9520	0,0000	0,0000	0,1122
Limited liability company	-2,3220	0,0755	0,0064	0,5649
General partnership	-2,4040	0,0445	0,0026	0,4558
Industry and construction	2,9550	7,3513	2,1071	30,7085
Central Poland	2,1170	4,4663	1,1851	19,7710
Number of employees	2,5230	1,0087	1,0022	1,0164
Employees with higher education	-2,1800	0,9668	0,9352	0,9917
Year of establishing the company	1,9610	1,0887	1,0016	1,1897
Planned succession	2,6150	7,8497	1,8889	43,6068
After succession	1,3720	9,0273	0,4309	274,7562
Business education	-2,2930	0,1476	0,0249	0,6807
Decision-maker's age	-2,2670	0,9253	0,8607	0,9864
Leader from an entrepreneurial family	1,8460	3,6652	0,9541	15,5145
Intuitive manner	1,7030	2,8082	0,8930	9,9124
Majority of shares	1,9320	7,0925	1,1336	63,6934
Purchased from others	1,8280	4,0316	0,9524	19,9217
Breakthrough	-1,5440	0,0716	0,0020	1,3207
Customer care	2,7010	11,1705	2,2391	78,7626
European Union	-1,3690	0,4163	0,1112	1,4076

Source: Own study.

The research has shown that the main barriers to innovation financing perceived by entrepreneurs are economic, such as access to capital or market absorption. It was indicated by 47.0% of respondents. Rarely encountered barriers concern, inter alia, legal aspects (27.8%): tax relief for companies introducing innovations or poor protection of intellectual property; employees (19.1%): low quality of financial services in acquiring and using capital; psychological (17.4%): risk aversion, opportunism, routine. Additionally, it can be noted that 13.0% of entrepreneurs cannot identify the barriers encountered.

The study has helped to establish that the dominant competitive culture is to build on the added value of quality, innovation, reputation, brand, service, etc. 87.0% of respondents believe that this should be the main element of competition. The remaining (13.0%) indicated the cost / price.

Hypotheses versus the results of the study - verification of hypotheses

Main hypothesis (H) - Family businesses are able and willing to invest in innovation to meet the aspirations of a knowledge-based economy.

Supporting Hypotheses:

- **(H1) - Family businesses are a significant business population of the Forbes Diamonds list**. The hypothesis has been confirmed. 28.1% of all "Forbes Diamonds 2016" prize winners were family businesses.

- **(H2) - Expenditure of the researched family enterprises for innovation is intensive.** Hypothesis confirmed. Nearly 50% of the surveyed family businesses spend on innovation in a search for opportunities, an element that leads to a competitive advantage or as a means for expansion. This is a competitive culture. 87% of the respondents preferred to build on value added (quality, innovation, reputation, brand, service, etc.).

- **(H3) - The main source of financing innovation in the family companies surveyed are their own funds and EU funds.** Hypothesis partially confirmed. Own funds are the most common source of funding innovation, while EU funds give way to investment loans and leasing.

- **(H4) - In the entities surveyed there are factors closely related to the specifics of family businesses which are correlated with the intensity of financial expenditures on innovation:**

  (H4a) - positive. The intensity of finance on innovation in the surveyed companies depends primarily on the number of family members who work for the company, innovation because of customer care, situation on the Eastern European market and foreign shareholders. The above factors correspond to the main positive attributes of family businesses, such as family involvement in the business (social capital, including family relationships, risk distribution), customer focus and special attention to meeting their needs, careful risk management when dealing with the environment, the presence of a foreign shareholder as an incentive to adjust the offer to the requirements of international markets, the initiator and the capital provider.

  (H4b) - negative. The intensity of finance for innovation in the companies surveyed is negatively correlated with the following factors: employment size, age of the company, smooth succession, introduction of adaptive innovations. This is the case of conservative business trends and excessive fear of risk, especially financial risk (extensive development, established patterns of behaviour, routine, complacency, or "survival strategy"). Hypothesis H4 has been fully confirmed.

Taking into account the above statements confirming the supporting hypothesis, it seems that the main hypothesis, formulated for the purposes of this study, can be considered valid.

Summary of research and conclusions

Based on the above survey of 115 family companies from the Forbes Diamonds list, an attempt could be made to formulate findings and to draw conclusions that would serve to formulate recommendations for entrepreneurs and decision makers at central and local government level. The focus of research was on the financing of innovation in family businesses. During the research it was possible to determine:

- **the nature of finance for innovation** - only 31.3% of the family companies surveyed continuously finance innovations. Other companies do it occasionally. It was clearly established that the nature of innovation expenditure is related to: age of the company, its financial condition, employment size, legal form of business activity, importance of innovation in the opinion of decision-makers, internationalization of the company's activity. Continuous investments in innovation are a feature of: older companies (founded up to 1989), in a better financial situation, larger, limited liability companies, introducing breakthrough or significant, ambitious innovations - guided by their own aspirations, internationalization of business and achieving higher income from foreign markets.

Conclusion: It seems obvious that the continuous nature of innovation spending is characterized by mature, developed, effective, pro-development oriented companies.

- **intensity of innovation expenditure** - the answers to this question are diverse and give the following picture of the issue considered: to maintain market value - 27.8%; to search for opportunities and take an independent

initiative - 25.2%; insignificant expenditure – 24.3%; significant finance, significant in comparison to their competition - 18.3%; expenditure - 4.3%. More knowledge about the size of innovation finance is provided by the dependency model created for them. A positive correlation of finance was found for variables such as: the number of family members working in the company, innovation because of customer care, operations in Eastern European countries, or a foreign shareholder. The negative link occurred in the case of: size and age of the company, smooth succession, innovations at the level of adjustment.

Conclusion: From the point of view of family businesses, it is not just the amount of capital devoted to innovation, but also the positive correlation between finance and the number of family members who work / cooperate with the company and the introduction of innovation due to customer care, and the negative correlation between expenditure on innovation connected with succession. The family (thanks to a developed, strong social capital) supports the company's innovation by looking at opportunities for further development and satisfying the needs of its customers that are the most important element for every socially sensitive (and not merely economic) family business. It also happens that, after succession, a following generation of owners slows down the pace of innovation wishing to pursue their own management priorities.

- **types of implemented innovations** - most of them were product innovations (57.4% of companies) and process innovations (50.5%); marketing innovations (33.9%), organizational (29.6%) and managerial (18.3%). For each type of innovation, it was possible to create dependency models.

Conclusion: The researched family companies are able to generate innovation with high technological involvement (product and process). More than 50% of them declared it. Other types of innovation (marketing, organizing, managerial) are probably not the primary element of development strategies. From the point of view of adapting family businesses to the aspirations of a knowledge-based economy, the technological advancement of innovation is fundamental.

- **dominant sources of financing innovation** - in the researched companies innovation is financed mainly from their own resources (85.2%), other sources of financing are clearly indicated: investment loans - 37.4% of respondents, leasing - 35.7%, regional EU funds - 24.3%. Other sources of financing were used by less than 7% of entrepreneurs. In the case of two sources of financing: investment loans and leasing, we managed to identify the impact of independent variables on dependent variables and create dependency models.

Conclusion: Companies mainly allocate their own resources to innovation - 85.2% of respondents (in addition to more than 50% of companies developing innovations in their own R & D departments), use modest investment loans and leasing. The relatively low share of EU funds in such innovative companies makes it necessary to determine the cause of this phenomenon. These ways of financing relates to one specific study, but does not exclude other equally effective capital raising opportunities, such as public or private capital market.

- **the average increase in value** - in this case, we have also succeeded in creating a dependency model. Positive impact on the dependent variable (average growth of value in 2012-2014) were independent variables such as: the legal education of the leader and the introduction of innovations due to customer care. Negative impact was exerted by family business type B and type A, and by the highly-developed countries outside the European Union.

Conclusion: While the factors that have a positive influence on the average increase in the value of the surveyed companies do not cause doubt, negative impact requires in-depth research. It can be assumed that: value is not a priority for family businesses (type B) and economic indicators may be more important to the interests and well-being of the family (type A).

- **barriers to financing innovation** – decision-makers mostly complained about economic barriers (47% of respondents), legal (27.8%), personnel (19.1%), psychological (17.4%). 13% of the respondents could not identify the barriers they encountered.

Conclusion: The order of the listed barriers seems to be typical: from difficulties in raising capital, through inadequate use of it, and to risk aversion at the end. One can safely say that certain types of barriers will accompany continuous financing. It is important to be able to handle the obstacles, eliminate or restrict them. When overcoming finance barriers, economic and financial education and business expertise play a key role.

- **opinion of the respondents on the way they compete** - the vast majority of decision-makers (87.0%) opted to build competitive advantage on the basis of value added. Only 13% of entrepreneurs indicated competition in costs / price.

Conclusion: The issue of the attitude to competition could equally well begin (and not end) this study. For an enterprise that aspires to adapt to its demands, to survive and even develop in a knowledge-intensive economy, the awareness of the need to compete on the basis of creating value added plays a leading role. It is not possible to function, in the long run, without innovating, taking care of quality, creating a brand, improving the image. Researched leaders understand this very well.

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THE TRANS-PACIFIC PARTNERSHIP (TPP) or CPTPP IN THE CONTEXT OF CONTEMPORARY REGIONALISM

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Abstract. Regional trade agreements (RTAs) have proliferated rapidly in recent years and have become an important feature of the world economy. Contemporary integration processes refer to the third wave of regionalism, and could be seen in the context of a trend towards increasing number of cross-regional agreements. A significant aspect of this trend is the complexity of RTA negotiations as modern agreements include more and more sophisticated commitments and provisions. They address issues related to multilateralization of regionalism in moving away from a "spaghetti bowl" of criss-crossing arrangements. This trend is especially growing in the Asia-Pacific region. The aim of this paper is to identify the trends in contemporary regionalism and to verify whether the changes in that process are reflected in creating TPP as a new model of a RTA. TPP anticipated liberalisation of trade and investment between 12 Asia-Pacific countries. In light of the US withdrawal, negotiations were continued between the remaining 11 members. On 23 January 2018, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) was concluded. It is assumed to become one of the most comprehensive regional agreements. The study should offer new insights into issues of contemporary regionalism enhancing our theoretical knowledge in this area. Many of the specific provisions of the CPTPP are likely to set the benchmarks for future trade agreements. From a practical perspective the CPTPP may change trading structures across the region, its implications can be important even for non-members. In this paper analytical descriptive and comparative research methods are used.

Key words: *TPP, RTA, Asia-Pacific, regionalism, cross-regional.*

Introduction

Regional trade agreements (RTAs)[1] have proliferated rapidly in recent years and have become a prominent feature of the world economy. Contemporary integration processes refer to the third wave of regionalism, and could be seen in the context of a new trend towards increasing number of cross-regional agreements. Another significant aspect of a new trend in regionalism is the complexity of RTA negotiations due to their changing structure as modern agreements include more and more sophisticated commitments and provisions. They also address issues related to multilateralization of regionalism in moving away from a "spaghetti bowl" (in Asia often dubbed a "noodle bowl") of criss-crossing arrangements. This trend is especially growing in the Asia-Pacific region and corresponds with the shift in the global economy towards Asia ("pivot to Asia"). The work contributes to this phenomenon, and discussion is focused on an example of the modern RTA, crucial for the world economy - the Trans-Pacific Partnership (TPP).

The aim of this paper is to identify the trends in contemporary regionalism and to verify whether the changes in that process are reflected in creating TPP as a new model of RTA in the region. It anticipated liberalisation of trade and investment between 12 Asia-Pacific countries. In light of the US withdrawal, negotiations were continued between the

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[1] In this study the author uses the term RTA to refer to all reciprocal preferential agreements in accordance with the World Trade Organization (WTO) which uses such terminology.

remaining 11 members that affirmed economic and strategic importance of the agreement. On 23 January 2018, the TPP agreement renamed as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) was concluded. The agreement will entry into force likely in late 2018 or on 1 January 2019. It is assumed to become one of the most comprehensive regional agreements, and to play a role as an instrument for strategic market access, including services, investment, customs procedures, tariff cuts, and more. Due to interlinked nature of its commitments the CTTPP is considered to be important for companies as this deal should bring opportunity for their competitive advantage.

The paper is organised as follows. After the introduction, in the first part a theoretical analysis of contemporary regionalism is studied. In the second part the Trans-Pacific Partnership (TPP or CTTPP) is examined. Finally, the results and implications of TPP for contemporary regionalism are discussed. It also briefly summarises some of major outcomes that emerged. In this paper analytical descriptive and comparative research methods are used.

Concluding, the study should offer new insights into issues of contemporary regionalism enhancing our theoretical knowledge in this area. Many of the specific provisions of the CPTPP are likely to set the benchmarks for future trade agreements. From a practical perspective the CPTPP is likely to change trading structures across the region, its implications can be important even for non-members.

1. Contemporary regionalism

Regionalism is not a new phenomenon in the structure of the global economy, as WTO members have been engaged in a number of RTA initiatives since the mid-1950s. However, in recent years regional integration has been expanding at an unprecedented rate (Baldwin and Low, 2009). It has also led to the evolution of RTAs over time, especially since the turn of centuries, towards new trends both in quantitative and qualitative terms.

Motivations for establishing contemporary RTAs are varied and complex. Among reasons of such transformation in the structure of the world economy we can identify slow progress in multilateral trade negotiations (the Doha Development Round). It means that the future of multilateral liberalization looks unpromising what makes regionalism an attractive alternative.[2] As a result the negotiating impasse has contributed immensely to turn countries – developed and developing alike - towards regionalism as the most active means to trade liberalization. Trends to regionalism can also be explained by the emergence of new members in the WTO (164 as of 2016), what results that they have increased difficulties in finding common ground in multilateral negotiations. It is easier to negotiate, especially more advanced topics, with one partner or regionally than multilaterally. Another advantage is that regional negotiations last much shorter than multilateral ones. Yet, another factor stimulating regionalism is a growing significance of more sophisticated and complex content and coverage of negotiating issues by modern RTAs.

Countries are involved in regionalism to achieve preferential market access, and to realize foreign and domestic policy objectives in relations with major trading partners. It means that apart from economic motives, political and security reasons are often among important factors for regional integration. Governments explain such step as "economic collaboration at the regional level (…) will enhance (their) bargaining leverage with non-members" (Ravenhill, 2001). Furthermore Carpenter (2009) identifies other reasons of trends towards regionalism termed as the "CNN effect" (media

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[2] There are three avenues to trade liberalization: (1) Unilateral, when countries individually decide to lower their barriers to all without others necessarily doing the same; (2) Regional, when countries lower their barriers to the partner/partners only in return for their reciprocity in this regard; and, (3) Multilateral, within the WTO system of multilateral lowering barriers on the basis of reciprocity which is assumed as the first best option.

information /news/ from signing the agreement are more important than the content of the agreement[3]), and the "laboratory motive" (regional arrangement allows to experiment negotiations at the regional level prior to conducting more complicated negotiations at the multilateral level).

The formation and operation of RTAs are based on legal principles referred to Article XXIV of the GATT 1994, Article V of the GATS and Enabling Clause (The WTO Agreements, 2017). As of 25 January 2018, 284 RTAs were in force and notified to the World Trade Organization (WTO). Of these RTAs, 143 agreements include provisions liberalizing trade in goods and services while 140 notification corresponds to liberalizing trade in goods only, and 1 to trade in services (WTO, 2018a).[4] All of the WTO's members are a party to at least one RTA (WTO, 2018c). As a consequence, RTAs constitute a growing proportion of the world economy. It reveals a significant trend. This correlates with another aspect of modern regionalism, the growing number of bilateral preferential agreements. As of 2018, bilateral RTAs account for 81 per cent of all RTAs notified and in force and 56 per cent of those signed and under negotiations (Crawford, 2018).[5]

Another feature of the proliferation of RTAs is the selection of a free trade agreement (FTA) as a preferred type of agreement. They account for 86 per cent of all RTAs in force (247 FTAs) while partial scope agreements[6] (21) and customs unions (18 CUs) respectively account for 7 per cent and 6 per cent (own calculations based on: WTO, 2018b). However, it should also be noted that classic FTAs have traditionally been characterised by limited scope of provisions, and they are being replaced by so called "real" FTAs[7] or new generation FTAs which are comprehensive and innovative deals. It relates both to such FTA, as for example ANZCERTA (Żołądkiewicz, 2007) or to recently concluded agreements such as CETA (EU-Canada), EU and Asian countries (Majchrowska, 2017), CPTPP, RCEP (under negotiations), etc. (Żołądkiewicz, 2016). Key attributes of the FTA predominance are flexibility, selectivity, and a shorter time to reach a conclusion, as these are negotiations among like-minded countries (Fiorentino et al, 2009) which are determined to achieve the agreement.

There is a difference between older and new RTAs. Recent developments show the evolution over time of geographic configurations of RTAs' participation trend. Past RTAs' membership was regionally based, in line with the theory of integration among "natural trading partners" (Krugman, 1993). A criterion of geographic proximity was a key factor. Traditionally RTA's formation took place among neighbouring trading partners (e.g. NAFTA in North America, the EU and EFTA in Europe, ASEAN in Asia, etc.). The argument, that trade naturally takes a regionalized form is explained by lower transportation and communication costs as well as by similarities and divergence of incomes and policies. Wonnacott and Lutz (quoted in Krishna, 2005) suggest also economic welfare gains from trade creation. This concept has limitations and global trade patterns do not provide enough evidence. An alternative concept (Drysdale, 1988 quoted in Ravenhill, 2001) developed on Asia-Pacific cooperation rested on the "natural complementarities" explanatory idea. This had, however, a rather weak impact on theory. Nevertheless, RTA notifications are still the largest in quantity and as a share of total activity in Europe, 20 per cent of RTAs in force (as of 20 February 2018), followed by East Asia (17 per cent). Other regions are less involved in these initiatives (own calculations, WTO, 2018a).

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[3] For example, AUSFTA (Australia United States Free Trade Agreement) which was not particularly good for Australia but the prime minister wanted it, so the agreement was signed (Carpenter, 2009).
[4] These RTAs correspond to 455 notifications. This number of RTAs is higher due to the fact that agreements in force are notified separately for trade in goods and services in line with WTO rules. On the other hand/In fact, cumulative notifications of RTAs in force and inactive contain 669 RTAs (WTO, 2018a).
[5] Note: in addition to RTAs between two countries, WTO counts as bilateral RTAs those signed between one party which is an RTA itself, so that for example the RTAs of the EU and EFTA with a third country are counted as bilaterals (Crawford, 2018).
[6] RTAs in goods among developing countries.
[7] A "real" FTA are defining FTA which are more comprehensive in their scope and depth. The ANZERTA (Australia New Zealand Closer Economic Relations Trade Agreement) with provisions WTO plus concluded in 1983 is a good example of a such FTA (Żołądkiewicz, 2007).

However, today's RTA membership is characterised by more diverse, often among countries in different geographic regions. A new type of cross-regional trade agreements (trans-regionalism) is an apparent shift from the traditional concept of regional integration (Michalski, 2014). This dimension of integration may raise a question about reasons of such initiatives. It can be explained that RTAs serve as instruments for negotiating strategic, bilateral market access (Chauffour and Maur, 2011), especially if they expand WTO provisions (WTO plus) or where multilateral rules are missing. Cross-regional integration occurs between developed and developing countries as well as between developing countries, however, it tends to be increasingly concentrated in North-South trade relations. To a greater extent there are bilateral agreements that tend to increase especially in the Asia-Pacific region (U.S.-Australia, U.S.-Singapore, Canada-Peru, Canada-Chile, etc.) (Fiorentino, Crawford and Toqueboeuf, 2009).

On the other hand, however, it can also be observed a rising trend in negotiating plurilateral agreements among several trading partners, for instance in the Asia-Pacific region (the Trans-Pacific Partnership, TPP; the Regional Comprehensive Partnership Agreement, RCEP); in Latin America (the Pacific Alliance); and in Africa (the Tripartite Agreement between parties to COMESA, EAC and SADC) (WTO, 2018c). The aim of such initiatives is to consolidate a dense network of RTAs bringing them to broader integration deals.

The sharp increase in the number of cross-regional RTAs creates a "spaghetti bowl" of criss-crossing RTAs, and is associated with a huge number of overlapping rules of origin preventing deflection of trade (Bhagwati, 2002). This effect can be solved by a process of consolidation and harmonisation of existing bilateral agreements and preferential rules of origin (Chauffour and Maur, 2011). Eventually, if all the parties to the agreement develop and apply common rules (f. e. rules of origin) it will lead to reducing the "spaghetti bowl" of RTAs. It was defined as multilateralizing regionalism through extension of existing agreements. Baldwin and Low (2009) indicate two methods in moving away from this problem:

(1) inclusion of new members in functioning RTAs (termed by Baldwin as "domino effect" on decisions taken by other countries to join existing one) (Baldwin, 1993), or

(2) establishment of a new agreement for all interested members (a policy of 'additive regionalism', for instance a number of countries negotiate preferential agreements with their major trading partners).

Contemporary integration initiatives are also far away from past practice and limited trade coverage. They have been evolving towards more ambitious scope and depth of coverage. Thus, the other aspect of contemporary regionalism is an apparent expanding and deepening of topics covered in RTAs. According to WTO data the number of provisions in RTAs expanded to 41, which are sub-divided into 72 provisions. Figure 1 shows a broad list of topics in regional agreements based on a batch of 265 RTAs notified to the WTO and in force (November 2017). It confirms the complexity of RTAs' negotiations due to their changing structure as modern agreements include more and more sophisticated commitments and provisions. Some of them aim to liberalize traditional barriers related to trade of goods such as tariff protection, sanitary and phytosanitary measures (SPS), technical barrier to trade (TBT), tariff cuts, and trade remedy measures (anti-dumping, countervailing and safeguard measures). However, increased number of agreements include provisions on other behind-the-border issues as well. Among those provisions the most frequently referenced are specific commitments in intellectual property rights (74%), in competition (71%), in services (66%), in environment (57%) and in investment (51%). Less frequently provisions concern labour (31%), and electronic commerce (28%) although also significant. It is worth mentioning that some behind-the-border issues contained by provisions are even not covered by WTO rules (investment, competition, environment, labour and e-commerce) (Acharya, 2016). Acharya also signals divergence between RTAs and commitments made under the WTO, regional agreements often go beyond them.
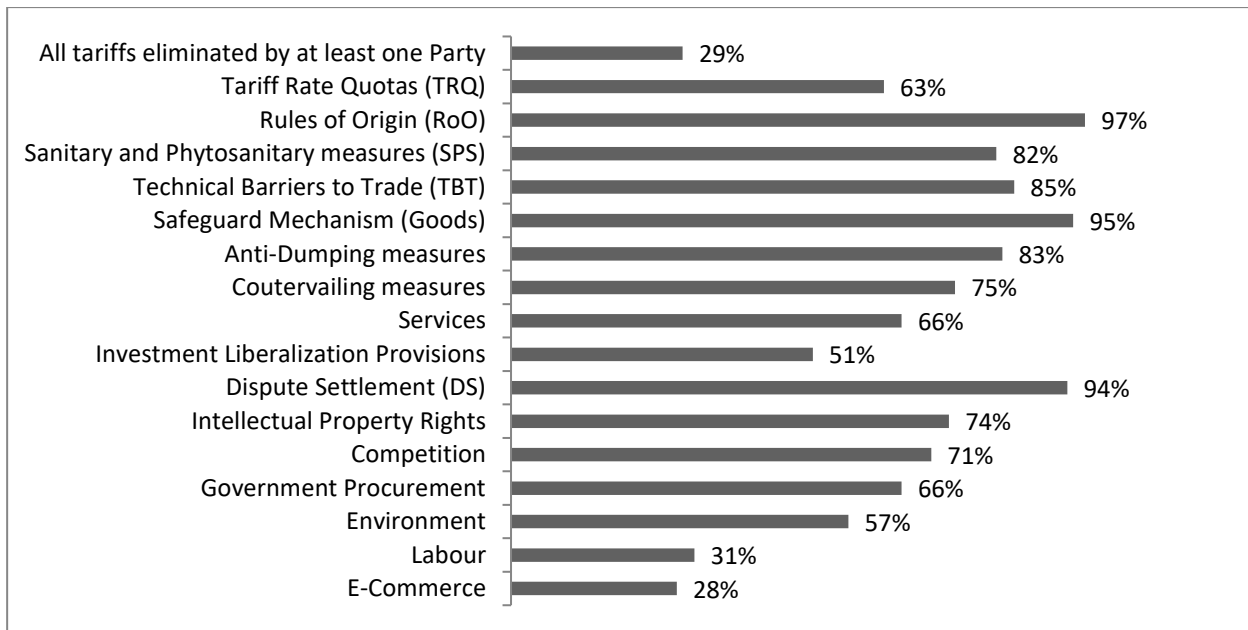
Source: WTO. 2018b.

Fig. 1. **Broad Topics on RTAs (November 2017)**

Additionally, there is still a difference in treatment among members of RTAs and third parties on what is not in accordance with the WTO legal regulations (WTO Agreements, 2017). Moreover, RTAs still maintain protection of sensitive products and sectors.

All of the above, the proliferation of regional trade agreements has been reflected in differences among their members and non-members and can be assumed as detrimental to the global trade relations. It is contrary to multilateral WTO regime in international trade. However, it can be argued that RTAs also enhance conditions of trade between their members, 'like-minded countries', and allow (at least partly) to overcome the deadlock in multilateral negotiations.

Moreover, this trend corresponds with another tendency in global trade, i.e. a "pivot to Asia". Asian regionalism has occurred late, only in the third wave due to historical reservation about RTAs in this region. However, to a great extent it is also leading in the growing number of bilateral and cross regional RTAs, according to the WTO data 82 agreements were concluded by the Asia-Pacific countries causing overlapping rules of origin. It generates a fragmentation of global trading relations, and raises transaction costs for players of international trade.[8]

Among regional integration initiatives in the Pacific Rim region there was the Asia-Pacific Economic Cooperation (APEC). APEC was launched in 1989 and comprises of twenty-one diverse member states from the region. It has been a grouping acclaimed by Bergsten (1997) as "potentially the most far-reaching trade agreement in history", due to its comprehensive, broad agenda embracing trade liberalisation, trade facilitation, and economic collaboration. It has still been an attempt to pursue "open regionalism", an approach to trade liberalisation in the interest of members from the Asia-Pacific and all non-members on most-favoured-nation (MFN) basis. However, after a couple of years Bergsten's opinion was suggesting weak effects in trade liberalisation as "dead in the water" (quoted in Ravenhill, 2001). Nevertheless it can be argued that APEC can be considered as a unique and exceptional regional initiative due to adoption of non-discriminatory approach to trade liberalization termed "open regionalism" with an aim to develop and strengthen

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[8] On the other hand Krugman explains that for welfare improvement fragmentation is a better solution as it does not lead to a larger improvement in welfare of any of RTAs (the minimal level of welfare: 3 blocks).

(…) trading system in the interest of the Asia-Pacific and all other economies (APEC, 1991; Skulska, 2012). It can be assumed as a regional agreement pioneering multilateralizing regionalism.

Recent developments and trends have caused an increase in the number of RTAs and their quality. The debate has been identifying a few distinctive features of contemporary regionalism, such as: "ubiquity (RTA participation is becoming more diverse, spreading to most geographic regions); consolidation (bilateral are being replaced by plurilateral RTAs); the changing structural configuration (bilateral RTAs are increasing becoming the norm); broadening and deepening of the regulatory scope of RTAs (WTO+ provisions and WTO-extra provisions); and the impact of RTAs (on growth of intra-trade)" (Chauffour and Maur, 2011). Modern RTAs are evolving rapidly.

Jones (2015) defines liberalization in behind-the-border measures as "deep integration provisions" and identifies "a link between negotiations for "deep" integration liberalization and the increasing importance of international supply-chain specialization in manufacturing". It includes negotiations in regards to final and intermediate goods traded. It should be also noted that modern RTAs increasingly include commitments that go beyond those accepted at the WTO level (WTO+ provisions) as well as commitments on issues that lie outside the WTO provisions so far (WTO-extra or WTO-X). So, "deep integration" of the most advanced among RTAs contain WTO+ and WTO-X obligations in investment, competition policy, intellectual property protection, and movements in capital. Furthermore, "openness" in accession of new members and the ability of commitments to be multilateralized is identified by Jones (2015) as attributes of the RTA negotiations among "like-minded" partner countries or "coalition of the willing" (Helbe, 2017) or even among "unlike-minded". It can be argued that all of the above allows the RTAs to become blueprints for negotiations and content at the multilateral level.

2.   Trans-Pacific Partnership (TPP) or CPTPP

The Trans-Pacific Partnership (TPP) was the most ambitious regional agreement negotiated between the governments of Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States and Vietnam. Negotiations for the TPP were commenced in Melbourne in March 2010 and concluded on 5 October 2015 after 19 rounds of negotiations and many informal discussions in the margins of the APEC meetings (Żołądkiewicz, 2017). The final version of the TPP text was the outcome of extensive trade negotiations and was released on 26 January 2016. On 4 February 2016 the TPP was formally signed in Auckland (New Zealand) by representatives of participating countries (dfat, 2018). The objective of the TPP was to integrate economies of 12 countries of the Asia-Pacific region.

 The origins of the TPP can be traced to the APEC initiative that Australia launched in 1989 (Kelsey, 2010) and at several APEC meetings in the 1990s during informal discussions held by the United States, Australia, Chile, New Zealand and Singapore. However, a status of founding countries belongs to four members: Brunei, Chile, New Zealand and Singapore (the "Pacific Four" (P4) Agreement) of Trans-Pacific Strategic Economic Partnership Agreement (TPSEP) which came into force in 2006 (Kelsey, 2010). It inspired the "domino effect" of other trading partners to join the P4 and to form the TPP. Baldwin (2006) identifies such trade liberalisation as a reaction to the fear of trade diversion by those left out. There is yet another factor, supply-chain phenomenon, that motivated members of RTAs toward further trade liberalisation to avoid the "spaghetti bowl" effect.

The Trans-Pacific Partnership (TPP) negotiations were launched among seven members: Australia, Brunei, Chile, New Zealand, Peru, Singapore and the United States. Vietnam participated as observer (Lim at all, 2012).[9] The number of members increased afterwards from seven in the beginning to 12 at the end. In October 2010, Malaysia and Vietnam joined the negotiations, Canada and Mexico followed in December 2012 and Japan joined negotiations in July 2013 (Żołądkiewicz, 2017).

As negotiations continued, they grew larger and longer. Adding new parties to ongoing negotiations could slow down negotiations as a result of new compromises. It could be difficult to encompass both wide-membership and high-quality agreements, especially those that were dominated mostly by competitive economies, with a large economic weight. The participating countries included not only several high-income and industrialized economies, but also middle- and lower-income developing countries such as Chile, Peru, Mexico, Malaysia, and Vietnam. Then, TPP was to take into account the diversity of levels of development of its members. Nevertheless such risk was avoided due to positive attitudes by negotiating members of the "coalition of the willing".

The TPP was supposed to become a "high quality, twenty-first century", broad and comprehensive agreement between all TPP parties. It anticipated liberalisation of trade and investment between 12 Asia-Pacific countries as its aim was to stimulate trade and investment among its members. It has been lauded at the "gold standard" for 21st century trade agreements linking both sides of the Pacific (Helbe, 2017). Lim, Elms and Low (2012) defined such an agreement as having the following features: "(i) comprehensive scope of diverse topics, (ii) substantial geographical scope, (iii) considerable depth that includes cooperation and integration components among members, and (iv) contain a set of shared values or norms among participants.

TPP was to bring higher standards to nearly 40 percent of global economy and over 25% of the world's exported goods (IMF 2013) promoting economic growth, supporting higher–paying jobs, enhancing innovation, productivity and competitiveness, reducing poverty, promoting good governance, and strong labour and environment protections. The text of the TPP comprised of 30 Chapters, with associated annexes and schedules. Upon entry into force the agreement required the elimination and reduction of tariffs that met rules of origin criteria. The TPP was to be an innovative instrument for multilateralizing regionalism in the region by harmonizing rules of origin (ROO). Chapters also covered investment, services, non-discriminatory treatment. The TPP contained commitments and disciplines on trade remedy measures, TBT and SPS measures, investment, services, intellectual property, biologicals, electronic commerce, government procurement (dfat, 2018). In other words they included WTO-plus and WTO-extra provisions. Helbe (2017) notes an important role of the US in the trade agreement, especially the regulatory impulse pushed by the United States in exchange for access to their market. It also regards an achieved balance of offers and demands which were to be renegotiated. The strong US leadership and commitment played a major role behind the successful negotiations of the TPP agreement. It was also a key element in the US' determination to deepening ties through a high-standard TPP agreement (Obama's "Asian pivot"), taking into account the shift in the global trade towards the Asia-Pacific region.

On 23 January 2017, on his first day in office, President Donald Trump signed an executive order withdrawing the United States from the TPP (Duffy, 2017). The disappointment among 11 members was great. It created a difficult, problematic situation for the remaining 11 partners. Due to the structure of the entry into force for the provisions of the TPP, it was unlikely the agreement would enter into force without ratification by the United States.[10] Among TPP

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[9] According to DFAT Australia formal negotiations commenced in 2008. No other country but Vietnam was observer as TPP negotiators prohibited observers.

[10] Article 30.5.1. (Chapter 30) provided that "TPP will enter into force, if at least six of the original signatories, which together account for at least 85 per cent of the combined gross domestic product (GDP) of the original signatories in 2013, have notify the Depository in writing of the completion of their applicable procedures within this period" (dfat, 2018).

members the US and Japan, both countries were responsible for 56 percent of trade and about 80 percent of GDP but American economic potential determined any further action.

The withdrawal of the United States from the Trans-Pacific Partnership as part of several "actions to protect American workers" disrupted the trade agenda in the region. It also raised the question about the future of the TPP, if the remaining 11 members should continue negotiations. The United States seemed interested in concluding bilateral agreements. Some research (Schott, 2017; Petri, Plummer, Urata, and Zhai, 2017) explored that these countries can achieve significant benefits from high-quality agreement, but analysis showed that "better is bigger" (larger agreements generate larger gains). Elms (2017) argued that the benefits of the TPP remain whether or not the United States ever joints the deal. It is because the American market is relatively open and expectations towards the US within the framework of TPP were relatively modest. It is rather underlined that the withdrawal would be damaging for American interests, especially the share of US goods in TPP imports decreased from over 40% in the late 1990s to less than 30% in recent years (Helbe, 2017). Petri, Plummer, Urata, and Zhai assessed the US losses of GDP as compared with expected from the original TPP in 2030 at 131 billion of dollars (0.5%) and 357 billion dollars (9.1%) in exports. Japan, Malaysia and Vietnam were supposed to be among the biggest beneficiaries as well. It was explained that the withdrawal of the United States in some ways can undermine and in others strengthen regional integration in the region, especially since the remaining parties affirmed economic and strategic importance of the agreement on 16 March 2017 and reaffirmed on 21 May 2017. All in all the remaining 11 countries have held several meetings throughout 2017 to conclude a new TPP-11 agreement (dfat, 2018).[11]

On 23 January 2018, the TPP renamed the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) was concluded and on 8 March 2018 was formally signed by ministers for trade in Santiago, Chile. The agreement will take effect starting in late 2018 or on 1 January, 2019; once six of the signatories have ratified it. This agreement is a separate treaty which contains 9 pages and incorporates, by reference, the original TPP[12] with exception of a set of 20 suspended provisions (Fact sheet, 2018). These suspended provisions relate mainly to express shipments; investment arbitration; express delivery services; investment arbitration; patents and patent term adjustments; biologics; term of protection for copyright; legal ability and safe harbour provisions for internet service providers; and technological protection measures. Four issues that were finalised just before the agreement was signed were: state owned enterprises (Malaysia); services and investment non-conforming measures (Brunei); dispute settlement (Vietnam); and cultural exception (Canada) (WTO, 2018b).

The CTTPP (TPP-11) will represent world GDP valued at US$10.2 trillion (13.5% of world GDP), accounting for about 495 million people (6.8% of world population), with a per capita income of over US$19,000, and a 15.3% share of the world's trade (dfat, 2018).

The new agreement is one of the most comprehensive trade deals ever concluded. It will eliminate more than 98 per cent of tariffs and non-tariff barriers on the very first day of the agreement and will reduce barriers to service trade. It is an important message to exporters facing significant duties. It is also crucial that once a product qualifies under the rules of origin for CPTPP, it can be shipped from one CPTPP country into all 11 markets because ROOs are the same for all members. For most of the remaining sensitive products duties will be reduced over time protecting investments and intellectual property rights, establishing rules for e-commerce, and promoting fair competition (Elms, 2018). In a special guide for business Elms indicates other significant changes in market access for the CTTPP business. Among others: duties on beef imported into Japan will lower to 9% (from 38.5%), and on dairy products into Canada will lower

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[11] These meeting took place in Vina del Mar (Chile) in March, Toronto (Canada) and Hanoi (Vietnam) in May, Hakone (Japan) in July, Sydney (Australia) in August, Da Nang, (Vietnam) in November, and the deal was finalized on 23 January 2018 in Tokyo (Japan). Own author's compilation based on DFAT, Australia, 8 March 2018.
[12] The original TPP text contained 622 pages (Policy Brief, 2017).

immensely (from 250%), similarly on poultry into Mexico (from 234%). Some of these tariffs will fall to zero, nearly all other agricultural products become duty free within 3-7 years. Passenger vehicles into Vietnam will be charged duties up to 83% while pumps and compressors exported to Malaysia will face duties up to 30%. Import duties on footwear, apparel and for more than 200 new categories of information-communication technology products will be eliminated, provided origin criteria is met by CPTPP members. Duty free will also include parts and components in electronics. In addition, the agreement will also guarantees equal treatment of remanufactured or refurbished goods critical to producers of aircraft components, automotive parts, electrical and electronic equipment, engines and components, medical equipment, office furniture, printing equipment, and restaurant & food-service equipment.

The comparison between TPP-12 and TPP-11 shows (Petri at al., 2017) that the gains from a TPP-11 agreement might be only a fraction of those envisaged for the "original TPP", with gains only about one-third as large as those expected from the TPP-12. The deficiency is expected to be the largest for Vietnam and Malaysia, whose concessions were connected by their motives related to access to the United States market.

Further analysis by Petri at al. (2017) using a computable general equilibrium (CGE) model estimated that a new agreement (TPP-11) will generate lower global income benefits of US$147 billion (as compared with US$492 billion for the TPP-12). The difference in gains are especially visible for Japan, Malaysia, and Vietnam while less severe for Australia, Canada, and Mexico what is explained by their earlier FTAs with the United States. Nevertheless, the largest relative gains in GDP compared with the baseline by 2030 and its GDP are projected for Malaysia 3.1% (US$21 billion) and change in exports 8.6% (US$42 billion); Singapore 2.7% (US$13 billion), in exports 6.2% (US$29 billion); Brunei 2.2% (US$1 billion), in exports 3.5% (US$1 billion) and both Vietnam 2.2% (US$11 billion), in exports 8.8% (US$31 billion) and Peru 2.2% (US$10 billion), in exports 9.0% (US$12 billion). In the case of New Zealand it will be 1.1% (US$3 billion), in exports 5.8% (US$5 billion); Japan 0.9% (US$46 billion), in exports 8.1% (US$97 billion); Canada 0.8% (US$22 billion), in exports 4.6% (US$39 billion); Mexico 0.7% (US$16 billion), in exports 3.5% (US$23 billion); Chile 0.7% (US$3 billion), in exports 4.3% (US$6 billion); Australia 0.5% (US$12 billion), in exports 4.0% (US$23 billion). The United States will experience the GDP loss of US$2 billion (TPP-11) as compared with an estimates of US$131 billion gain in case of TPP-12 and in exports change of -0.3% (-US$10 billion) as compared with 9.1% (US$357 billion) for TPP-12.

The outcome of the CTTPP maintains a broad scope, the high standards and rules of the original TPP. Due to the interlinked nature of its commitments the CTTPP is considered to be important for companies as this deal should bring opportunity for their competitive advantage. The CTTPP is structured as a "living agreement" what allows accession of new members to the agreement, as underlined in the Preamble of the TPP Agreement (mfat, 2015).[13] Five countries – Indonesia, South Korea, the Philippines, Taiwan and Thailand have already expressed their interest in membership of a new agreement. Moreover, it is signalled that the gains from the CTTPP might boost three-fold by adding five newcomers interested to join the agreement due to its high-quality rules and new supply chains in the region.

The consequences of agreement will be important for companies. It is called progressive because it goes beyond reducing costs for businesses. It includes commitments to safeguard high labour and environmental standards across the Asia-Pacific region; and it will create jobs that will help generate a better standard of living for its members. Implementation of the agreement will fit business practices and its scope is so wide that there will be no need for future complicated negotiations. The TPP can be assessed as a product of evolving trade regionalism in the Asia-Pacific (Bobowski, 2015).

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[13] „EXPAND their partnership by encouraging the accession of other States or separate customs territories in order to further enhance regional economic integration and create the foundation of a Free Trade Area of the Asia Pacific" mfat, govt.nz; 5 November 2015.

In light of the above, in the Asia-Pacific region one of the most important consolidating initiative ever undertaken, is the Trans-Pacific Partnership (TPP). It is the first cross-regional, plurilateral agreement, which has the potential to strengthen and deepen the comprehensive trade liberalisation in the region. Its aim was to create a new integration model. Due to its comprehensiveness and the number of participants it deserves a special attention in the context of contemporary regionalism (Lim, Elms, Low, 2012). It may shape global trade relations in the future.

3. Research Results and Discussions

An unprecedented increase of the regionalism in the world economy might be interpreted as a result of impasse (Jones (2015) describes it "the collapse") in multilateral trade negotiations. It has raised serious concerns regarding the ability of all WTO members to deliberate over trade liberalisation at the multilateral level. Consideration in discussions and opinions was also focused on the WTO's ability to become an effective instrument for trade liberalisation in new and growing sectors, for example services. Consequently, some countries decided to find an attractive alternative to progress on trade liberalisation while multilateral initiatives remain unsuccessful, such as negotiations on a regional basis, in the form of RTAs, including cross-regional initiatives (Jones, 2015). The abovementioned is an explanation for a research question as to why governments prefer cooperation on a regional rather than on a multilateral basis.

Contemporary regionalism has changed immensely the global trading landscape. Such agreements have the potential to address new emerging challenges and to deepen comprehensive trade liberalisation (Michalski, 2014). In this regard, Jones (2015) argues that "new" RTAs appear to be changing the nature of trade relations, among others, due to their involvement "as laboratories for new trade topics" that "reflects technological and policy trends" and through "behind-the-border" commitments and components of the overall trade relationship (investment, intellectual property rights, competition policy, services, trade logistics). In this regard the Asia-Pacific region was pioneered and was a leader of an advanced approach to regional trading agreements (APEC, TPP, RCEP).

The specific attribute of the Asian drive towards regionalism is its consolidation at an accelerated pace. Most of regional agreements are bilateral while some only are plurilateral (involving ASEAN). This network of RTAs affects the Asia-Pacific region by overlapping memberships and by negative effects of criss-crossing preferential trade agreements. The "spaghetti bowl" is associated with higher transaction costs influencing the cost of production. Efforts to rationalization are leading to megaregional initiatives (Fiorentino, at al., 2009; Michalski, 2014). Such regional trade liberalisation is aimed at diminishing trade protection through the process of multilateralization of trade relations on a more global basis (Baldwin, Low, 2009). The question is whether through multilateralization of regionalism it can contribute to make it more multilateral friendly?

This study uses TPP to ask incisive questions about contemporary regionalism. TPP-11 will tie together countries of different levels of economic development in the Asia-Pacific region.

The TPP can be seen as an innovative and uniquely Asia-Pacific approach to multilateralizing "the spaghetti bowl" intended to make the region more consistent. It will help business to facilitate trade within a seamless regulatory framework. Capling and Ravenhill (2011) acknowledge that the TPP may also have systemic consequences and may serve as a template (benchmark) for negotiations on behind-the-border issues among "like-minded" countries. It might demonstrate what can be achieved in negotiations on cutting a group of criss-crossing agreements. It leads to multilateralizing regionalism and establishing a more rational structure for trade cooperation even if it is conceptually difficult.

The agreement is one potential path to the Free Trade Area of the Asia-Pacific (FTAAP). However, then the CTTPP inclusion of China can be a strategic issue. China is considered to be the biggest loser in the TPP projections due to income loses and lack of preferential treatment in the integrated markets, i.e. no spillover effect. The inclusion of China in the original TPP was restrained by the United States. Capling and Ravenhill (2011) argued that the TPP was treated as a potential "foreign and security instrument designed to keep China out". However, under new circumstances Chinese membership may become a reality. China may wish to be included if only the CTTPP creates a truly twenty-first century, high-quality FTA. It would be an advantage for Chinese businesses to join the agreement and important from the point of supply chains and seamless goods and services flowing across borders.

Negotiations for a CTTPP (and earlier for a TPP) agreement are part of a shift in the global economy towards the Asia-Pacific region. The importance of this region has increased significantly and is moving toward progressive economic integration, due to the supply-chain networks of production, intermediary goods trade, and "factory" development in East Asia (Jones, 2015). The TPP is open for additional countries to join. It may expand further and may eventually transform to a pan-regional FTAAP (Schott, Kotschwar and Muir 2013).

Conclusions

An examination of new regionalism and the TPP (CTTPP) agreement leads to several conclusions. Firstly, it reflects main barriers that stalled with the Doha Round which was the difficulty to negotiate a deal and consensus among all WTO members of different visions on a more liberalization and new trade rules. Consensus is much easier to achieve in more ambitious arrangements among a small group of "like-minded" countries. Secondly, the Asia-Pacific region plays a role of an experiment for high-quality, twenty-first century regional trade arrangements that respond to contemporary needs. The TPP provides the WTO members arguments that a successful conclusion of the multilateral trade negotiations require both traditional and new areas to be included (e.g. e-commerce, labour rights); to update their model. Thirdly, by the unique range of issues the TPP proved to be a regional agreement that liberalized trade in a truly non-discriminatory manner, with the goal of establishing a consolidated agreement containing market access and behind-the-border rules on regulatory issues. It is an ambitious, comprehensive, multi-party and deepening regional economic integration which requires domestic support for such changes to be built and regional consensus to be agreed upon. On the other hand, it might not be an easy task to multilateralize the agreement. Fourthly, due to its regulatory provisions the TPP would unquestionably stimulate trade among its members. Finally, the specific provisions of the TPP correspond with the theoretical aspects of contemporary regionalism related to multilateralization of criss-crossing agreements. It should be stated that achieving TPP regulatory coherence (such as harmonization of rules of origin) within the WTO will be difficult to achieve; nonetheless quoting Jones (2015) "the TPP may not get the job done, but it can be a start".

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INTELLECTUAL URBAN ENVIRONMENT

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Abstract. Nowadays many city governance bodies struggling to understand the vast array of issues that are coming their way - climate change, global warming, poverty, real estate, education, traffic, resource depletion, etc. And they increasingly face a need for 'new thinking', realizing that governmental decisions have long-term impacts. In addition, effectiveness of cooperation in field of efficient solution transfer becomes important among cities. The aim of the article is to show the concept, features, advantages and opportunities of the intellectual city environment in order to achieve new and qualitative development. To reflect the essence of 'smart city' and 'intellectual city' concepts, authors use literature review and overview. Main research results show that the use of positive synergies strengthens existing urban components and creates new ones. They improve the quality of the processes by developing the economic potential of cities and territories. The governance of the intellectual city is organized by different city management models. Model for strategic development of urban environment can help achieve the effect of synergy. True synergy effect in the intellectual urban environment is a change-oriented system. Authors offer their view of synergy of intelligence in 'intellectual city' in 21st century, which is reflected as an interaction between human and artificial intelligence. That relates with culture, global connectedness, control, investments, technology and innovations. The results show that 'intellectual cities' are built with high intensity support from government. Support is aimed to improve prosperity and life quality of citizens. These are key indicators that reflect opinion of voter about governance in election period.

Key words: *intellectual city, smart city, intelligence, culture, synergy.*

Introduction

Intellectual city is city management model based on highest intellect expression formats for city management to develop and then transferring decision making to unambitious, emotionless, innovative cyber environment solutions based on artificial intellect. Artificial intellect based solutions can be implemented using and increasing higher automation levels in different aspects of city to increase comfort and control levels over city environment to enhance city inhabitant comfort. Increase use of Artificial intelligence based decision model and approaches are also conveying several risks, like multiplication of unneeded and unjustified solutions, leading to inefficient use of resources. Implementing artificial intelligence systems just for their own sake would divert resources used for environment enhancement actually to degradation and increase distance between city governance and city inhabitants, thus indicating cumulative effect so called 'Munroe effect'.

Many city governance bodies struggling to understand the vast array of issues that are coming their way. Climate change, global warming, poverty, real estate, education, traffic, resource depletion, – not only does the list seem to be growing, but the items on it seem to get more complex and bewildering.

Scientific approach is base research in multidiscipline aspects on structure of city environmental development impact. This impact is realized through intellectual creativity, as main impact on any aspect is development of social space. In the same time with changes of economical, political, technological, security and other aspects more evident becomes visibility

for private/public space with social background, to enable individual to reach development path of person. That shows dual nature of this environment, what often is expressed using IT platforms. IT platforms often create new, weakly defined social culture space, which can impact existing city environment.

Following research methods are used: literature review, overview.

1. Intellectual urban environment

Already anthropology of 19th century in Germany, tried to define the emergence of culture space, scenarios and governing laws of development by using new term for that period - 'Culture circle' (Ratzel, F. 1882). Modern 'Culture circle' is illustrated in figure 1. Basic principle of this theory is that diffusion is main principle.

Diffusionism as an anthropological school of thought was an attempt to understand the nature of culture in terms of the origin of culture traits and their spread from one society to another. Versions of diffusionist thought included the conviction that all cultures originated from one culture center (heliocentric diffusion); the more reasonable view that cultures originated from a limited number of culture centers (culture circles); and finally the notion that each society is influenced by others but that the process of diffusion is both contingent and arbitrary (Fabian, J., 2014).
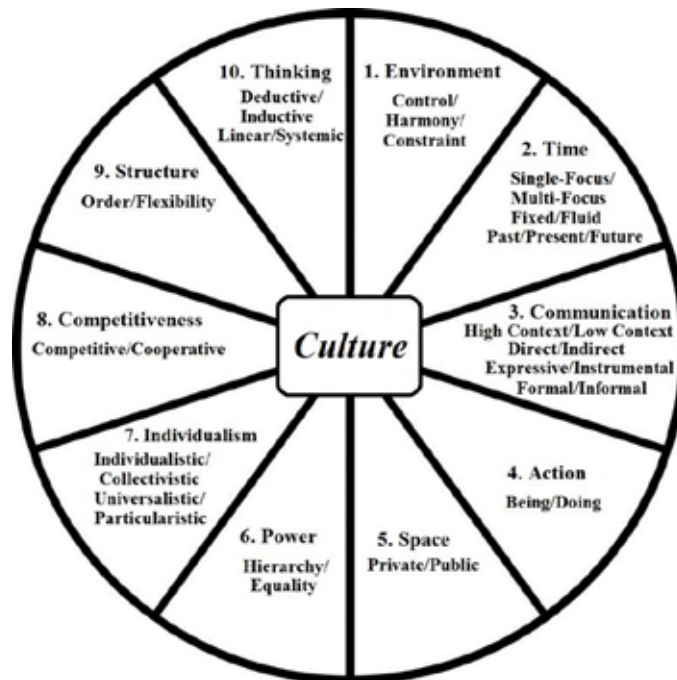
Source: author's construction based on Culturelab, 2013.

Fig. 1. **'Culture circle'**

Diffusionist research originated in the middle of the nineteenth century as a means of understanding the nature of the distribution of human culture across the world. By that time scholars had begun to study not only advanced cultures, but also cultures of nonliterate people (Beals, R. L. & Hoijer H., 1959). Studying these very diverse cultures created the major issue of discerning how humans progressed from primeval conditions to superior states (Kuklick H., 1996). Among the major questions about this issue was whether human culture had evolved in a manner similar to biological evolution or whether culture spread from innovation centers by diffusion (Hugill P. J., 1996).

Basic principle for theoretical conceptions of sustainable development are determined not by access to materialistic goods, but availability of culture and level of education, what guaranty management of 'Earth', while conserving depletable resources and in same time developing renewable resource technologies and their utilization. (Stout, M. & Staton, C. M., 2011). This principle can also be attributed to city environments, as one of city management body responsibilities to understand potential of inhabitants and their intellectual capacity, as well drive for development, which

potentially, would guaranty need for elevated moral characteristics, and limiting regression of intellectual potential. It is important to understand socioeconomic traits as indicators, what can be identified as stabilizing factors for intellectual city environment; this is identifiable through academic studies. For small and medium sized cities, specific indicators should be rated to evaluate city environment development, also taking into account employment options. Authors of article highlight importance to understand employment level regeneration process, as basis using 'Human', who is driving force of intellectual city. Effectiveness of this force will be strongly linked to knowledge, skill, need and desire synergies, what is determined by individuals to achieve targets of different levels. Society should provide such educational space, where count of educational institutions is significant, but more important is the quality and competence.

The concept of 'Intellectual City' as a mean to enhance the life quality of inhabitants is gaining increasing importance in the agendas of policy makers.

Dutch-American sociologist Saskia Sassen: 'The changing role of cities has also prompted various new concepts, such as 'Global cities'' (Sassen S., 2013).

In 2009 intelligent cities (communities, clusters, districts, multi-cluster territories) outline new planning paradigm pertinent for urban-regional development and innovation management. Komninos in his article described bright example of elements of intellectual city and regional intelligence in the last forty years:

'*The same importance is attached to people and cooperation by theories on intellectual capital for communities and cities (Edvinsson and Malone, 1997; Bounfour and Edvinsson, 2005; Edvinsson, 2006). Intellectual capital is the set of intangible assets of an organisation, the collective experience and knowledge distributed among in-house employees and external experts, suppliers and customers' confidence. What makes cities more intelligent is the intellectual capital of its organisations; the system of territorial knowledge and creativity is also structured by the same capital. Within this literature, we also witness the permanent concern to build a bridge between the technological base of intelligent cities and social objectives; innovation objectives in particular. The oldest reference to the concept (Batty, 1990) makes a clear connection between intelligent cities and competitive advantage. Collective intelligence (Lévy, 1997), distributed intelligence and problem solving (Kuhlmann et al., 1999) and regional intelligence (Komninos, 2004) investigate how information technologies and virtual environments organised within communities channel individual practice into social projects addressing the complexity and challenges of modern world (Nouvel, 2004). Bridging innovation and broadband, intelligent cities create multi-level systems of innovation where the knowledge functions of innovation are deployed in physical, institutional and digital spaces. What intelligent cities offer are skills, institutions and virtual spaces of cooperation sustaining the creation of new knowledge (research), monitoring knowledge flows (intelligence), disseminating existing knowledge (technology transfer), applying knowledge (innovation), developing new activities based on knowledge (incubation) and managing knowledge remotely (e-government) (Komninos, 2002, 2008)'* (Komninos, N. 2009).

To make organizational objectives organization-wide, it is important that these are translated to employee level. For efficiency reasons in 1959, Peter Drucker used the acronym **SMART - S**pecific, **M**easurable, **A**cceptable, **R**ealistic and **T**ime-bound (Drucker P. F., 1995). The element Acceptable is crucial in management by objectives as this is about agreement on the objectives between the employees and the organization. The management by objectives principle does not allow management to determine the objectives by themselves. According to management by objectives, objectives should be clearly recognizable at all levels and everyone should know what their responsibilities are in this. Communication is also an important item for consideration when it comes to expectations, feedback and to giving rewards for objectives that have been achieved (ToolsHero, 2018).

There is a great variety of analysis frameworks that have aimed to offer a motivation for the emergence of urban culture and agglomeration forces. Dutch economist Peter Nijkamp mentions few:

1.   a market-oriented view, in which the urban rent gradient is the spatial-economic representation of the supply and demand for urban land by different categories of users, while taking into consideration density externalities (advocated inter alia by classical authors like Alonso, Muth, Henderson etc.);

2.   an ecological socio-cultural view, in which a blend of sociological and organistic urban viewpoints is offered to explain the structure of urban living and working patterns (advocated in particular by the so-called Chicago School);

3.   a clustering and industrial networks view, in which urban dynamics is analysed from the perspective of a multiplicity of conflicting interests of urban stakeholders (outlined by advocates of the so-called Los Angeles School, such as Scott and Storper);

4.   a politico-economic power view on cities, in which in a globalizing world large city act as global command centres with centripetal and centrifugal forces all over the world (advocated inter alia by Sassen);

5.   an agglomeration advantage view, in which urban agglomerations generate overwhelming advantages of scale and scope, so that cities become by necessity strong players in the space-economy (advocated inter alia by Glaeser) (Nijkamp P., 2008).

2. The Five Capitals Model in Urban Environment

Many capital cities struggling to understand the vast array of issues that are coming their way. Climate change, global warming, poverty, real estate, education, traffic, resource depletion, – not only does the list seem to be growing, but the items on it seem to get more complex and bewildering. Authors recommend adapting 5-capital model for city environment strategic development to achieve effect of synergy. The essence of the model is that each of these forms of capital is capable of generating benefit or 'flow' in economic terms, leading to a hypothetical model of sustainable capitalism (Porritt J., 2007). The Five Capitals Model of Sustainable Development is theoretical model that extends our understanding of economic sustainability by valuing assets other than financial ones. The five assets, or 'capitals' are: economic capital, built capital, human capital, social capital, and natural capital (Goodwin N.R., 2003). The model feasible allows urban environment business to broaden its understanding of financial sustainability by allowing business to consider how wider environmental and social issues can affect long-term profitability. An environmental participant needs to consider the impact of its activities on each of the city capitals in an integrated way to avoid 'trade-offs'. Using the model in this way for decision-making can lead to more sustainable outcomes. The basic concept of capital, a stock capable of generating a flow of benefits (Porritt J., 2007), has been extended to include other forms of capital that are essential to human well-being. These assets or types of capital are:

1. Economic capital - income and financial resources.

2. Built capital - physical infrastructure such as buildings, transport and communications.

3. Human capital - the skill, knowledge and good health that enables people to work and earn a living.

4. Social capital - networks and relationships of trust and reciprocity that enable people to co-operate.

5. Natural capital - access to key natural resources, such as water, land, clean air, fisheries, forests etc.

A fundamental precept of the model is that it is not acceptable to run down some forms of capital to build up others. In particular, economic growth should not be at the expense of depleting key non-renewable natural resources or destroying the social capital of communities, since by definition growth cannot be sustained under these conditions. However, some substitutability within capital categories is considered acceptable, provided the net impact is positive (or at least neutral). (Brereton D. & Pattenden C., 2007).

Ways how participants of the intellectual environment can enhance financial capital in urban environment:

1. Define (introduce) financial measures and incentives that reflect the growth of particular capital assets;

2. Effective management of risk and corporate governance issues;

3. Value intangible assets such as brand and reputation;

4. Demonstrate a positive stance on, and management of, sustainability issues to improve access to financial capital.

5. Effective management of education and science.

6. Honor relationships with citizens.

Nowadays many city environments are organized according certain political-economic scenario or certain city development strategy. Authors of article identified four main process approaches.

First approach, where intellect is used through IT systems and industrial automation is achieved. Transition is organized by managing different scenarios to utilize existing city environment elements and processes and to align them with technological transformations according to scientific developments. So far, several thousand different cities and territories are monitored, where industrial automation approach is either used, upgraded or analyzed for implementation (Cocchia A., 2014; Paskaleva K., Cooper I. & Concilo G., 2018; Tao M., Ota K. & Dong M., 2018; Lombardi P., Giordano S., Farouh H. & Yousef W., 2012).

In practice, intellectual city environment is developed by sites, where new intellectual products are added, reconfigured or already implemented. Mostly those changes in city environments are linked to regional changes, what can be attributed to economic stability in regions and investments in broader territories. Such approach forces subject on particular city environment to develop certain actions and targets to stimulate regional activity.

Second approach. Process approach, when 'Intellectual city' is built from scratch. Regarding this approach local intellect and specialists from abroad are attracted. Adaption is taking place to reflect ecological, climate, historical, individual and other aspects to develop new territorial zoning and new model for infrastructure. Example: '*New Songdo – Songdo is already 50 percent built, with 30,000 residents, 33,000 jobs and 70% fewer emissions that developments its size. Positioned as the gateway to Northeast Asia, the 1,500-acre Songdo International Business District (IBD) is a model for future, sustainable city-scale developments, not only in Asia but across the globe. The Songdo IBD includes a diverse array of programmatic elements and is conceived as a pedestrian friendly city, with walkable streets, 40 percent green space and an urban density that promotes an active street life. The residential neighborhoods have large green areas and all parking is below grade. A new 100-acre recreational park is woven into the center of the city's rich urban fabric, while a network of sea canals is powered by wind turbines and refreshed every 24 hours. The design sets a new standard in sustainability, with innovative approaches to building performance, green infrastructure and community planning. The Songdo program includes 45 million square feet of office space, 30 million square feet of residential space, 10 million square feet of retail, 5 million square feet of hotel facilities and 10 million square feet of public realm. Additional facilities include a K-12 International School, world-class hospital, museum and university campuses*' (Kohn Pedersen Fox, 2018). Such approach eliminates small cities and maintenance of small cities is becoming luxury, or these cities are losing competitiveness, and this leads to disappearance or integration into agglomeration. Positive moment that New Sangdo will become first global laboratory of intellectual city environment development, where developments would be researchable and evident to analyze impact on intellectual synergies, and impact on growth of economies.

Third approach – 'shock method', when city environment is subject of massive and wide innovation and technological integration. This approach requires larger involvement and more stresses city inhabitants, as more risks are to be faced. So far there are no publications found on use of 'shock approach', but there are examples that actual improvements in city environments have happened much faster than were planned in development or city modernization plans. A vivid example is: '*One of the most characteristic infrastructure-oriented smart city models is IBM' solution for the 'Smarter*

City'. According to IBM, traditionally city infrastructures and services are created and managed by independent departments or organizations. City domains are focused on their own operations and only on a limited basis share information with other interested parties and the overall city. In a smarter city, however, information in the form of metrics, events, and processes must be shared across organizations in real-time manner. With the support of analytics programs, city-wide operational processes using data from any number of domains can continuously predict and react to events and trends that are affecting the city. In 2010 IBM employed their first integrated operations center in Rio de Janeiro, pooling generous investments in sensor networks after signing a contract with the city of Rio de Janeiro. Rio had recently experienced devastating landslides that killed over 250 people and it faced the forthcoming challenges of hosting the Olympics in 2016 and the World Cup in 2014. It was thus agreed that there was a need for the development of an Emergency Response System, with real-time automated command-and-control of emergency responses. The citywide system integrates data from about 30 agencies, serving primarily safety and transport functions and uses integrated business analytics and intelligence with predictive trend analysis. Administrative authorities can make more informed and prompt decisions now, as they can view information from City services - such as the police, traffic management and energy grid - concurrently' (Angelidou M., 2015).

Fourth approach – intellectual city environment is not only futuristic environment, which is largely transitioned from family, school, universities and integrated in larger territorial body with influence on city. Basis is individual intellectual contribution to society, what is realized through decision-making, assessment of future needs and wishes of society. Usually this approach is used with upgrade of city infrastructure to assure safety and contingency for social safety. Large proportion of cities is progressing to intellectual city environment in high speeds, as this reflects processes between politics, business and science.

Intellectual cities are making economy more effective. Naturally, in long-term inhabitants of intellectual cities are in beneficial roles, but such long-term investments can afford only those countries, which are interested in development of nation, because businesses, even global companies, are more inclined for short-term gains with time span around 5 years. Many investors are reluctant to invest for more than 7 years. 'Intellectual city' is built gradually and in long period, as many challenges are to be overcame for technology, business process and necessity to implement needed changes in legal regulations.

3. Base of Intellectual city

City environment in 21st century is determined not only with availability of infrastructure of material resources. Intellectual city is requiring smart solutions to achieve new and qualitative development. Intellectual city environment is based on improvement of modern lifestyle, use of modern technologies, which assures economically feasible and environmentally friendly use. Intelligent management, smart living, intellectual people, who are capable to create smart environment, knowledge based economics, smart and safe mobility. Intelligent environment assures that processes are optimized and technologies are only methods and tools, what shortens effort for individual to achieve set targets.

According to United Nation data: *'In 2014 increasingly global and interconnected world, over half of the world's population (54 percent) lives in urban areas although there is still substantial variability in the levels of urbanization across countries. The coming decades will bring further profound changes to the size and spatial distribution of the global population. The continuing urbanization and overall growth of the world's population is projected to add 2.5 billion people to the urban population by 2050, with nearly 90 percent of the increase concentrated in Asia and Africa. At the same time, the proportion of the world's population living in urban areas is expected to increase, reaching 66 percent by 2050. There is great diversity in the characteristics of the world's urban environs: close to half of urban dwellers reside in relatively small settlements of less than 500,000 inhabitants, while nearly one in eight live in the 28 mega-cities of 10*

million inhabitants or more. The number of mega-cities has nearly tripled since 1990; and by 2030, 41 urban agglomerations are projected to house at least 10 million inhabitants each. Whereas several decades ago most of the world's largest urban agglomerations were found in the more developed regions, today's large cities are concentrated in the global South, and the fastest-growing agglomerations are medium sized cities and cities with 500,000 to 1 million inhabitants located in Asia and Africa' (United Nations, 2014).

'Munroe effect' can influence these city environment layers and areas:

1. ***Technological developments and innovations.*** New process based approach is implemented which focuses on upgrade of existing infrastructure and automation in wide activity sphere.

2. ***Centralization and decentralization.*** Unified management center is utilized, which centralizes management function, but decentralization is used as safety, control and management instrument. An example is starting implementation of blockchain technology in government and municipality processes, especially in IT processes.

3. ***Sizing and support approach.*** Special basis or fundaments are developed to initialize additional capital sourcing options to use existing or expand running projects in place to increase their capacity. Special activity in this field often can be linked with municipality election period and can be recognized as a potential springboard to strengthen position for particular political force, or as method to express gratitude to voters or lobbies.

4. ***Investments*** are important and actual component for city development, which mainly is linked to additional financial, human capital and technology attraction to city environment.

5. ***Budgeting.*** Reducing budget expenses and achieving additional profits. One of widely recognized problems for cities are slums, what have high impact on functionality of city, its economics, ecosystem, crime level etc.

6. ***Human intellect replacement with 'Artificial Intelligence' (AI).*** This replacement is becoming unprecedented giving up privacy for benefit of society. In marginal situation, a death of individual can be theoretically considered as a result of competition between reality and 'virtual reality'. With development of AI systems more safety issues are analyzed in society.

7. ***Control*** over all city environment functions with primary focus on financial control to assure transparency and eliminate capital wasting in poor decisions, not according to needs of society or against it.

The combination of Human and Artificial Intelligence in city increases the synergy for different processes. The capability to drive decisions while meeting short-term operational needs and advancing with longer-term strategic plans. Critical success factor is the motivation to drive progress in urban environment in 21st century and to move away from keeping status quo. The authors of the article offer their view of collaboration segments between Human intelligence and Artificial intelligence in order to increase the development potential of 'Intellectual city' in 21st century illustrated in figure 2.
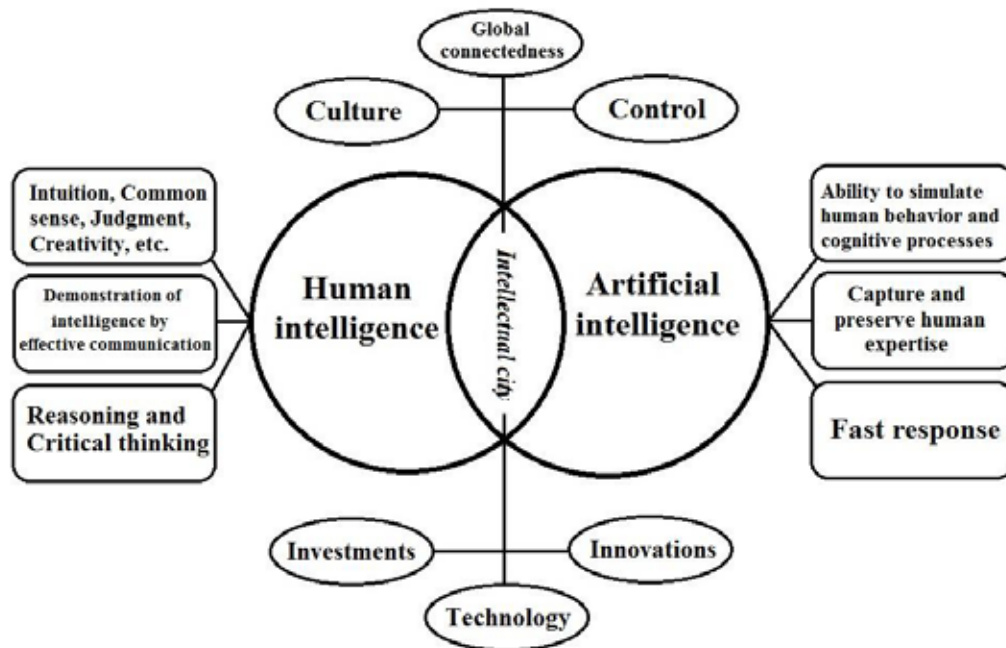
Source: author's construction based on Human and Artificial intelligence features, Harnham, 2018.

Fig. 2. **Synergy of Intelligence in 'Intellectual city' in 21ˢᵗ century**

Mutual synergy effect is achieved, when several interrelated factors are in place – culture, global connectedness, control, investments, technology and innovations. All factors of 'Intellectual city' are forming cluster with 'neighbourhood' effect. Synergy is achieved in cities which provides necessary background, production environment and service space to develop and provision intellectual and creative product. 'Intellectual city' concept is future of city development, where human intelligence and artificial intelligence create synergy effect.

Conclusions, proposals, recommendations

The authors of the article have made following conclusions:

1. 'Intellectual cities' are built with high intensity support from government.

2. Largest role for government and municipality – to improve prosperity and life quality of citizens.

3. Nowadays city often represents itself as finance and employment center with main purpose to assure activities for inhabitants. Such environment is only conglomeration of living and working space with lost intellectuality.

4. Intelligence may also be substituted by historical aspects, such as religion, beliefs, family roots etc.

5. The city should be a center of intelligence with an intense urban environment to support production and the development of businesses.

6. Development potential of the 'Intellectual city' in 21ˢᵗ century can be increased using collaboration between Human intelligence and Artificial intelligence.

7. The business environment becomes more intelligent, what contributes to faster cycles of the intellectual environment. This environment generates innovations based on collaboration between Human intelligence and Artificial intelligence with possible deviations.

8. Synergy effect in the intellectual urban environment is a change-oriented system.

9. Intellectual urban environment affects the behavior, perception, culture and other senses of city residents forming a co-responsible society.

10. Analysis and evaluation of approaches and factors for intellectual cities in the studies of other authors can be concluded that presented approaches are different and certain adoptions would be suggested for implementation in different cities to reflect best development strategy for particular city.

Considering the mentioned conclusions following may be recommended:

1. It would be advisable to develop classification criteria, based on functional, normative, historical and existing potential to identify best model for implementation of intellectual city development strategy.

2. Intellectual urban environment should be highly supported by human activities.

The further research regarding the synergy effect between Human intelligence and Artificial intelligence in 'Intellectual city' would be useful and should be continued.

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NUCLEAR ENERGY AND RENEWABLE ENERGY IN URBAN ENVIRONMENT

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Abstract. Increasing demand for electricity is inevitable due to swiftly growing population of the world and the endless desire of people to strive for better and more comfortable lives. Producing more energy while reducing greenhouse gasses is a difficult task for many countries. It is because of challenges finding the best long-term solution to meet people's expectations and to reduce the development of global warming and the adverse effects. In order to achieve the goals of European Union regarding the share of renewable energy sources in final energy consumption, countries are forced to increase their green energy potential by integrating renewable energy sources into urban environment. The aim of the research is to study the future perspectives of the energy sector and possible consequences, focusing on the territory of Latvia. Authors use umbrella review, literature review and state-of-the-art review to explore the renewable energy potential of Latvia. It mainly relies on the development of biomass and biogas. Research considers possible integration of nuclear energy into Latvia, but results of the survey reflect negative public opinion on nuclear energy, giving priority to renewable energy sources. Authors, using the specialized program 'ARGOS', made predictions about the consequences of a nuclear accident, assuming that there is a leak of radioactive substances from one of the nuclear power plants close to Latvia, located either in Sweden, Finland or Russia. In these cases main preventive measures such as taking Iodine pills, staying indoors and following the information from media are considered.

Key words: *renewable energy, nuclear energy, nuclear safety.*

JEL code: R11

Introduction

In the last few years, many countries have been confronted with the challenge of producing more energy to meet their growing energy demand, while at the same time struggling with the issue of reducing greenhouse gas emissions. It is generally believed, that, unless dramatic actions are taken to reduce global warming, the world could face an environmental catastrophe. The International Energy Agency suggests that current trends in energy supply and use are patently unsustainable — economically, environmentally and socially. Without decisive action, energy-related emissions of CO_2 will more than double by 2050 (Apergis, N. et al., 2010). Cities are responsible for more than three-quarters of the emissions of greenhouse gases. It is anticipated that the urban population will increase by up to 80% by the mid-21st century, which will make the current energy model unsustainable, as it is based on the intensive use of fossil resources. Based on that, a change in urban planning is required to meet the energy requirements of cities (Barragán-Escandón, A., Terrados-Cepeda, J., & Zalamea-León, E., 2017). Energy consumption modeling at the urban scale is crucial for supporting a transition towards the low-carbon city (Moghadam, S. T. et al., 2018). From the economic point of view, the change must take place as well, because many countries are concerned about increasing fossil fuels prices, which is a direct result of a growth in worldwide demand of energy (Perea-Moreno, A. J. et al., 2017). Developing renewable energy sources are considered a popular solution to combat fossil fuel price increase meanwhile creating a sustainable national energy policy. There are many good reasons to promote sustainable development and reduce greenhouse gas emissions and other emissions of combustion. The air quality in many urban environments is causing many premature deaths

because of asthma, cardiovascular disease, chronic obstructive pulmonary disease, lung cancer and dementia, what can be associated with emissions of combustions. Estimated global social cost of air pollution is at least $3 trillion/year. To reduce greenhouse gas emissions, the transition to electric vehicles together with electricity generation using renewable energy must take place in line with the goals of the Paris Agreement on Climate Change (Erickson, L. E., 2017). Other research on minimizing air pollution in both directions: reducing emissions through advances in technology and more efficient urban planning. An efficient built environment through appropriate urban planning, supported by energy-efficient vehicles, buildings, appliances and integrated power generation by alternative and renewable sources, can reduce greenhouse gas emissions substantially (Lambrechts, W. & Sinha, S., 2017).

The authors of the article describe possible directions of sustainable energy policy in Latvia, taking into account the potential of renewable energy sources. The aspects of the possible use of nuclear power are being evaluated. Following research methods are used: umbrella review, literature review, state-of-the-art review.

1. Renewable energy sources in an urban environment

Authors provide insight of literature review regarding renewable energy sources and technologies.

Nowadays, debates addressing climate change, fossil fuels depletion and energy security highlight increasing needs for a more sustainable built environment in order to reduce energy consumption and reduce energy emission are trends in the buildings sector. Meeting these targets is a challenge that calls for innovative research to improve the use of renewable energy sources, new technologies, and holistic tools and methodologies. Such research should analyze the dynamics and main drivers of energy supply and demand in buildings to support new policies, plans and indicate actions towards lowering the built environment burdens (Soares, N. et al., 2017).

Fossil fuels are nonrenewable, that is, they draw on finite resources that will eventually dwindle, becoming too expensive or too environmentally damaging to retrieve. On the other hand, biomass can be used to produce electricity, transportation fuels, or chemicals. The use of biomass for any of these purposes is called bioenergy. (Zohuri, B., 2018). Striving for a 100% renewable energy system in Europe by the year 2050 would be technically possible by decommissioning nuclear power, achieve significant energy for heating saving, converting the private car fleet to electricity, providing heat in rural areas with geothermal heat pumps, providing heat in urban areas with district heating, converting heavy-duty vehicles to use a renewable electrofuel, and replacing natural gas with methane (Connolly, D., Lund, H., & Mathiesen, B. V., 2016).

Countries worldwide have set national targets for energy production from renewable sources. Yet, while many governments are declaring to be committed to renewable energy production support, actual process to obtain needed permissions off-site installations is becoming increasingly difficult. With increasingly large areas of land used to produce renewable energy, available suitable land plots are becoming increasingly contested. Countries are seeking to meet their renewable targets are directing more attention towards tapping the potential in the urban environment through smaller-scale facilities like small-scale wind turbines (Teschner, N. A. & Alterman, R., 2017).

The development of the Autonomous Power Supply (APS) system based on the so-called energy mix. Such a system works in an isolated arrangement and serves to reliably supply electricity from renewable sources for small residential or public utility devices in an urban area (Fedak, W. et al., 2017). Every European country, which is struggling with the gradual integration of renewable sources in an energy audit, could use this energy mix, which would be a good development milestone towards sustainable energy policy. Many scientists in 2018 have performed several studies about the Baltic Sea region energy policy and European Union studies (Gritsenko, D., 2018; Cucchiella, F., D'Adamo, I., & Gastaldi, M., 2018; Sneum, D. M. et al., 2018; Gnatyuk, V. I. et al., 2018; Силиневич, В. Л. & Калинина, К. Е., 2018).

Renewable technologies in the urban environment have been widely regarded as an increasingly important solution to deal with the climate change challenges and energy security. Significant effort is performed in the integration of photovoltaic panels (PV) and microturbines in the urban context showing a substantial reduction in CO_2 emissions. At the same time, high attention is drawn to an often-overlooked aspect regarding renewable energy technologies, in that despite having low operating costs their overall benefits are often not well understood and consequently are often evaluated as being less profitable than fossil fuel alternatives, even though they are future proof about energy cost (Kolokotsa, D., 2017).

In Germany, rising number of municipalities are striving for energy self-sufficiency. Results of the research show, that environmental awareness, tax revenues and greater independence from private utilities are positively related to the mayor's attitude towards the realization of energy self-sufficiency (Engelken, M. et al., 2016). Energy self-sufficiency can be improved by integrating renewable energy sources into the urban environment, which has a positive impact on solving climate change problems.

Giving the fact, that renewable energy sources have a huge impact on successful sustainable energy policy regarding climate change, the authors of the article in Table 1 offer the summary of the advantages, disadvantages and development perspectives of renewable energy sources in Latvia. Even though wind and solar energy do not require any raw materials, the potential of these energy types in the territory of Latvia is limited. The average wind speed throughout the territory of Latvia is insufficient to provide efficient energy production. Kurzeme coast near the Baltic Sea has a small potential for the development of wind power. Small wind turbines could be integrated into the cities of Kurzeme region. However, it requires research and the measurements of the wind flow in that area. European solar maps show that Latvia on average could produce about 1000 kWh/m^2 per year, which is a small amount compared to other European countries located more south and which shoves minimal solar energy development potential in Latvia (Solargis, 2016). In addition, there are limited options for storing the produced energy as well as wind energy. However, solar panels have a good potential to be deployed on the roofs of the buildings, increasing the self-sufficiency of urban environment. Another renewable energy source, which might be suitable for households, is geothermal energy, which is produced using geothermal heat pumps. The development of geothermal energy in Latvia is baffled by insufficient groundwater temperature in the territory of Latvia. However, there are minimal development opportunities in the southwest and central regions of Latvia (Latvian Environment, Geology and Meteorology Centre, 2018). Water energy takes up a significant part of the produced renewable energy of Latvia (72.7% in 2016). Hydro-electric station generated power is the main reason, why Latvia is among European Union`s leaders regarding the share of energy from the renewable energy sources – 37.6% of consumed energy in 2015 were produced by renewable energy sources, which is the third best indicator in European Union (Central Statistical Bureau of Latvia, 2016; Eurostat, 2017). Largest built hydro-electrical station cascades are on river Daugava, powering hydroelectric power plants 'Keguma HES', 'Plavinu HES', 'Rigas HES', which are efficient energy accumulators. Hydropower already constitutes the greatest share of renewable energy source power in Latvia. However, further hydropower development is available through small hydroelectric power plants. Based on the mineral deposits in the territory of Latvia and forest, which covers 51% of the territory of Latvia (Ministry of Agriculture of Latvia, 2018), the potential for biomass and biogas development is high. Regarding widely available resources, this type of renewable energy has the greatest potential for development, which could reduce the dependence on fossil fuel imports. This energy type is also suitable for development in urban environment regarding energy consumer density and reasonable solutions for energy transfer from cogeneration stations. In recent years another type of renewable energy sources – wave energy – have globally developed. Even though the global energy potential of wave energy is high, the technology is lagging behind to the technology of other types of energy resources. In addition, there is lack of local scale research studies

regarding wave energy potential in the Baltic Sea region, which is also an obstacle to successfully wave energy development in Latvia.

Table 1

Summary of the advantages, disadvantages and development perspectives regarding renewable energy in Latvia

Energy type	Advantages	Disadvantages	Perspectives in Latvia
Wind energy	• No raw materials are needed • Inexhaustible energy resource	• Disturbed bird migration paths • Low speed of the wind flow • Energy storage challenges • Unpredictability	• A small potential for the development of wind power. Feasible zones for development is the Baltic sea Kurzeme coastal region, both land and sea. • Measurements of the wind flow are required
Solar energy	• No raw materials are needed • Inexhaustible energy resource	• Energy storage challenges • Low amount of sunny hours per year • High-cost technologies • Low efficiency	• Limited solar energy development potential • Possible deployment on the roofs of the buildings
Geothermal energy	• No raw materials are needed • Inexhaustible energy resource	• Low power – suitable for households • Insufficient groundwater temperature in Latvia	• Minimal development opportunities in the southwest and central regions of Latvia
Water energy	• Significant installed power • Possibility to produce electricity, when demanded • Possibility to accumulate electricity	• Negative environmental impact	• Hydropower already provides a significant part of the electricity demanded. Further development is possible through small hydroelectric power plants.
Biomass/biogas	• Widely available sources • Reduces the dependence of fossil fuel imports • Various technologies	• Primary processing of raw materials is required	• Good potential for future development throughout the territory of Latvia
Wave energy	• High global energy potential (especially on the shores of the oceans)	• Technology is lagging behind other types of energy resources • No local scale research studies	• Minimal development perspectives

Source: author`s construction based on Central Statistical Bureau of Latvia, 2016, Eurostat, 2017, Latvian Environment, Geology and Meteorology Centre, 2018, Ministry of Agriculture of Latvia, 2018, Solargis, 2016.

The potential of renewable energy source potential in urban environment therefore was being taken into account regarding the situation in the territory of Latvia.

To sum up, hydropower already has a significant impact on providing demanded energy in Latvia. Further development regarding renewable energy source development relies on biomass and biogas, but overall potential of renewable energy sources in Latvia is insufficient to cover the rising demand of energy, what leads to seeking for other types of energy.

2. Nuclear energy and nuclear safety

The urban environment is often marked as an industrial zone. Producing companies demand low-cost energy in order to be competitive towards other companies. Demanded stable low cost energy can be produced by nuclear power plants.

Levelised cost of energy studies show that nuclear energy produced by nuclear power is more beneficial than small hydroelectric power plants, wind turbines, natural gas stations and sun collectors, and the costs are approximately equivalent to 0,08 USD/kWh (Open Energy Information, 2015). However, these costs include all the costs, which are required in order to execute decommissioning and dismantling of the nuclear power plant after its service life, which means, that the energy-producing costs during the service life of nuclear power plant are even lower, which makes nuclear power even more economically attractive.

Main advantages of nuclear power are permanently available high capacity, stable electricity price and the fact, that no emissions of greenhouse gases are being generated, which is in accordance with preventive measures regarding global warming. Nuclear power provides opportunities for the society. Nuclear power plants are built for humanitarian purposes - to provide people with electricity, heat energy, drinking water, without producing greenhouse gas emissions. In addition, the Uranium-238, which is used as raw material in order to produce nuclear energy is not used for any other purposes. On the other hand, high construction cost of the original nuclear power plant might not be profitable in national scale regarding small-economic countries like Latvia, which might lead to collaboration between countries, which might delay the development, planning and execution of the construction of the nuclear power plant. Another disadvantage, which might be the main obstacle of successful nuclear energy development is the fact, that environmentally hazardous radioactive waste and spent fuel are generated during the service life of nuclear power plants. The management and monitoring of spent fuel and radioactive waste will also be a burden for future generations, because the danger can remain up to 4.47 billion years regarding the half-life period of Uranium-238. Additionally, there is lack of methods and technologies in order to manage all kinds of radioactive waste. The increasing number of nuclear power plants will require additional radioactive waste storages to be developed and maintained in the long run, which will result in decreasing the areas of economical land, if waste-free nuclear power plants are not being discovered or another solution for solving this problem is not being introduced. Vulnerability against terrorist attacks also should be considered as the nuclear power development interfering factor. From the society`s point of view, the greatest disadvantage and threat is the potential threat to the environment and health in case of a nuclear accident. Even nowadays humanity senses the consequences of 'Chernobyl' (1986) and 'Fukushima' (2011) disasters, and these events have granted attention and focus on the importance of radiation and nuclear safety. Incidents also form the need for analysis of the consequences of nuclear accidents and disasters.

The authors of the article made predictions about the consequences of a nuclear accident, assuming that there is a leak of radioactive substances from one of the nuclear power plants close to Latvia. Specialized program 'ARGOS' (Accident Reporting Guidance and Operational Support) was used to carry out these predictions. ARGOS is a software system for helping organizations that manage emergencies to make the best possible decisions in situations involving the release of hazardous chemical, biological, radiological, nuclear (CBRN) materials into the atmosphere. ARGOS software is owned by PDC-ARGOS and the Technical University of Denmark, which owns all rights to the RIMPUFF software, as well as the reactor database and card data is the property of Danish Emergency Management Agency. The agreements about the use of software and data are signed between these organizations and the Radiation Safety Centre of State Environmental Service of the Republic of Latvia, which cooperated with the authors of the scientific article regarding of carrying out predictions of consequences of nuclear accidents (PDC-ARGOS, 2014).

In order to assess the preparedness of nuclear accidents across different regions of Latvia, the authors made possible predictions of the consequences of nuclear accidents by looking at 3 of 4 nuclear power plants located less than 300 kilometers from the Latvian border – Oskarshamn, Loviisa and Leningrad nuclear power plants.

Figure 1 shows the predicted spread of atmospheric radioactive contamination, if the leak from the Oskarshamn nuclear power plant would have started January 5, 2018, at 18:57 and continued until January 7, 2018, at 18:03. Theoretically, it is a 48-hour forecast over the relevant period based on baseline data and weather conditions, especially the direction of wind and speed, which mainly affects the direction of the radioactive cloud. According to the forecast, it can be concluded, that a remarkable western wind would transmit the radioactive cloud across the Baltic Sea. The cloud would hit almost entire territory of Latvia. Taking Iodine pills and staying indoors would be appropriate preventive measures regarding this scenario.
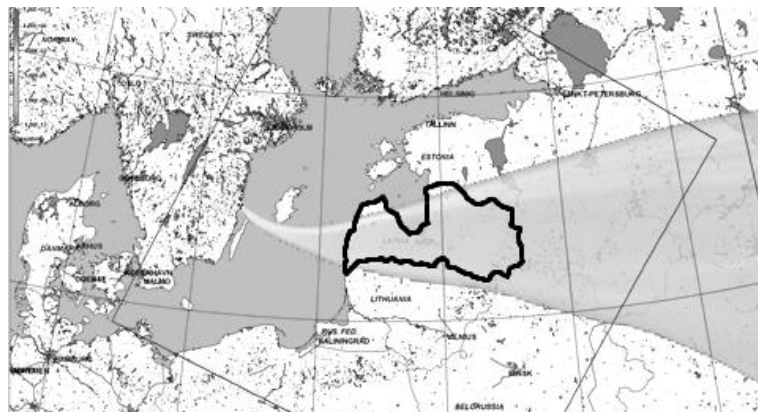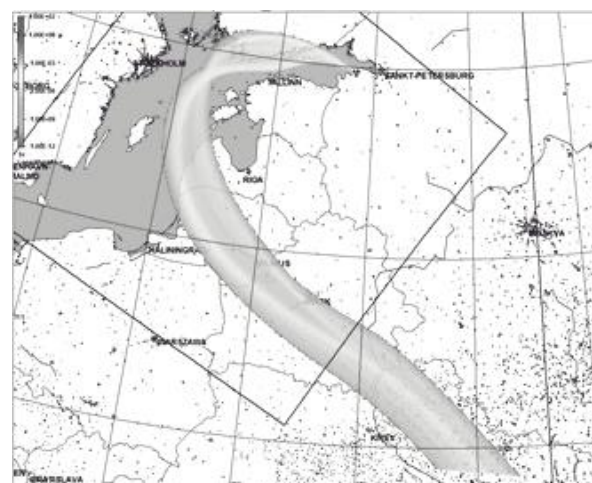

Source: author's construction based on ARGOS software.

Fig. 1. **Emergency forecast of Oskarshamn nuclear power plant**

Figure 2 shows the predicted atmospheric radioactive contamination, if the leak from the Loviisa nuclear power plant would have started February 5, 2018, at 18:57 and continued until February 7, 2018, at 00:01. Figure 3 shows the predicted atmospheric radioactive contamination, if the leak from the Leningrad nuclear power plant would have started January 29, 2018, at 07:31 and continued until January 31, 2018, at 02:09. It can be seen, that part of the territory of Latvia would have been affected by the radioactive cloud in both figures. Regarding these forecasts, the unpredictability of wind and weather conditions is visible. Even though only a part of the territory of Latvia would be affected by radioactive cloud, all the inhabitants should pay attention to the mass media and orders from the government. Appropriate preventive measures regarding these scenarios would be taking Iodine pills, staying indoors and following the information, using radio and television sets.
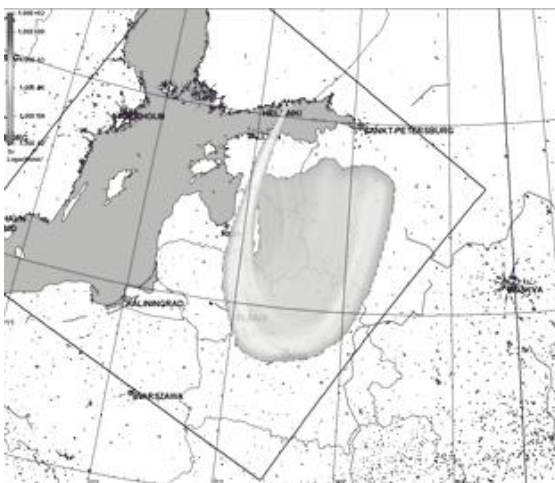
Source: author's construction based on ARGOS software.

Source: author's construction based on ARGOS software.

Fig. 2. **Emergency forecast of Loviisa nuclear power** Fig. 3. **Emergency forecast of Leningrad nuclear power plant**

The authors of the article selected previously described accident scenario forecasts of the nuclear power plants in order to show that the territory of Latvia or part of it is exposed to a radiation dose, which exceeds the radiation natural ambient background level. It should be understood, that in with other condition and the potential incident in different time, the territory of Latvia would not be affected by radioactive cloud regarding these incidents. These forecasts are based on models analyzed and are limited in scope and for particular time, and to assure necessary preparations, when conditions are different. The minimal preventive measures would be necessary to be implemented, to be ready for an accident what emits radioactive pollution into the atmosphere in any nuclear power plant, which is closer than 300 kilometers to the border of Latvia.

Other preventive measures like food and drinking water control, restrictions on the use of radioactively contaminated food and drinking water, protection of livestock from radioactive contamination, radioactive deactivation of contaminated areas and control of the exposure affected population should be considered regarding nuclear accidents.
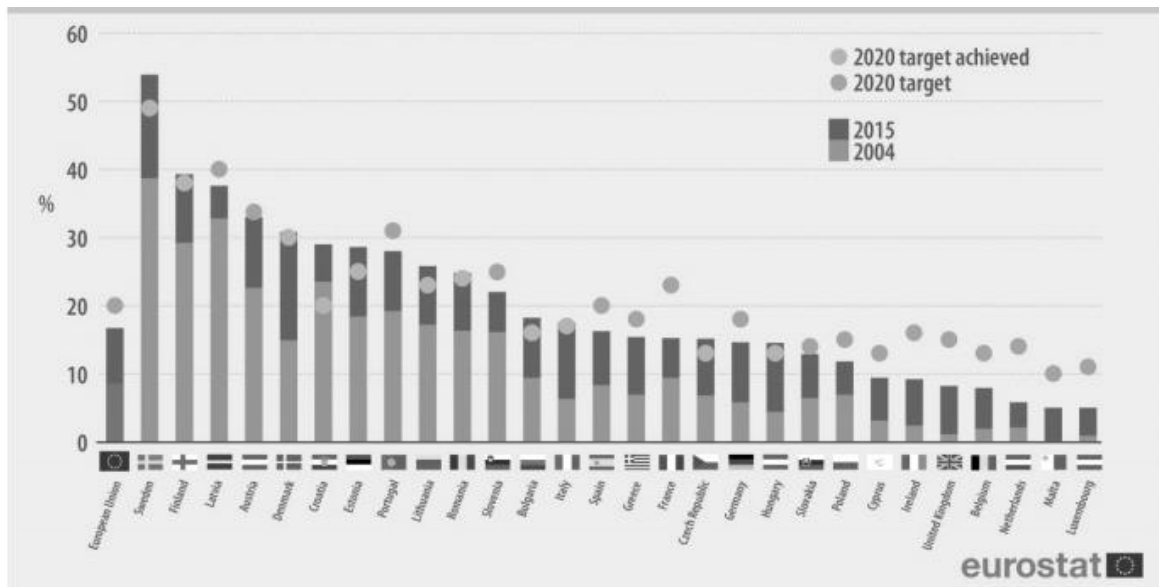
The main nuclear and radiation emergency managing organizations are State Fire and Rescue Service of Latvia, State Emergency Medical Service of Latvia, Radiation Safety Centre of State Environmental Service, State Ltd 'Latvian Environment, Geology and Meteorology Centre'. Provision of resources regarding nuclear accident management for organizations is essential to provide successful nuclear and radiation emergency management. Based on the analysis carried out by the authors of the article, there is lack of equipment, vehicles, human resources and financing in order manage national scale emergencies like nuclear accidents.

Authors created research to assess opinions of the citizens of Latvia regarding nuclear power and radiation safety. The research survey questionnaire was created 'Nuclear energy and radiation safety in Latvia' (survey title in Latvian-"Kodolenerģija un radiācijas drošība Latvijā"). Total respondents were 360 who provided anonymous responses to 15 questions in the time period from 27 October 2017 to 11 November 2017. The results of the survey indicate poor awareness of the required actions of the population in case of a radiation or nuclear emergency, it also indicated a negative attitude towards the construction of new nuclear power plant in the territory of Latvia and support for the further development of renewable energy sources. Society often relates the aspects of nuclear energy to Fukushima and Chernobyl disasters, and that interferes to develop reasoned discussion on the real impact of nuclear energy on the country's economy, jobs, enterprise competitiveness and other benefits that provide a better standard of living.

3. Energy storage systems

Regarding Europe 2020 strategy each country of the European Union (EU) has its own goal regarding the share of renewable energy sources in final energy consumption (see figure 4). Latvia has to achieve 40% mark in order to promote the common goal of the EU (Eurostat, 2017).

Fig. 4. **Share of energy from renewable sources in the EU Member States (in % of gross final energy consumption)**

Further energy strategies will require only the growth of renewable source capacity. However, the potential of renewable source deployment is limited and it has certain issues, one of the main issues is efficient energy storage. These issues in the future could be solved by creating energy storage systems (ESS).

Energy storage systems are the candidate solution to integrate the high amount of electric power generated by volatile renewable energy sources into the electric grid. Different kinds of stationary batteries (lithium-ion, sodium-sulfur and vanadium redox-flow) are considered as energy storage technologies, which differ both in their investment costs and their technical properties, such as round-trip efficiency. However, even though the investment costs of some ESS technologies have decreased over the last few years, only few business models seem to be attractive for investors (Lombardi, P. & Schwabe, F., 2017). Figure 5 shows the operating principle and benefits of energy storage system. The main principle of ESS - it stores the energy received from the renewable sources and whenever it is necessary, supplies it to the grid.
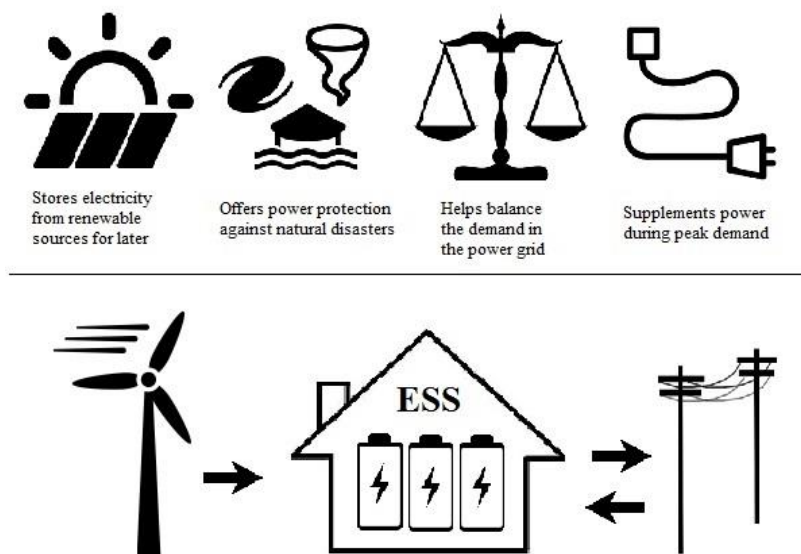
Fig. 5. **Residential energy storage systems**

An essential aspect of further renewable energy policy strategy would be renewable source integration into urban environment, which could be solved by energy storage systems. In order to support the choice of the best locations of storage units, the studies have been carried out. The methodology, which includes electricity demand, electricity prices and renewable electricity production, is used to optimize the placement of electric energy storage units. Expected attitudes of the main stakeholders towards distributed electric energy storage system implementation, possible regulatory framework options to define the distributed energy storage system business model should be considered (Gonçalves, J., Martins, A., & Neves, L., 2016).

Energy storage challenges regarding wind and solar energy solved by energy storage systems is a huge accomplishment towards providing sustainable green energy integration in cities and rural areas.

Conclusions, proposals, recommendations

The authors of the article have made following conclusions:

1.   Renewable energy source development in Latvia relies on biomass and biogas due to the widely available resources.

2.   Overall renewable energy source potential in Latvia is limited to cover the growing demand for electricity.

3.   In order to become an energy independent country, it is necessary to evaluate the integration of new types of energy sources, for example, nuclear energy, which would affect the aspects of radiation safety and nuclear safety in Latvia.

4.   The current provisioning of resources for managing the consequences of a radiological or nuclear emergency is insufficient, so in the current situation the preparation procedures and protocols to request assistance from other countries and international organizations should be considered as most viable short-term plan.

5.   The awareness level of the survey respondents regarding radiation safety and nuclear safety issues is low and inadequate.

6.   The attitude of survey respondents towards the construction of a potential nuclear power plant in Latvia is negative.

7.   The survey indicates preference of respondents to further development of renewable energy sources in Latvia.

8.   Iodine-containing substances and staying indoors are primary preventive measures to avoid exposure, as for model analysis in ARGOS situation evolvement is forecasts for most probable accident types in the nuclear power plants near Latvia.

9.   Including development of the renewable sources in an urban environment is an essential factor to help achieve the goals of Europe 2020 strategy and Paris Agreement regarding the climate change combating.

10.   Energy storage systems are the candidate solution for integrating renewable energy into urban environment.

Considering the mentioned conclusions following may be recommended:

1.   To increase the awareness of society for basic action scenarios regarding radiation and nuclear safety, the Radiation Safety Centre of State Environmental Service of the Republic of Latvia would have to develop and provide educational material for society on radiation and nuclear safety.

2.   To plan and execute regular coordination and emergency plan execution training involving all responsible organizations including municipalities;

3.   It is recommended for Ministry of Economics of Latvia to prepare informative materials to raise the level of awareness of the society on nuclear energy.

4.   Execute local-scale research and development studies regarding energy storage systems in order to seek for solutions in integrating renewable sources into urban environment in Latvia.

Authors recommend to carry out further research. It should include data of national energy mix of Latvia. It would reflect the place of Latvia in the context of European Union. Information of energy exports/imports percentages of European Union countries would indicate countries that should strengthen the relevance of search for renewable energy sources. Further research would be useful and should be continued.

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