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Financial Environment and Business Development

Proceedings of the 16th Eurasia Business and Economics Society Conference

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Eurasian Studies in Business and Economics 4

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Editors

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Preface

This is the fourth issue of the Springer's series ***Eurasian Studies in Business and Economics***, which is the official book series of the Eurasia Business and Economics Society (EBES, www.ebesweb.org). This issue includes selected papers presented at the 16th EBES Conference that was held on held on May 27–29, 2015, at *Bahcesehir University* in Istanbul, Turkey, with the support of *the Central Bank of the Republic of Turkey* and *Istanbul Economic Research Association*. All accepted papers for the issue went through peer-review process and benefited from the comments made during the conference as well.

During the conference, participants had many productive discussions and exchanges that contributed to the success of the conference where 273 papers by 478 colleagues from 56 countries were presented. In addition to publication opportunities in EBES journals (***Eurasian Business Review*** and ***Eurasian Economic Review***, which are also published by Springer), conference participants were given opportunity to submit their full papers to this Issue. We regret that we could accept only a small portion of those papers.

Theoretical and empirical papers in the series cover diverse areas of business, economics, and finance from many different countries, providing a valuable opportunity to researchers, professionals, and students to catch up with the most recent studies in a diverse set of fields across many countries and regions.

The aim of the EBES conferences is to bring together scientists from business, finance, and economics fields, attract original research papers, and provide them publication opportunities. Each issue of the *Eurasian Studies in Business and Economics* covers a wide variety of topics from business and economics and provides empirical results from many different countries and regions that are less investigated in the existing literature. The current issue covers the following fields:

1. Banking and Finance
2. Economics
3. Management
4. Entrepreneurship and Small And Medium-Sized Enterprises

Although the papers in this issue may provide empirical results for a specific county or regions, we believe that the readers would have an opportunity to catch up with the most recent studies in a diverse set of fields across many countries and regions and empirical support for the existing literature. In addition, the findings from these papers could be valid for similar economies or regions.

On behalf of the Volume Editors and EBES officers, I would like to thank the host institution *Bahcesehir University, our sponsors the Central Bank of the Republic of Turkey and Istanbul Economic Research Association*, all presenters, participants, board members, and keynote speakers and are looking forward to seeing you at the upcoming EBES conferences.

Istanbul, Turkey   Mehmet Huseyin Bilgin

Eurasia Business and Economics Society

Eurasia Business and Economics Society (EBES) is a scholarly association for scholars involved in the practice and study of economics, finance, and business worldwide. EBES was founded in 2008 with the purpose of not only promoting academic research in the field of business and economics but also encouraging the intellectual development of scholars. In spite of the term "Eurasia", the scope should be understood in its broadest term as having a global emphasis.

EBES aims to bring worldwide researchers and professionals together through organizing conferences and publishing academic journals and increase economics, finance, and business knowledge through academic discussions. To reach its goal, EBES benefits from its executive and advisory boards which consist of well-known academicians from all around the world. Every year, with the inclusion of new members, our executive and advisory boards became more diverse and influential. I would like to thank them for their support.

EBES conferences and journals are open to all economics, finance, and business scholars and professionals around the world. Any scholar or professional interested in economics, finance, and business around the world is welcome to attend EBES conferences. Since 2012, EBES has been organizing three conferences every year: one in Istanbul (usually in late May or early June) and two in Europe or Asia (usually in January and October). Since our first conference, 3931 academic papers have been presented, and also, in a very short period of time, **EBES has reached 1460 members from 82 countries**.

Since 2011, EBES has been publishing two academic journals. One of those journals, ***Eurasian Business Review—EBR***, is in the fields of industry and business, and the other one, ***Eurasian Economic Review—EER***, is in the fields of economics and finance. Both journals are published biannually, and we are committed to having both journals included in SSCI as soon as possible. Both journals have been published by ***Springer*** since 2014 and are currently indexed in Thomson Reuters Emerging Sources Citation Index, *EconLit*, *Google Scholar*, *EBSCO*, *ProQuest*, *ABI/INFORM*, *Business Source*, *International Bibliography of the Social*

Sciences (IBSS), *OCLC*, *Research Papers in Economics (RePEc)*, *Summon by ProQuest*, and *TOC Premier*.

Furthermore, since 2014, Springer has been publishing a new conference proceedings series (***Eurasian Studies in Business and Economics***) which includes selected papers from the EBES conferences. The 10th, 11th, and 12th and 13th EBES Conference Proceedings have already been accepted for inclusion in the Thompson Reuters' ***Conference Proceedings Citation Index***, and subsequent conference proceedings are in progress.

On behalf of the EBES officers and Board, I sincerely thank you for your participation and look forward to seeing you at our future conferences.

With my very best wishes,

Jonathan Batten, PhD
President

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Part I
Banking and Finance

Estimation of Efficiency Change in the Czech Banking Sector Employing the Window Malmquist Approach

Iveta Palečková

Abstract The aim of this chapter is to examine efficiency change in the Czech banking sector using the Window Malmquist approach within the period 2004–2013. We use the Window Malmquist model to estimate efficiency change of commercial banks in the Czech Republic. The Window Malmquist index is determined in order to investigate the levels of and the changes in the efficiency of the Czech commercial banks over the analysed period. By this approach, the technical efficiency is examined sequentially with a certain window width (i.e. the number of years in a window) using a panel data of the Czech commercial banks. The Window Malmquist index is based on Data Envelopment Analysis (DEA) models. We found that the average Window Malmquist index reaches the annual average growth of 5 % in CCR and 3 % in BCC models. This positive efficiency change was caused by average annual growth of technological change. In the period 2010–2013, the positive value of Window Malmquist index was as a result of positive value of efficiency change (catch-up effect).

Keywords Banking sector • Czech Republic • Data Envelopment Analysis • Window Malmquist index

1 Introduction

The aim of this chapter is to examine efficiency change in the Czech banking sector using the Window Malmquist approach within the period 2004–2013. For the empirical estimation, we applied Window Malmquist index (WMI) on the data of commercial banks in the Czech Republic. The Window Malmquist index is constructed as a combination of Window Data Envelopment Analysis and the Malmquist index approach. The Window Malmquist index is determined in order to analyse the changes in the efficiency of the Czech commercial banks over the analysed period. By this approach, the technical efficiency is analysed sequentially

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with a certain window width using a panel data of the Czech commercial banks. The Window Malmquist index is based on Data Envelopment Analysis (DEA) models. The DEA measures efficiency of a homogeneous set of decision-making units (DMUs) in their use of inputs to produce outputs. We use two models of DEA approach, especially CCR model and BCC model that differ in returns to scale assumption.

In empirical analysis, there is a lack of studies in banking sectors examining efficiency change, which creates an opportunity for this research. According to the author's awareness, in empirical literature only a few studies exist, which estimated efficiency change in banking sectors of V4. Řepková (2012) estimated efficiency change in the Czech banking sector using Malmquist index. Hančlová and Staníčková (2012) and Palečková (2015) measured the efficiency change in Visegrad countries and Lyroudi and Angelidis (2006) estimated efficiency change of selected countries of the European Union.

According to the author's awareness, in empirical literature, any study which applied the Window Malmquist on the Czech banking sector does not exist. The Window Malmquist index was used by Rezitis (2010) who applied this model to measure changes in agricultural Total Factor Productivity in the USA and nine European countries.

The structure of the chapter is as follows. Second section describes empirical analysis about efficiency of the Czech banking industry. Next section presents methodology and data, the Data Envelopment Analysis, the Window Malmquist index and selection of variables. Section 4 reveals empirical analysis and results and section five concludes the chapter with summary of key findings.

2 Literature Review

Several empirical studies of the efficiency of the Czech banking sector exist and we refer to some of them. Stavárek and Polouček (2004) found that the Czech banking sector was on average marked as the most efficient. Stavárek (2005) examined efficiency of commercial banks in the group of Visegrad countries before joining the EU. His conclusion was that the Czech banking sector was the most efficient. Melecký and Staníčková (2012) also estimated banking efficiency of Visegrad countries and evaluated the Czech banking sector as highly efficient.

Staněk (2010) found that the efficiency of the banking sector in the Czech Republic has improved in the last 10 years. Also, Stavárek and Řepková (2012) confirmed that banking efficiency increased in the Czech Republic during the period 2000–2010.

Andries and Cocris (2010) concluded that the Czech banks were inefficient from the perspective of costs. Anayiotos et al. (2010) claimed that the efficiency in banking sectors decreased during the pre-crisis boom and also during the crisis. Řepková (2014) used the DEA window analysis approach and found that Czech commercial banks were efficient. Also, Řepková (2013) estimated the Czech

banking sector using the Dynamic DEA and she examined that banking efficiency slightly increased within the period 2001–2011.

The empirical literature review concluded that most of the empirical studies estimated banking efficiency. Conclusion of the literature review is that the Czech banking efficiency increased during last years. But only a few studies examined the efficiency change in the Czech banking sector. The contribution of this chapter is the fact that the Window Malmquist will be applied on the data of the commercial banks in the Czech banking industry.

3   Methodology and Data

This study employed two approaches, namely the Data Envelopment Analysis window approach and the Malmquist index measurement. This combined method is referred to as the Window Malmquist Index.

3.1   Data Envelopment Analysis

Cooper et al. (2007) described the Data Envelopment Analysis (DEA) as the mathematical programming techniques which can handle large numbers of variables and relations, and this relaxes the requirements that are often encountered when one is limited to choosing only a few inputs and outputs because the techniques employed will otherwise encounter difficulties. DEA was developed by Charnes et al. (1978) to evaluate the relative efficiency of a group of decision-making units (DMUs). Seiford and Thrall (1990) stated that the DEA measures the efficiency of a DMU relative to other similar DMUs with the simple restriction that all DMUs lie on or below the efficiency frontier. Charnes et al. (1995) described that the main advantage of Data Envelopment Analysis is that this approach identifies, for inefficient DMUs, the sources and level of inefficiency for each of the inputs and outputs.

The CCR (Charnes et al. 1978) method is a model with assumption of constant returns to scale (CRS) and it delivers the overall technical efficiency. Banker et al. (1984) extended the CCR model with assumption of variable return to scale (VRS) and the resulting model is called BCC (Banker, Charnes and Cooper) model.

DEA begins with a fractional programing formulation as summarized by Stavárek and Řepková (2012). We assume that there are n DMUs to be evaluated. DMU_j consumes x_{ij} amounts of input to produce y_{rj} amounts of output. We assume that these inputs, x_{ij}, and outputs, y_{rj}, are non-negative and each DMU has at least one positive input and output value. The productivity of a DMU can be formulated as:

$$h_j = \frac{\sum\limits_{r=1}^{s} u_r y_{rj}}{\sum\limits_{i=1}^{m} v_i x_{ij}}, \tag{1}$$

In the equation (1), u and v are the weights classified to each input and output. By using mathematical programming techniques, DEA optimally assigns the weights subject to the following restrictions. The weights for each DMU are assigned subject to the constraint that any other DMU has no efficiency higher than 1 if it uses the same weights, suggesting that efficient DMUs will be equal to 1. We can write the function of DMU as the ratio of the total weighted output divided by the total weighted input:

$$\max h_0(u, v) = \frac{\sum\limits_{r=1}^{s} u_r y_{r0}}{\sum\limits_{i=1}^{m} v_i x_{i0}}, \tag{2}$$

$$\text{subject to } \frac{\sum\limits_{r=1}^{s} u_r y_{rj}}{\sum\limits_{i=1}^{m} v_i x_{ij}} \leq 1, j = 1, 2 \ldots, j_0, \ldots, n, \tag{3}$$

$$u_r \geq 0, r = 1, 2, \ldots, s, \tag{4}$$

$$v_i \geq 0, i = 1, 2, \ldots, m, \tag{5}$$

where h_0 indicates the estimated technical efficiency of DMU_0, u_r and v_i denote weights to be optimized, y_{rj} is the amount of output of the rth type for the jth DMU, x_{ij} is the amount of input of the ith type for the jth DMU, r is the s different outputs, i is the m different inputs and j denotes the n different DMU_s (Stavárek and Řepková 2012).

3.2   Window Malmquist Index

The Window Malmquist index estimates efficiency change of a DMU between two time periods. The Malmquist index is based on DEA model. Malmquist index breaks down into various components. The index provides a useful method of distinguishing between changes in technical efficiency, pure technical efficiency, scale, total factor productivity (TFPC) and shifts in the efficiency frontier (technological change) over time. WMI could be presented as the product of catch-up and frontier-shift terms. The catch-up (or recovery) term shows the degree to which a DMU improves or worsens its efficiency. The frontier-shift (or innovation) term characterized the change in the efficiency during the two periods (Cooper

et al. 2007). This WMI is the geometric mean of two indices, one evaluated with respect to the technology (efficiency frontier) in the current period t and the other with respect to the technology in the base period s (Coelli et al. 1998).

The original idea of the Malmquist index was presented by Malmquist (1953). Malmquist indices were introduced by Caves et al. (1982). Fare et al. (1992) showed that the MI can be calculated using a non-parametric DEA approach, given that suitable panel data are available and they applied DEA for determining the Malmquist index. They assumed constant returns to scale. Next, Fare et al. (1994) reflected variable return to scale and presented an extended decomposition of the MI with another important factor capturing change in scale efficiency.

Following Fare et al. (1994), we used Data Envelopment Analysis approach to construct an input-based Malmquist index between period t (the base period) and period s:

$$M_{\mathrm{I}}(y^s, x^s, y^t, x^t) = \left[\frac{D_{\mathrm{I}}^t(y^s, x^s)}{D_{\mathrm{I}}^t(y^t, x^t)} \times \frac{D_{\mathrm{I}}^s(y^s, x^s)}{D_{\mathrm{I}}^s(y^t, x^t)} \right]^{\frac{1}{2}}, \tag{6}$$

where $M_{\mathrm{I}}(\,\cdot\,)$ is the input-oriented MI, $D_{\mathrm{I}}^t(y^s, x^s)$ is the distance function presenting a maximal proportional reduction of the period s inputs under the period t technology. The distance function is written as follows:

$$D_{\mathrm{I}}^t(y^s, x^s) = \min_{\theta,\,\lambda} \theta, \tag{7}$$

$$\text{subject to } y_{is} \leq \lambda Y^t, \tag{8}$$

$$\theta x_{is} \geq \lambda X^t, \tag{9}$$

$$\lambda_i \geq 0, \, i = 1, \dots n, \tag{10}$$

where θ is a scalar and λ is a constant vector. The value of θ obtained is the component score of the ith firm. X and Y denote vectors of input and output, and the volumes of the ith input consumed and output generated by the DMU_0 are denoted by x and y, respectively.

The above measure actually is the geometric mean of two Malmquist productivity indexes. Fare et al. (1992) define that $M_{\mathrm{I}} > 1$ means productivity gain, $M_{\mathrm{I}} < 1$ denotes productivity loss and $M_{\mathrm{I}} = 1$ shows no change in efficiency from time t to s. Relaxing Caves et al.'s (1982) assumption that $D_{\mathrm{I}}^t(y^t, x^t)$ and $D_{\mathrm{I}}^s(y^t, x^t)$ should equal to 1, and allowing for technical inefficiency, Fare et al. (1992) decomposed their MI into two components:

$$M_{\mathrm{I}} = \left[\frac{D_{\mathrm{I}}^t(y^s, x^s)}{D_{\mathrm{I}}^t(y^t, x^t)} \times \frac{D_{\mathrm{I}}^s(y^s, x^s)}{D_{\mathrm{I}}^s(y^t, x^t)} \right]^{\frac{1}{2}} = \frac{D_{\mathrm{I}}^s(y^s, x^s)}{D_{\mathrm{I}}^t(y^t, x^t)} \left[\frac{D_{\mathrm{I}}^t(y^s, x^s)}{D_{\mathrm{I}}^s(y^s, x^s)} \times \frac{D_{\mathrm{I}}^t(y^t, x^t)}{D_{\mathrm{I}}^s(y^t, x^t)} \right]^{\frac{1}{2}}. \tag{11}$$

Table 1 Descriptive statistics of inputs and outputs

Variable	Deposits	Labour	Loans	NII
Mean	156845.1	2070.701	108460.7	5970.851
Median	52364.7	735	39059	1508.6
Maximum	636662	8525	472886	29460
Minimum	111.5	20.5	0	2
St. Dev.	192395.1	2518.894	128213.2	7735.203

The first component $EC = \frac{D_I^s(y^s, x^s)}{D_I^t(y^t, x^t)}$ presents the technical efficiency change. The second component $TCC = \left[\frac{D_I^t(y^s, x^s)}{D_I^s(y^s, x^s)} \times \frac{D_I^t(y^t, x^t)}{D_I^s(y^t, x^t)} \right]^{\frac{1}{2}}$ shows the technological change between time period t and s.

Fare et al. (1992, 1994) described that a value of TCC > 1 shows a positive shift or technical progress, a value of TCC < 1 indicates a technical regress and value of TCC = 1 indicates no shift in technology frontier. This chapter used the decomposition of WMI into technological change and efficiency change.

Window analysis is one of the several methods used to verify efficiency change over time. The Window Data Envelopment Analysis approach was developed by Charnes et al. (1985). Each DMU (in this chapter DMU is bank) in a different period is treated as if it were a different DMU (independent) but remain comparable in the same window.

3.3 Data and Selection of Variables

The data set used in the study was collected from the annual reports of the Czech commercial banks within the years 2004–2013. All data are reported on unconsolidated basis. Only commercial banks were analysed. As we have reliable data extracted directly from annual reports, we eliminated the risk that incomplete or biased data may distort the estimation results.

We start estimation with definition of inputs and outputs. Several main approaches that exist for definition of the input–output relationship in financial institution behaviour are described in the empirical literature. We used intermediation approach which assumes that the banks collect deposits and transform them into loans. Consistently with this approach, we used two inputs (we used labour and deposits) and two outputs (we used loans and net interest income). Descriptive statistics of individual variables is presented in Table 1.

4   Empirical Analysis and Findings

Econometrics software MaxDEA was used for empirical analysis. We estimated the efficiency of commercial banks using the DEA models, namely, input-oriented model with constant and variable returns to scale. We used unbalanced panel data from 13 Czech commercial banks.

Table 2 records average efficiency score in the Czech banking sector estimated in CCR and BCC models. The average efficiency calculated in CCR model reached the value 55–84 %. On the other hand, average efficiency with variable return to scale was between 70 and 95 %. Efficiency in BCC model attained the higher value than the efficiency in CCR model. The values of efficiency calculated in the BCC model reached higher values of efficiency than the value in the CCR model. This situation may occur when a bank, which has been marked as ineffective in the CCR model due to its inaccurate size, will be marked as efficient in the BCC model. The average efficiency was increasing during the period 2005–2008. During the period 2009–2011, the average efficiency was decreasing. It was probably caused as a result of a financial crisis. In 2012 and 2013, the average efficiency increased.

Because of the large volume of information derived from DEA, it may be difficult to summarize and evaluate. Therefore, it is often helpful to break down the information using the Window Malmquist index. We calculate Window Malmquist index from the DEA scores between adjacent periods. The application of the Window Malmquist index is also conducted in MaxDEA software. The Window Malmquist change indices are computed using DEA. The indices measure TFPC for sampled banks in adjacent year during the period from 2004/2005 to 2012/2013. It is decomposed into technological change (TCC) and efficiency change (EC). Table 3 presents the results of the average Window Malmquist indices of the banking sector in CCR model during the analysed period.

The average Window Malmquist index reaches the annual average growth of 5 % in CCR model. This positive efficiency change could be divided into its catch-up and frontier-shift components. The catch-up below 1.00 shows the negative efficiency change. The mean value of EC (catch-up factor) recorded 1.00 or above 1.00 indicates progress or positive efficiency change. The catch-up effect is covered by changes in pure and scale efficiency. Pure efficiency change characterizes core efficiency due to improving of operations and management. Scale efficiency change is related to returns to scale effects. In the Czech banking sector, the average annual efficiency change (catch-up) was 1.01 in CCR which indicates positive efficiency change. When we calculated a year-by-year score, we can see that the efficiency

Table 2 Average efficiency score estimated in CCR and BCC models

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Mean
CCR model	0.80	0.70	0.74	0.74	0.84	0.84	0.74	0.55	0.68	0.76	0.73
BCC model	0.85	0.82	0.82	0.85	0.95	0.92	0.81	0.70	0.77	0.86	0.83

Table 3 Average Malmquist indices in banking sectors estimated in CCR model

Period	EC	TCC	WMI
2004–2005	0.88	1.20	1.06
2005–2006	1.05	1.05	1.10
2006–2007	0.99	1.11	1.10
2007–2008	1.00	1.04	1.04
2008–2009	1.00	1.01	1.01
2009–2010	0.87	1.02	0.89
2010–2011	1.01	0.96	0.98
2011–2012	1.25	1.00	1.25
2012–2013	1.11	0.93	1.04
Mean	1.01	1.03	1.05

Table 4 Average Malmquist indices in banking sectors estimated in BCC model

Period	EC	TCC	WMI
2004–2005	0.96	1.10	1.06
2005–2006	1.01	1.11	1.12
2006–2007	1.02	1.09	1.11
2007–2008	0.98	1.08	1.05
2008–2009	0.97	1.02	1.00
2009–2010	0.88	1.07	0.95
2010–2011	0.98	1.00	0.98
2011–2012	1.10	0.91	1.01
2012–2013	1.11	0.93	1.04
Mean	1.00	1.03	1.03

change was below 1.00 in period 2004–2005, 2006–2007 and then 2009–2010. In other periods, the average annual efficiency change was above 1.00.

Technological change characterizes the innovation in the banking industry that could have been developed by the players. Technological change reached average value of 1.03 in CCR model. It indicated the positive average annual growth of 3 %. The technological change was decreasing during the period 2009–2013.

In the Czech banking sector, average Window Malmquist index ranges 1.05 in CCR model. It shows the positive efficiency change. Average positive value of window Malmquist index is caused by average annual growth of technological change. In the period 2010–2013, the positive value of WMI is as a result of positive value of efficiency change (catch-up effect).

The results of the average Window Malmquist indices of the banking sector in model with variable return to scale are presented in Table 4. The average Malmquist index reaches the annual average growth of 3 % in BCC model. In the Czech banking sector, the average annual efficiency change (catch-up) was 1.00 in BCC which indicates stagnation in efficiency change. A year-by-year score shows that the efficiency change was above 1.00 in the period 2005–2007 and then 2011–2013. In other periods, the average annual efficiency change was below 1.00. Technological change reached average value of 1.03 in BCC model. It

indicated the positive average annual growth of 3 %. The technological change was decreasing during the period 2011–2013.

In the Czech banking sector, average Window Malmquist index ranges 1.03 in BCC model. Thus, it shows the positive efficiency change. Average positive value of Window Malmquist index is caused by average annual growth of technological change. In the period 2011–2013, the positive value of WMI is as a result of positive value of efficiency change (catch-up effect).

We decomposed the efficiency change into the catch-up and frontier-shift effects and found that the frontier-shift effect was primarily accountable for the efficiency growth rather than the catch-up effect, suggesting that the industry has a few innovation or technological progress in the past 10 years. Technological efficiency change is registered above 1.00 in the most analysed periods. It means that technology has a positive effect on the total efficiency change.

5 Conclusion and Discussion

The aim of this chapter is to estimate efficiency change in the Czech banking sector using the Window Malmquist approach within the period 2004–2013. For the estimation, we applied Window Malmquist index on the data of the Czech commercial banks. We estimated banking efficiency applying input-oriented model under the assumptions of constant and variable returns to scale. We used unbalanced panel data from 13 Czech commercial banks.

The results show that average efficiency was slightly increasing within the period 2004–2009. In 2011, average efficiency decreased in the Czech banking sector. This decrease was probably as a result of financial crisis. Average efficiency again increased in 2013. Our finding confirms the study of Anayiotos et al. (2010) who concluded that the banking efficiency decreased during the period of financial crisis. Also, this result is consistent with the results of Stavárek and Řepková (2012) who found that average efficiency was increasing during the period 2001–2010.

The average Window Malmquist index reaches the annual average growth of 5 % in CCR and 3 % in BCC models. This positive efficiency change can be divided into its catch-up and frontier-shift components. The average annual efficiency change (catch-up) was 1.01 in CCR and 1.00 in BCC models. When we calculated a year-by-year score, we can see that the efficiency change was below 1.00 in period 2004–2005, 2006–2007 and then 2009–2010. In other periods, the average annual efficiency change was above 1.00. Technological change (frontier-shift) reached average value of 1.03 in CCR model as well as in BCC model. It indicated the positive average annual growth of 3 %. The technological change was decreasing during the period 2010–2013.

The average Window Malmquist index ranges 1.05 in CCR and 1.03 in BCC models. It shows the positive efficiency change. Average positive value of window Malmquist index is caused by average annual growth of technological change. In

the period 2010–2013, the positive value of Window Malmquist index was as a result of positive value of catch-up effect.

We found that the frontier-shift effect was primarily accountable for the efficiency growth rather than the catch-up effect, suggesting that the industry has a few innovation or technological progress. Řepková (2012) concluded that Malmquist index reached an annual average negative growth of –4.7 % during the period 2001–2010. She found that the catch-up effect was primarily accountable for the productivity growth rather than the frontier-shift effect, suggesting that the industry has lacked innovation in this period. These different results are probably caused due to the different analysed periods and using different approaches.

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An Assessment of the Paper Industry Firms Listed in Borsa Istanbul Using Entropy-Based MAUT Method

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Abstract   The aim of this study is to measure the market and financial performance of the paper industry firms listed in Borsa Istanbul by adopting multiple attribute utility theory (MAUT) which is one of the most widely used multi-criterion decision-making (MCDM) methods. The performance of the firms is assessed for the period between 2011 and 2013. The weights of evaluation criteria are determined by applying entropy, which is an objective weighting method. In the analysis, the firms are ranked by integrating entropy-based MAUT method. According to the analysis results, Kartonsan has the highest performance rate for all the years, whereas Viking has shown the poorest performance except for the year 2011. During the period, Mondi and Olmuksan, which are acquired by foreign investors, have shown relatively stable performance; however, the performance rate of Kaplamin is unstable. The only firm that has a rising performance trend during the period is Alkim. On the other hand, the sample is also analyzed by using equal weighted MAUT.

1   Introduction

Paper is mainly a forest-based material that can be utilized for many different purposes. However, early paper was made from rags, e.g., of linen, rather than wood pulp and that it became popular as a writing material only around the twelfth century (Elliott 2012). Nowadays, it is not only used as a writing material but also consumed as cleaning and packing agents. Moreover, technology has experienced change under the influence of digital media, and this leads to a substantial decrease in paper consumption as writing material.

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Previous researches examining the paper and paper products industry have shown that per capita paper consumption is closely associated with country's development indicators. Paper consumption is linked to a country's GDP, and high per capita paper consumption is accepted as a major indicator of national civilization and modernization (Özarslan et al. 2011). The research study conducted by Sandalcılar (2012) revealed that there was a strong bidirectional causality between paper consumption and economic growth.

In Table 1 below, USA is the leading country in per capita paper consumption, which is far more greater than the average of developed countries for all the periods given. Likewise, Canada occupies the second place in per capita paper consumption being over the average consumption of developing countries during the period.

In Turkey, even there has been gradually increasing trend in per capita paper consumption since 1970; generally, it is slightly over the average per capita consumption level of developing countries. In the last decades, Turkey with its emerging economy attracted foreign capital for several industrial branches. In parallel with rising foreign capital inflow, capacity utilization ratio and production of the industry have increased. Some domestic enterprises were acquired by foreign investors such as Olmuksan International Paper and Mondi Tire Kutsan. By the evolution of the paper and paper products firms, the foreign trade deficit in the industry substantially decreased. According to the end of 2014 figures, the export import ratio appeared to be 51 % (Islamoglu and Çelik 2015). In 2009, regarding the industry, capacity utilization rate announced by TURKSTAT was 70.8 %. In parallel with the import of foreign capital and recovery in the economy, the competitive power of the firms showed an improvement till 2013 and the capacity utilization rate of the industry reached 79 %. Consequently, the experienced conjuncture stimulated the efficiency and productivity of the industry, which is a major concern in terms of economic growth.

Survival and sustainability of firms depend on measurement of their performance using objective and reliable data. To verify whether the managing body of a firm is successful in his decisions, performance analysis must be implemented, and in accordance with evaluation of analysis results, all necessary improvements should be made. In other words to ensure sustainability, performance analysis is vital (Islamoglu and Çelik 2015). The purpose of the study was to determine if paper and paper products firms quoted on Borsa Istanbul (Istanbul Stock Exchange) are efficient and productive according to the multiple criteria. Therefore, first of all, the criteria (stock price, asset size, total sales, Ebitda/Equity, Ebitda/Assets, Profit Margin) used in assessing efficiency and productivity are adapted using MAUT, which is a mathematical based, nonparametric, multi-criteria decision-making method. The firms which perform badly or well will be recognized considering the results related to efficiency and productivity measures. As of 31.12.2014, the number of paper and paper products firms quoted on Borsa Istanbul were seven within the period of 2011Q4, 2012Q4, and 2013Q4.

This chapter proceeds as follows. The next section gives the summary of the related literature. The third section is about the data specification and methodology.

Table 1 Per capita paper consumption (year/kg)

Country/Group	1970	1975	1980	1985	1990	1995	2000	2005	2009
Turkey	6.12	10.76	12.46	13.14	19.39	24.98	35.41	50.52	87.96
USA	236.79	220.11	262.89	280.48	306.26	333.45	328.67	297.05	
Canada	154.11	148.64	167.01	186.94	200.47	215.21	297.12	241.94	
England	125.95	108.66	123.02	138.41	164.21	191.68	191.46	201.20	
Japan	120.41	117.08	153.94	168.60	228.91	241.05	250.80	233.55	
Germany	114.09	106.20	140.72	154.78	201.79	193.90	231.80	231.65	
France	96.34	90.67	115.01	113.93	153.78	165.32	192.21	178.72	
Developed countries	137.5	129.84	160.12	172.35	240.93	226.04	241.29	227.82	
Developing countries	8.54	9.71	13.22	14.93	18.27	23.78	30.77	39.06	
Underdeveloped countries	1.74	1.65	1.70	2.11	2.27	2.55	3.26	4.11	
Total	34.04	32.06	38.04	39.71	45.48	48.72	53.49	54.48	

Source: Sandalcılar (2012)

In Sect. 4, the empirical findings are given. Finally, the concluding remarks are presented in Sect. 5.

2 Literature Review

There is a plenty of academic studies performed using MCDM methods. However, there are a limited number of studies examining the financial performance of paper and paper products firms using this method in particular. As MCDM method, the use of multiple attribute utility theory essentially provides a formal mechanism with which a decision maker can "cost out" performance in one criteria for performance in another. Thus, the approach provides a formal procedure for an intuitive strategy (Butler et al. 2001).

Suslick and Furtado (2001) proposed a model to improve the quality of investment decisions in petroleum exploration using MAUT methodology. They determined three key objectives when evaluating new petroleum ventures—financial, environmental, and technological gain. They found that in some mature areas, the advantages of exploration are restricted only to financial gain. According to the empirical results, the incorporation of the key functions in the process of capital allocation can increase the management's awareness of risk and provides the company with a risk E&P (Exploration and Production) decision model with more options.

Lagoudis et al. (2006) examined the economic and strategic value-adding attributes for various sectors of the ocean transportation by applying MAUT methodology. They adopted Johansson et al.'s (1993) four value metrics—service, quality, cost, and time. Results showed that the most important attribute that ocean transportation companies regard in common is quality and there is differentiating importance put in service and cost by different sectors. Time is regarded as the most trivial attribute among surveyed companies.

Konuskan and Uygun (2014) performed entropy-based MAUT method in selection of smart phones using quantitative (price, size, distance) and qualitative specials (smartness, excellence) by taking opinions of seven experts. According to empirical findings, through 10 contemporary smartphones, Nokia Lumia 1020 was selected as the most efficient.

Turkoglu and Uygun (2014) discussed Çukurova regional airport site selection as a multi-criteria decision-making problem. They proposed VIKOR and MAUT as an effective approach to problem solving. And according to the outcome of these two methods, Mersin-Kargılı Region was identified as the best place through the alternatives.

In the study conducted by Islamoglu et al. (2015) using the entropy-based TOPSIS method, the financial performance of REITs quoted on Borsa Istanbul was examined between 2011Q1 and 2014Q3. In the research, the financial successes of REITs were assessed through ratios under capital structure, turnover, liquidity, and profitability topics. We ignored nonfinancial criteria. For the

15 quarterly REIT data sets, the TOPSIS calculation results and rankings were provided using the entropy weightings, and for all the periods, ranking of the TOPSIS scores is made in descending order starting from the best performing firm. The results showed that the best performance belonged to Avrasya REIT.

3 Data and Methodology

3.1 Criteria Weighting

The preferred level of criteria may be not equal in MCDM problems. Weighting of criteria is useful to determine the superiority of criteria. A weight of criterion is assigned to the i that attribute as a measure of its relative importance for a given decision problem (Zeleny 1974). Quite a few methods for determining attribute weights have been proposed. However, no single method can guarantee a more accurate result, and the same DMs may obtain different weights using different methods (Weber and Borcherding 1993; Chen et al. 1992). In this study, entropy is preferred to calculate the weights of criteria. Entropy method is very smart for determining a weight to each criterion because of the fact that (Erol et al. 2011; Chen et al. 1992; Hwang and Yoon 1981; Zeleny and Cochrane 1973; Xu et al. 2004; Zou et al. 2006; Sopadang et al. 2002) (1) it does not require any decision maker's judgment to rank the criteria and (2) very ease of calculation of weight values of criteria.

3.1.1 Entropy Method

Many objective weighting methods have been proposed by researchers. The most prominent of these is the entropy method. This method was built on the concept of entropy, which proposed by Shannon and Weaver (1949) is defined as a measure of uncertainty.

The entropy method can be summarized as follows (Wang et al. 2004; Islamoglu et al. 2015):

Decision matrix D of m alternatives and m criteria:

$$D = \begin{array}{c} \\ A_1 \\ A_2 \\ \vdots \\ A_i \\ \vdots \\ A_m \end{array} \overset{\begin{array}{cccccc} X_1 & X_2 & \ldots & X_j & \ldots & X_n \end{array}}{\begin{bmatrix} x_{11} & x_{12} & \ldots & x_{1j} & \ldots & x_{1n} \\ x_{21} & x_{22} & \ldots & x_{2j} & \ldots & x_{2n} \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ x_{i1} & x_{i2} & \ldots & x_{ij} & \ldots & x_{in} \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ x_{m1} & x_{m2} & \ldots & x_{mj} & \ldots & x_{mn} \end{bmatrix}} \tag{1}$$

Where

A_i is the ith alternative considered.
x_{ij} is the performance value of ith alternative for jth criterion.
$i = 1, 2, \ldots, m$ and $j = 1, 2, \ldots, n$.

Step 1

$$r_{ij} = \frac{x_{ij}}{\sum\limits_{p=1}^{m} x_{pj}}, i = 1, 2, \ldots, m, j = 1, 2, \ldots, n \tag{2}$$

The normalized decision matrix, $R = \left[r_{ij}\right]_{m \times n}$, is obtained from Eq. (2)

Step 2

$$e_j = -k \sum\limits_{i=1}^{m} r_{ij} \ln r_{ij}, j = 1, 2, \ldots, n. \tag{3}$$

For each criteria, the entropy values, e_j, are obtained from Eq. (3), where $k = \frac{1}{\ln m}$, is a constant that guarantees $0 \leq e_j \leq 1$ and m is the number of alternatives.

Step 3

$$W_j = \frac{1 - e_j}{\sum\limits_{p=1}^{n} \left(1 - e_p\right)}, j = 1, 2, \ldots, n. \tag{4}$$

Finally, the weight of criteria, W_j, are assigned by Eq. (4), in which the degree of divergence $(1 - e_j)$ of the average information contained by each criterion. $\sum\limits_{j=1}^{n} W_j$ = 1 can be seen easily.

3.2 MAUT Method

The basic concept of MAUT (multiple attribute utility theory) is that in any MCDM problem, there exists a real-valued function U defined on the set of feasible

alternatives which the decision maker wishes, consciously or not, to maximize (Olson 1995; Keeney and Raiffa 1976; Ishizaka and Nemery 2013). Each alternative obtains in an outcome, which may have a value on a number of different dimensions. MAUT seeks to measure these values, one dimension at a time, followed by an aggregation of these values across the dimensions through a weighting procedure (Zietsman et al. 2006).

The MAUT approach can be summarized into the following steps (Zietsman et al. 2006; Erol et al. 2011):

Step 1 To acquire the utility values for the benefit criteria, the normalized value, r_{ij}, is obtained from Eq. (5):

$$r_{ij} = \frac{x_{ij} - l_j^-}{u_j^+ - l_j^-} \text{ where } u_j^+ = \max_i x_{ij}, l_j^- = \min_i x_{ij} \tag{5}$$

In the same way, the normalized value, r_{ij}, for the cost criterion is obtained from Eq. (6)

$$r_{ij} = \frac{u_j^+ - x_{ij}}{u_j^+ - l_j^-} \text{ where } u_j^+ = \max_i x_{ij}, l_j^- = \min_i x_{ij} \tag{6}$$

Step 2 The final utility value of each alternatives calculated by adding the utilities of alternatives on different attributes as follows:

$$U_i = \sum_{J=1}^{n} w_j r_{ij} \tag{7}$$

Step 3 Rank the preference order. Select an alternative with maximum utility value i is the best rank value.

4 Results

In this context, the financial performance ratios for the periods 2011Q4, 2012Q4, and 2013Q4 were computed individually and used to evaluate the firm's financial achievement. Furthermore, the main financial performance scores were transformed into a unique score by the entropy-based MAUT process. In this framework, following the ranking of the paper and paper products firms in descending order, starting from best performing firm, the empirical results were revealed.

4.1   The Setting of the Decision Matrix

The paper and paper products firms listed in Borsa Istanbul that have alternatives, the supremacy of which has to be recognized through the formed decision matrix rows, while in the columns the financial performance ratios which are the assessment criteria appear. Six alternatives (the firms) and six assessment criteria (financial performance ratios) were adapted in the sample. First, the decision matrix was set with the dimensions (6×6) for the MAUT technique acquired from the firms. The decision matrices for the periods 2011Q4, 2012Q4, and 2013Q4 related to the firms' subjects of the study are, respectively, shown in Table 2.

The decision hierarchy for the selected problem is given in Fig. 1.

4.2   Weighting of Criteria via the Entropy

Weights of criteria are assigned by the entropy method and are given in Table 3. In the table, weights of criteria show differences throughout the periods. For example, while the weights of Asset Size and Total Sales realized notably high as of 2011Q4, conversely the same figures were low in 2012Q4. However, the year after, the weights were at average levels in 2013Q4. For all the periods, the weights of Profit Margin compared to the other criteria occurred high. Weights related to EBITDA/Equity and EBITDA/Equity took the lowest values for all the periods.

4.3   The Organizing of the Normalized Decision Matrix

The normalized decision matrix calculated by Eqs. (5) and (6) is illustrated in Table 3. The paper industry normalized decision matrix structure for the periods is shown in Table 4.

4.4   The Final Utility Values and Rankings (2011Q4, 2012Q4, and 2013Q4)

The MAUT final utility values were obtained by Eq. (7) for the three quarterly data sets of paper industry firms. The final utility values are presented in Table 5. As seen in the table, KARTONSAN has exhibited the best performance for all the periods. During the analysis period, OLMUKSAN and MONDI were the firms keeping their stable performance, but KAPLAMIN had an unstable performance. ALKIM has shown gradually increasing financial performance; however, VIKING has shown the worst performance except for 2011Q4 period.

Table 2 Decision matrix for periods

Firms	PR	SP	AS	TS	EE	EA	PM
ALKIM	2011Q4	0.048800	0.020600	−0.150200	0.032000	0.024700	0.048100
	2012Q4	0.014706	0.063457	−0.193970	0.135595	0.101915	0.010135
	2013Q4	−0.062020	0.055386	−0.001690	0.098178	0.065699	0.012308
MONDI	2011Q4	−0.075500	0.015400	0.029500	0.151300	0.073600	0.003800
	2012Q4	0.009174	0.040947	0.097573	0.101887	0.048425	0.010630
	2013Q4	−0.081080	−0.009330	0.056749	0.114204	0.051816	0.015969
KAPLAMIN	2011Q4	−0.197300	−0.091300	−0.080200	0.086900	0.037900	−0.117700
	2012Q4	0.108626	−0.012420	−0.034190	0.135682	0.059834	0.002851
	2013Q4	−0.184470	−0.021360	0.027218	0.096146	0.034759	−0.082580
KARTONSAN	2011Q4	−0.018000	0.035700	0.089800	0.056200	0.049900	0.130000
	2012Q4	0.006410	0.031540	0.103504	0.040546	0.036124	0.102606
	2013Q4	−0.065980	0.044640	0.137856	0.047002	0.041525	0.186258
OLMUKSAN	2011Q4	−0.127100	0.016000	0.038900	0.081300	0.052400	0.020800
	2012Q4	0.125731	−0.033440	−0.009500	0.089357	0.064072	0.008373
	2013Q4	−0.047100	0.009874	0.077955	0.089458	0.064083	0.050447
VIKING	2011Q4	−0.046700	0.187400	0.001100	0.187800	0.043300	−0.041200
	2012Q4	−0.019610	0.011311	0.095478	0.257497	0.042130	−0.200550
	2013Q4	−0.115380	0.006927	−0.133260	0.349662	0.035149	−0.359430

PR periods, *SP* stock price, *AS* asset size, *TS* total sales, *EE* EBITDA/equity, *EA* EBITDA/asset, *PM* profit margin, *Q4* cumulative quarter for year
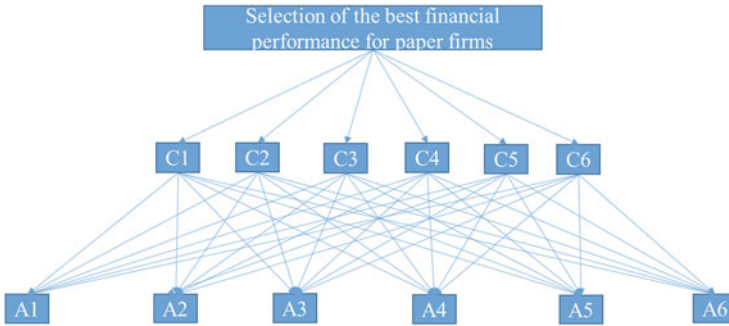
Fig. 1 The decision hierarchy of the firms

Table 3 Criteria weights for the periods

	PR	SP	AS	TS	EE	EA
2011Q4	0.04700	0.33310	0.25560	0.08850	0.03050	0.24520
2012Q4	0.24942	0.09765	0.06708	0.07569	0.03529	0.47486
2013Q4	0.00106	0.18946	0.18875	0.17943	0.02682	0.41449

PR periods, *SP* stock price, *AS* asset size, *TS* total sales, *EE* EBITDA/equity, *EA* EBITDA/asset, *PM* profit margin, *Q4* cumulative quarter for year

Table 4 Normalized decision matrix for periods

Firms		PR	SP	AS	TS	EE	EA	PM
ALKIM	2011Q4	1.00000	0.40140	0.00000	0.00000	0.00000	0.66950	
	2012Q4	0.23609	1.00000	0.00000	0.43811	1.00000	0.69497	
	2013Q4	0.89143	1.00000	0.48529	0.16909	1.00000	0.68123	
MONDI	2011Q4	0.49510	0.38290	0.74870	0.76590	1.00000	0.49050	
	2012Q4	0.19803	0.76768	0.98006	0.28274	0.18698	0.69661	
	2013Q4	0.75263	0.15668	0.70084	0.22204	0.55128	0.68794	
KAPLAMIN	2011Q4	0.00000	0.00000	0.29150	0.35250	0.26850	0.00000	
	2012Q4	0.88231	0.21691	0.53713	0.43851	0.36039	0.67095	
	2013Q4	0.00000	0.00000	0.59192	0.16237	0.00000	0.50734	
KARTONSAN	2011Q4	0.72870	0.45600	1.00000	0.15550	0.51480	1.00000	
	2012Q4	0.17902	0.67059	1.00000	0.00000	0.00000	1.00000	
	2013Q4	0.86257	0.85997	1.00000	0.00000	0.21868	1.00000	
OLMUKSAN	2011Q4	0.28530	0.38530	0.78770	0.31620	0.56580	0.55910	
	2012Q4	1.00000	0.00000	0.62013	0.22499	0.42480	0.68916	
	2013Q4	1.00000	0.40696	0.77906	0.14028	0.94776	0.75112	
VIKING	2011Q4	0.61190	1.00000	0.63050	1.00000	0.38040	0.30870	
	2012Q4	0.00000	0.46181	0.97302	1.00000	0.09129	0.00000	
	2013Q4	0.50291	0.36856	0.00000	1.00000	0.01260	0.00000	

PR periods, *SP* stock price, *AS* asset size, *TS* total sales, *EE* EBITDA/equity, *EA* EBITDA/asset, *PM* profit margin, *Q4* cumulative quarter for year

Table 5 The final utility value (MAUT scores) of each alternative for the periods

Firms	2011Q4	2012Q4	2013Q4	Total
ALKIM	0.3449	0.55501	0.62152	1.52143
MONDI	0.5608	0.5489	0.50253	1.61223
KAPLAMIN	0.1139	0.6418	0.35114	1.10684
KARTONSAN	0.7165	0.65208	0.77294	2.14152
OLMUKSAN	0.5255	0.6503	0.58712	1.76292
VIKING	0.6989	0.18928	0.25013	1.13831

Table 6 The MAUT ratings for the periods

Firms	2011Q4	2012Q4	2013Q4	Total
ALKIM	5	4	2	11
MONDI	3	5	4	12
KAPLAMIN	6	3	5	14
KARTONSAN	1	1	1	3
OLMUKSAN	4	2	3	9
VIKING	2	6	6	14
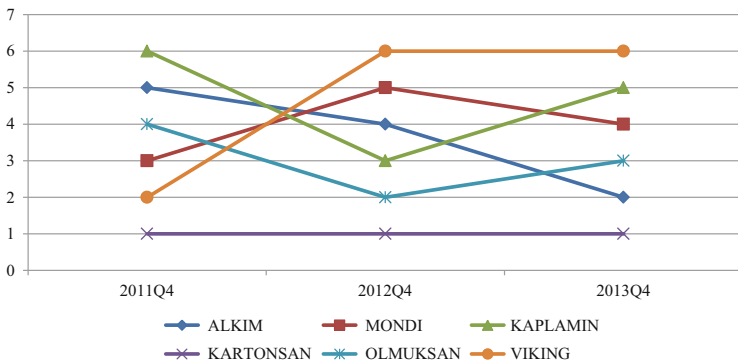
Fig. 2 The ratings of the firms

The MAUT rankings are obtained from final utility values and are shown in Table 6. As seen in Tables 6 and 5, KARTONSAN has the best financial performance and occupies the first place; on the contrary, VIKING showed the worst financial performance for all the periods and ranks the last. At the same time, as can be seen in Tables 5 and 6, the total final utility value and the total ratings showed that KARTONSAN has had the highest level of financial success, and VIKING and KAPLAMIN have had the lowest successful financial performance.

In the performance analysis, rankings and the final utility values based on MAUT, covering all the period scores are demonstrated in Figs. 2 and 3, respectively. According to the figures, the KARTONSAN Company occupies the first place and drastically decreasing financial performance of the VIKING is also recognized.
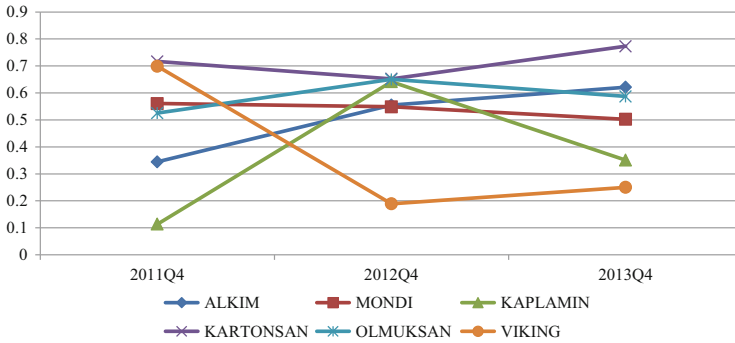
Fig. 3 The final utility value of the firms

5   Conclusions

The purpose of this study is to analyze the financial performance of the paper industry firms listed in Borsa Istanbul during the 2011–2013 period using the entropy-based MAUT method. Paper consumption constitutes an important part of people's daily life. The aim of paper consumption has changed due to technological developments. The traditional usage on the one hand, the paper consumption is increasing to new ones in Turkey. For instance, the consumption of paper for cleaning purposes. Between Turkey and other countries in the world, there are significant differences per capita of paper consumption. Per capita consumption of paper in our country from this perspective is far behind the developed countries. In this study, using the MAUT methodology, performance scores of the companies operating in the paper industry were identified. According to the MAUT scores, it was found that Kartonson showed the best performance and considered to be the most stable company. On the other hand, Olmuksan has taken second place. The third is Alkım company; the Mondi has received the fourth and, in the same period, the Kaplamin and Viking have taken the last place in the ranking.

Financial performance analysis with the MCDM methods are rather rare in the literature. In this respect, we hope that this study will make a significant contribution to the literature and it will also help scholars for further research.

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Impact of Integrated Communication on Entrepreneurial Companies' Financial Performance: A Developing Economy

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Abstract Entrepreneurial companies as the basis for economic growth should be aware of the factors of influence on their financial success, so they can achieve proper allocation of scarce resources. This chapter presents the state of the art in the communication processes of entrepreneurial companies within an emerging economy and the impact of integrated communications on profitability. The research is a part of a project "Strengthening the business capacity of women entrepreneurs in Republic of Macedonia, as a developing country." This chapter argues that usage of integrated communication leads to increased profitability. The method of quantitative and qualitative research is used through questionnaires and personal interviews with managers in the food industry. The data are processed with IBM SPSS19. Conclusions are based on descriptive and deductive statistics. The results show that the companies, regardless of the size, give priority to economic propaganda and sales promotion; they mostly use nonpersonal, mass media, mainly television; combination of several elements of the promotional mix, i.e., integrated communications affect profitability; and combination of media for promotion has impact on profitability. The conclusion suggests that implementation of integrated communication results in positive effect on the financial performance and increases the chances of investment in further development.

Keywords Integrated communication • Entrepreneurship • Financial performance • Developing economy • Food industry

1 Introduction

One of the main elements of the marketing mix is marketing communication, known more as promotion. Marketing communication is defined as "a process that includes all the information that is transferred between parties who want to engage in mutually advantageous exchange or transaction/relationship" (Yudelson

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1999, p. 66). Today, we are talking more about integrated marketing communications—a combination of elements that create a complete picture of a product/company through transfer of the promotional message. The promotional message as the source of information is directed from the sender (company) to the recipient (consumers and other stakeholders), designed according to the objective that the company is pursuing. In fact, the promotional strategy is affected by numerous factors related to consumers (Hawkins and Mothersbaugh 2010), and the promotion of the product/company should support primarily the marketing purposes specified in advance.

The achievement of the objectives can be completed through the right mix of elements of promotion/marketing communication, such as (Keller 2001) and (Grewal and Levy 2008) economic propaganda (mass media, interactive advertising, outdoor advertising, advertising in the store), sales promotion (to consumers and retailers), personal selling, direct marketing, and publicity and public relations (marketing events and sponsorships).

During the communication process, many obstacles that reduce the effectiveness of the message can occur. Some of them are: wrong encoding or encryption of the message from the sender (design and content expressed through words or symbols that do not make sense or have a completely different meaning within certain cultural groups), misrepresentation by the recipient, failure in the choice of media (not in touch with the target consumers or inappropriate message—with too little information, too fast, etc.), and the environmental impact of receiving the message and others. Due to the negative impact of these barriers in communication, the companies should include and analyze several different aspects of the promotional strategy or promotional message: goals to support, the budget for the communication process, the target audience for which the message is intended, design and content of the message, promotional mix, media and time of broadcast, and control of the campaign.

It should be emphasized that the message can have many different, but also complementary goals (Kotler and Keller 2009). That means, the communication mix should (Fill 2009, pp. 9–10) differentiate the product, remind and reassure consumers about the product and the experience of the brand (new reliable evidence relating to the product), inform or educate (place and price of purchase, ethics, social responsibility, etc.), and encourage consumers and distributors to purchase the product, etc.

2 Literature Review

Many studies prove the connection of promotion with rising sales and its relevance to business performance. The positive long-term effect of promotion on different indicators of performance of companies is confirmed by many authors. Srinivasan et al. (2000) state that the promotion has positive influence on increasing market share in long-term period. Promotion is associated with the increased sale of

product category (Nijs et al. 2001). The promotion affects the choice, frequency, and quantity of supply of products (Pauwels et al. 2002). According to Srinivasan et al. (2004), there is a direct relation between the level of promotion and level of profit margins and revenues. The size of the perceived value and the sale of the brand are in a positive and direct correlation with, and it depends on promotion (Sriram et al. 2007). The promotion has positive influence on higher perceived value of the brand and reduces the price elasticity of demand in the long term (Ataman et al. 2009).

Studies show that in the process of supply of consumer goods, consumers rely more on publicity associated with the product and the company, rather than advertising and also consider that activities related with publicity have more credibility (Çelebi 2007). It was also determined that the economic propaganda, i.e., targeted advertising of the brand has a positive relationship with sales and the value of the brand (Keller 1993). The literature also states that sales promotion and economic propaganda should be directed to two target segments (Keller 2010), to the final consumer (pull strategy) and to intermediaries (push strategy).

The percentage of companies that are active in social networks has grown from 82 % in 2010 to 90 % in 2011 (growth in using Facebook from 71 to 74 % and Twitter from 59 to 64 %) (Datamonitor Group 2012). On the other hand, most of the suggestions and comments of customers come through e-mail (69 %), while only 20 % from Facebook, and a key role in causing a reaction on consumer's side has an attractive and relevant content directly related to product/company (Datamonitor Group 2012).

Furthermore, the organization of extraordinary events, creation of viral advertising messages for consumers due to the "wow factor," can encourage the consumers to transfer the information among them, which will initiate a long-term change and, in the same time, build the identity of the company in the minds of consumers (Lawton 2003). Types of events or sponsorships in which the companies usually participate are (Holmes 1977): charity, welfare, health funds (67 %); assistance to public and private education (62.6 %); reduction of pollution (58.2 %); participation in local activities (50.5 %); sustenance of resources (23.0 %); renovation and development of the community (11 %); etc.

The process of accepting a promotional message, i.e., mass media commercial, depends on certain factors that affect its visibility and acceptance (Jovanov Marjanova 2009): connection to real life (86 %); good topic, actors, and music (67 %); modern design (54 %); and elements of humor (35 %). Moreover, in order for the message to be transmitted by the consumers through word of mouth marketing, four key factors of motivation should be considered (Aaker 2011): involvement of the product—33 % (product novelty and likability), involvement of the person—24 % (to attract attention, demonstration of knowledge and information, need of confirmation of their views, need to feel superior to others, etc.), involvement of third person—20 % (transfer of the message in order to show concern for others, friendship), and involvement of the message—20 % (message content is very interesting and informative and it is transmitted through self-initiative).

3   Methodology and Hypothesis

This research is a part of an ongoing project, entitled "Strengthening the business capacity of women entrepreneurs in Republic of Macedonia, as a developing country." The study presents part of the information which focuses on verifying the significance of the implementation of integrated marketing communication for the financial performance of the entrepreneurial small- and medium-sized companies in a developing economy.

The research methodology involved both quantitative and qualitative research methods. Secondary data are derived from books, journals, and academic articles. Primary data were collected with the techniques of structured questionnaires about managers' attitudes and current practices of marketing activities and a follow-up, semi-structured interview with the managers. The analysis is based on parametric statistics, and the responses were measured on a nominal and interval (Likert) scale. Business performance, i.e., profitability and market orientation degree, was measured on a subjective scale. The subjective scales are taken as a measure due to (1) managers' avoidance to provide accurate data that reflect their business performance and (2) high level of convergence between subjective and objective scales for measuring business performance as reported by Dawes (1999). The profitability of the companies was measured on 11-point subjective scale (from 0 extremely poor to 10 absolutely outstanding). The statistical sample included 19 entrepreneurial companies from the production sector in Macedonia. Data were analyzed with IBM SPSS19. The conclusions are given on the base of descriptive and deductive statistics.

Based on the literature review and in order to provide sufficient knowledge about current marketing practices in companies in a transitional economy, this chapter examines the activities of marketing communication in entrepreneurial companies in Republic of Macedonia. The main goal is to alter the state of mind of the owners and managers of the companies in a way that will lead to better understanding of the marketing concept and, thus, increase the implementation of marketing activities and consequently improve business performance. In the light of the abovementioned literature, we argue that the implementation of integrated marketing communication increases companies' performance and, accordingly, try to prove that (1) entrepreneurial companies operating in a developing economy have intensive external communication with consumers, (2) the most popular element of promotion is economic propaganda and the most popular medium of communication is television, (3) implementation of combined method of communication (integrated communication) directly affects profitability (by rejecting the opposite H_0 hypothesis: implementation of combined method of communication does not affect profitability), and (4) combination of different media of communication directly affects profitability (by rejecting the opposite H_0 hypothesis: combination of different media of communication does not affect profitability).

4 Findings and Discussion

Based on the fact that marketing activities should not be conditioned primarily by companies' size, but by the attractiveness of the industry and turbulence of the environment in which it works, this study included companies of different sizes in the sample. Size was defined primarily by number of employees (1–9 micro, 10–49 small, 50–250 medium, above 250 large) according to the definition given in the Company Law (2004). Therefore, the statistical sample consists of nearly equal representation of small (31.6 %), medium (36.8 %), and large (31.6 %) companies.

From Table 1, it can be seen that the financial situation (profitability) of companies is rather poor. Most of the companies have reported profits that are poor to moderately poor (42.1 % cumulatively). The companies reported that the current levels of profitability are sufficient for survival, but not for significant necessary reinvestment for further growth and development.

Earlier research among domestic Macedonian companies shows that the ideas about promotion activities are similar among companies from different industries and, most of them are characterized by the following (Jovanov Marjanova and Temjanovski 2012): the main goal of the promotional messages is purchase of the product, while the rest of the possible goals (positioning, awareness, image) are being ignored; there is no equivalent addressing to different target groups of stakeholders and the consumer is the only specific primary target group; the message is usually not related to the behavior (beliefs and attitudes, lifestyle, reference group, etc.) of the end users; the design of the message (graphics—colors, background, positioning of products in the message, sound, appeal, etc.) is prepared by the medium and not the company or a specialized organization; the content of the message is given/decided by the owners of the company, which mainly want the message to include the products, the name and the logo of the company, point of sale, and price discounts; and in terms of budget for promotion, most of the companies (80 %) allocate less than 5 % of the revenue from sale, or the annual amount ranges from 500 to 700 euros for all marketing activities in companies, including promotional activities. It is necessary to note that while discussing the budget, most of the entrepreneurs did not distinguish marketing from promotional strategy, which leads to the conclusion that the budget provided for marketing activities is actually the budget for promotion. Additionally, in connection with the promotional mix, elements that are often used to promote the activities and products

Table 1 Profitability of companies

		Frequency	Percent	Cumulative percent
Valid	Poor	3	15.8	15.8
	Moderately bad	5	26.3	42.1
	Moderately good	6	31.6	73.7
	Very good	3	15.8	89.5
	Extremely good	2	10.5	100.0
	Total	19	100.0	

are promotion of sales and economic propaganda, often in combination. On the other side, personal selling is used exclusively for intermediaries, while direct marketing (e-mail, social media, etc.) and public relations and publicity (organizing events, articles in newspapers, etc.), especially by micro and small companies, are rarely used.

The primary research has confirmed most of the conclusion given in previous studies. Namely, the companies reported that they mainly use economic propaganda (3.37) and sales promotion or a combination of several ways of promoting (Table 2).

In terms of free choice of media which are used for economic propaganda, we can say that between companies there is still prevalent use of traditional mass media. The most commonly used medium is television. Radio, press, and internet are not so common. Previous research shows that the Macedonian domestic companies have the following characteristics (Jovanov Marjanova and Temjanovski 2012): the majority of companies (80 %) advertise on local television, advertising in specialized weekly or monthly magazines is used by 20 % of the companies, around 20 % have a proactive communication through social networks, about 50 % of them have created a web page, outdoor advertising (billboards) are used by 50 % of the surveyed companies, and other sources (posters, brochures, flyers) are rarely used or not used at all.

In addition, the primary research of this chapter confirmed that television is the most widely used medium for the transmission of the promotional message, followed by frequent use of a combination of minimum three different media (Table 3).

Furthermore, the deductive statistics examines the relationship of the elements of promotion, the used media for promotion with the profitability of companies, and their direct impact on this indicator of business performance. The results (Table 4), based on Pearson correlation, show that the strongest relationship between the

Table 2 Average values of implementation of different elements of promotion

Statistics		Economic propaganda	Sales promotion	Direct marketing	PR and publicity	Combination (minimum three different elements)
N	Valid	19	19	19	19	19
	Missing	0	0	0	0	0
Mean		3.37	4.58	2.42	2.58	3.58

Note: Min value = 1 (never); Max value = 5 (always)

Table 3 Level of usage of different media

Statistics		Television	Radio	Paper	Internet	Combination (minimum three different media)
N	Valid	19	19	19	19	19
	Missing	0	0	0	0	0
Mean		3.58	2.42	2.53	2.89	2.95

Note: Min value = 1 (never); Max value = 5 (always)

Table 4 Connection between different elements of promotion and profitability

Correlations		Profitability	Economic propaganda	Sales promotion	Direct marketing	PR and publicity	Combination (minimum three different elements)
Profitability	Pearson correlation	1	0.651**	0.189	0.425	0.701**	0.690**
	Sig. (two-tailed)		0.003	0.437	0.070	0.001	0.001
	N	19	19	19	19	19	19
Economic propaganda	Pearson correlation	0.651**	1	0.247	0.351	0.776**	0.677**
	Sig. (two-tailed)	0.003		0.308	0.141	0.000	0.001
	N	19	19	19	19	19	19
Sales promotion	Pearson correlation	0.189	0.247	1	0.137	0.411	0.143
	Sig. (two-tailed)	0.437	0.308		0.577	0.080	0.559
	N	19	19	19	19	19	19
Direct marketing	Pearson correlation	0.425	0.351	0.137	1	0.427	0.368
	Sig. (two-tailed)	0.070	0.141	0.577		0.068	0.121
	N	19	19	19	19	19	19
PR and publicity	Pearson correlation	0.701**	0.776**	0.411	0.427	1	0.708**
	Sig. (two-tailed)	0.001	0.000	0.080	0.068		0.001
	N	19	19	19	19	19	19
Combination (minimum three different elements)	Pearson correlation	0.690**	0.677**	0.143	0.368	0.708**	1
	Sig. (two-tailed)	0.001	0.001	0.559	0.121	0.001	
	N	19	19	19	19	19	19

*Correlation is significant at the 0.05 level (two tailed)
**Correlation is significant at the 0.01 level (two tailed)

different elements of promotion and profitability occurs with the use of publicity and a combination of different elements of promotion/integrated communication.

Additionally, the strongest connection between different media and profitability is seen with the use of combination of several different media (television, radio, and the Internet), then with television, radio, and the Internet (Table 5). Using the press does not show a significant association with profitability.

In terms of proving the key hypothesis that integrated communication affect profitability, testing on the basis of simple linear regression was conducted. The results (according to the rule of decision making: $t > t_{\mathrm{df};\alpha}$) show that in the case of implementation of integrated communication (combination of different elements of promotion), there is a direct positive impact on the profitability of companies (Table 6).

Furthermore, when the companies are using a combination of minimum three different media for promotion, there is also a direct positive impact on profitability (Table 7).

The time aspect of promoting the message includes the frequency of broadcasting on a daily basis and the duration of the broadcast. Macedonian companies have the freedom to decide which advertising period they will use and for how long. Previous research shows some of the characteristics that are common for their promotional activities (Jovanov Marjanova and Temjanovski 2012): key factor in the time aspect of the message is the cost and not the objectives of promotion, the media plan is usually created by the media based on preliminary information on the budget for promotion of the company, and it is also common for the company not to ask or require a preparation of a media plan.

The success of the promotional strategy depends on its assessment and control. In addition to this knowledge, the research has shown that less than half of the companies (40 %) partially follow the process of promotion from beginning to the end with control of the date of broadcast of the message. However, they do not make an assessment of the campaign in terms of the end user (no research about where and how the consumers found out about the product/company, no record of the number of purchases initiated by the promotional message, etc.). This means that the control of the implementation of the contract by the medium is only partial.

5   Conclusions

The modern consumers are not moving directly toward purchase of the product, but they rather go through more complicated process of decision making, which is often a selective process in stages. In fact, the purpose of a company, except sales, should also be communication and, respectively, should clearly indicate the position on the market, create awareness of the modified/new products, encourage product trials, and enhance the corporate image.

In terms of the target groups of the communication, the companies should simultaneously address more than one key target group: the primary target group

Table 5 Connection between different media for promotion and profitability

Correlations		Profitability	Television	Radio	Paper	Internet	Combination (minimum three different media)
Profitability	Pearson correlation	1	0.566*	0.585**	0.385	0.538*	0.789**
	Sig. (two-tailed)		0.012	0.009	0.104	0.018	0.000
	N	19	19	19	19	19	19
Television	Pearson correlation	0.566*	1	0.674**	0.193	0.208	0.782**
	Sig. (two-tailed)	0.012		0.002	0.428	0.392	0.000
	N	19	19	19	19	19	19
Radio	Pearson correlation	0.585**	0.674**	1	0.385	0.292	0.781**
	Sig. (two-tailed)	0.009	0.002		0.385	0.226	0.000
	N	19	19	19	19	19	19
Paper	Pearson correlation	0.385	0.193	0.385	1	0.442	0.448
	Sig. (two-tailed)	0.104	0.428	0.104		0.058	0.054
	N	19	19	19	19	19	19
Internet	Pearson correlation	0.538*	0.208	0.292	0.442	1	0.541*
	Sig. (two-tailed)	0.018	0.392	0.226	0.058		0.017
	N	19	19	19	19	19	19
Combination (minimum three different media)	Pearson correlation	0.789**	0.782**	0.781**	0.448	0.541*	1
	Sig. (two-tailed)	0.000	0.000	0.000	0.054	0.017	
	N	19	19	19	19	19	19

*Correlation is significant at the 0.05 level (two-tailed)
**Correlation is significant at the 0.01 level (two-tailed)

Table 6 Regression estimates

Model	R	R square	Adjusted R square	F	Sig. F
1	0.690[a]	0.477	0.446	15.488	0.001

a. Predictors: (Constant), Combination (minimum three different elements)

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
1	(Constant)	B	Std. Error	Beta		
	Combination (minimum three different elements)	2.009	0.984		2.042	0.057
		1.012	0.257	0.690*	3.935	0.001

Notes: $N = 19$, *significant at the 0.01 level (Sig. $0.001 < \alpha$ 0.01, H_0: There is no impact on profitability, is rejected)
[a]Dependent Variable: profitability

Table 7 Regression estimates

Model	R	R square	Adjusted R square	F	Sig. F
1	0.789[a]	0.622	0.600	28.032	0.000

a. Predictors: (Constant), Combination (minimum three different media)

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
1	(Constant)	B	Std. Error	Beta		
	Combination (minimum three different media)	2.639	0.637		4.140	0.001
		1.015	0.192	0.789*	5.294	0.000

Notes: $N = 19$, *significant at the 0.01 level (Sig. $0.000 < \alpha$ 0.01, H_0: There is no impact on profitability, is rejected)
[a]Dependent Variable: profitability

of end users, groups with impact on the primary target group, and suppliers and distributors. Also, when a company is establishing the budget for promotion, it should clearly make a difference between funds for promotional strategy and funds for overall marketing activities.

According to the analysis, the recommendation for the companies is to use a combination of elements in the promotional mix and devote more attention to public relations and publicity and the alternative approaches (viral marketing). The publicity and public relations can be effectively used to create awareness of the brand and positive attitudes among the public for the company as a whole. The sales promotion and economic propaganda should have only occasional use (when launching a new product or in case of reduced demand in a particular period of the year), because they are usually burdened with high costs.

When a company makes decisions related to the selection of media for conveying the message, it is important to know the preferences of the consumers, as well as all available media in the market. In this regard, for more efficient operation, in terms of selecting a suitable media, the recommendations are for increased usage of nonpersonal media who have contact with the primary target group, but not necessarily with the general public, which can reduce the funds intended for the media. In advertising, the companies should also consider the method of unpaid placement of the product, the half-screen advertising, and Internet advertising.

Furthermore, besides the group of traditional nonpersonal media (audiovisual media), companies should also include interactive media—social networks and use the website for direct contact with the target group. In addition to the implementation of interactive communication, the companies should follow some social media rules (Aaker 2011): in the absence of extremely interesting message, the company should offer a highly functional product, link it to the self-image of the consumers and their lifestyle or social usefulness; the audience usually doubts the transmitter of the message and, requires a high credibility, so when companies promote their own brand, they should emphasize facts and not use opinions; companies need to represent the accepted culture and values that are followed by the target group; and the audience wants to express opinions, so a dialogue should be enabled and promoted in order to create credibility and motivation.

Unlike the current situation, the time of message broadcast and investment in promotion should be planned according to the corporate and marketing goals and not only according to the tariff of the medium. Consideration about the time of the broadcast and the frequency of broadcasting should be made in accordance with the habits of the target audience.

The control of promotional activities can be performed with pretesting (focus groups) and posttesting (percentage of consumers who know the product and the promotional campaign and the percentage of consumers that has changed its views and opinion based on the campaign). Additionally, the implementation of promotional activities should be controlled, and key points of control are recommended to be: satisfaction and approval of buyers and consumers (through questionnaires and proposals—in the beginning of the project), sales (sales reports and financial indicators—monthly), competition (examination of suppliers and the reactions of competitors), and development and improvement of sales force (training and supervision). One of the most important elements in the process of communication is receiving feedback from the target audience and two-way communication as a control mechanism.

Since the connection and direct impact of integrated communication on profitability were proven, it can be concluded that the success of business performance depends on coordinated and integrated marketing communication. The key element is the message as a carrier of information, and with the implementation of some of the proposed changes in the strategic plans of the companies, better financial results can be expected based on effective communication with the end users.

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Cross-Border Contagion Risk Transmission Through Stock Markets Channel: The Case of the Baltic Countries

Vilma Deltuvaitė

Abstract International investors have seen emerging stock markets as the most exciting and promising area for investment, especially because they are expected to generate high returns and to offer good portfolio diversification opportunities. However, the recent global shocks in the major financial centers raise the question about portfolio diversification opportunities during financial turmoil. The objective of this study is to identify the episodes of cross-border contagion risk transmission through stock markets channel in the Baltic countries. Dynamic Conditional Correlation Generalized Autoregressive Conditional Heteroskedasticity (DCC-GARCH) model and Favero and Giavazzi outlier test are used. The results of this empirical study allow to identify some episodes of the cross-border contagion risk transmission through stock markets channel in the Baltic countries, for example, the announcement of the Lehman Brothers bank collapse on 15 September, 2008, etc. The empirical results of this study suggest that despite the low degree of the Baltic stock markets global and regional integration, system-wide shocks in the global financial centers affect the Baltic stock markets. The most significant effect of the cross-border contagion risk transmission was identified in Estonian and Lithuanian stock markets, while the reaction of investors in Latvian stock market was more conservative.

Keywords Cross-border contagion risk • Global integration • Stock markets • Baltic countries

1 Introduction

Many empirical studies have investigated the regional and global integration of the Baltic stock markets. Mateus (2004) investigated the impact of global risk factors on returns of the 13 European Union (EU) countries during the period of 1997–2002. The results of this empirical study show that global risk factors are

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relatively more important for Estonia and Lithuania, while local risk factors are more important for Latvia. Besides, Estonian and Lithuanian stock market indices show very low correlations with world and Europe indices. While Maneschiöld (2006) analyzed the long-run relationships among Baltic stock markets and the stock markets of the USA, Japan, Germany, the United Kingdom, and France. The results of this study show that the short-run and long-run Granger causality among the European stock markets (especially German stock market) and Baltic stock markets exists. However, the results of this empirical study indicate about low degree of the global integration of the Baltic stock markets. Nielsson (2007) investigated the interdependence between the Nordic and Baltic stock markets over the period 1996–2006. Surprisingly, little interdependence between the Nordic and Baltic stock indices was found. The results show limited evidence of the Nordic and Baltic stock markets integration in the short run and long run. Masood et al. (2010) investigated the co-integration and causal relationship between the stock exchanges of the Baltic countries. The authors of this empirical study have found strong evidence that the Baltic stock markets are co-integrated and a long-run bidirectional causal relationship between Vilnius, Riga, and Tallinn stock indexes exists. Brännäs et al. (2012) studied the Baltic States' stock exchanges and the influence exerted by the Russian stock exchange. The authors of this empirical study found strong evidence of the Baltic stock markets interdependence in both returns and volatility. They also found asymmetric effects of Moscow returns on the index returns and volatilities in the Baltic States' exchanges. The results of the aforementioned empirical studies show that the degree of global integration of the Baltic stock markets is very low, while the regional integration of these stock markets is high. However, the recent global shocks in the major financial centers raise the question about the possible system-wide shock transmission from the major stock markets to the Baltic stock markets despite the low degree of global integration. The main research questions are: can the spillover effect occur from the major stock markets on the Baltic stock markets despite the low international integration and what type of shocks cause the cross-border contagion risk transmission to the Baltic stock markets? The aim of this chapter is to identify the episodes of cross-border contagion risk transmission through stock markets channel in the Baltic countries. The research object is stock markets in the Baltic countries. The research methods are the systemic, logical, and comparative analyses of the scientific literature and statistical methods, Dynamic Conditional Correlation Generalized Autoregressive Conditional Heteroskedasticity (DCC-GARCH) model, and Favero and Giavazzi outlier test.

2   Literature Review

There are many empirical studies (Mateus 2004; Maneschiöld 2006; Nielsson 2007; Masood et al. 2010; Brännäs et al. 2012; etc.) investigating the regional and global integration of the Baltic stock markets. However, there are only a few studies (Soultanaeva 2008; Dubinskas and Stungurienė 2010; Syllignakis and Kouretas

2011; Kuusk et al. 2011; Brännäs and Soultanaeva 2011; Nikkinen et al. 2012) analyzing the cross-border contagion risk transmission through stock markets channel in the Baltic countries.

Soultanaeva (2008) investigated the spillover effect of political news from Russia on the Baltic stock markets for a period from 2001 to 2007. In order to capture the spillover effect, they used the expanded VARMA-AGARCH model proposed by Hoti et al. (2005). VARMA-AGARCH model is a multivariate generalization of the asymmetric GARCH model proposed by Glosten et al. (1993). The empirical results show that local and foreign political news lowered the risk in Latvian and Estonian stock markets during 2001–2003; however, political news from Russia had a risk-increasing effect on Estonian stock market. The empirical results of this study show that a less significant effect of political news on the stock markets of Riga and Tallinn was observed in 2004–2007. Surprising that political news does not have any impact on Vilnius stock market during the whole analyzed period. In summary, the findings of this empirical study suggest that the effect of political news on the Baltic stock markets is decreasing over time. Besides, the Baltic stock markets' adjustment to political news differs despite some common characteristics. Soultanaeva (2008) explains that these empirical findings could be resulted by the quality of information and investors' perceptions regarding political news. The movements of the Baltic stock markets depend also on investors' interpretations of political news announcements, international trade relations existing among the Baltic countries and Russia, etc.

Dubinskas and Stungurienė (2010) analyzed the alternations in the causality in the stock markets of the Baltic States and Russia during the 2008–2009 financial crises. This paper employed Granger causality, the Dickey–Fuller, and Johansen testing methodology. Both methodologies demonstrated a strong co-integration between the changes in the indices of all Baltic stock markets irrespective of the period analyzed (i.e., precrisis, during the crisis, postcrisis). According to the authors of this empirical study, the financial downturn trends of the Baltic stock markets that started in September 2008 originated in the Latvian stock market. The results of the survey showed that the financial downturn to the largest extent affected the Latvian and Estonian stock markets, while the Lithuanian and Russian stock markets survived the equity plunge period comparatively painlessly. The empirical results confirm that in view of a financial crisis, the interests and expectations of most investors are related to larger markets that are normally considered more reliable and resilient.

Syllignakis and Kouretas (2011) applied the Dynamic Conditional Correlation (DCC) multivariate GARCH model of Engle (2002) in order to capture potential contagion effects among the USA, German, and Russian stock markets and the Central and Eastern European (CEE) stock markets during the period 1997–2009. The analysis of the dynamic correlation coefficients provided substantial evidence in favor of contagion effects due to herding behavior in the financial markets of the CEE emerging stock markets, particularly around the 2007–2009 financial turmoil. The finding of this empirical study showed that the statistically highly significant effect on the conditional correlations during the recent stock market crash may be

attributed to the increased participation of foreign investors in the CEE stock markets, as well as to increased financial liberalization, particularly after the accession of the CEE countries to the EU in 2004. These findings further suggest that the differences on the impact of the 1997 Asian crisis and the 2007–2009 crisis had on the CEE stock markets may also be attributed to the different origin and type of the two crises.

Kuusk et al. (2011) investigated whether the US 2008 crisis spilled over contagiously to the Baltic States as small open economies during the period from 2008 until 2009. The authors employed two main approaches (the correlation coefficients-based methods and the ARCH-GARCH framework) for testing hypotheses regarding possible financial contagion from the US stock market to the Baltic stock markets during the crisis that started in the USA in 2008. According to the authors of this empirical study, correlation coefficients-based testing reveals supporting evidence on financial contagion. The unadjusted postcrisis correlation between the USA and all three Baltic stock markets is quite significantly higher than the precrisis correlation, which supports the contagion hypothesis and indicates that linkages between the USA (crisis country) and Estonia, Latvia, and Lithuania (noncrisis countries) have become stronger after September 15, 2008 (the starting date of a crisis). Using the adjusted correlations, Kuusk et al. (2011) found that the differences between pre and postcrisis correlations are much smaller but still more than 1.5 times in favor of postcrisis correlations. However, the results of the MA (1)-GARCH (1,1)-M model are mixed: mean spillover effects from the US to Baltic stock markets are stronger during the crisis period as compared to the tranquil period, while the conditional variance does not exhibit statistically significant positive spillovers in any of the observed markets neither in the crisis period nor in the noncrisis period.

Brännäs and Soultanaeva (2011) studied the impact of news from the Moscow and New York stock exchanges on the daily returns and volatilities of Baltic stock market indices during the period of 2000–2005. To account for the possibly asymmetric effects of news in Moscow and New York on the stock market indices of the Baltic States, the authors extended the conditionally heteroskedastic ARasMA specification of Brännäs and De Gooijer (2004). This nonlinear time series model accounts for asymmetries in conditional mean and variance functions. The results of this empirical study showed that neither good nor bad news arriving from New York and Moscow has any significant impact on Riga's stock market. The study by Brännäs and Soultanaeva (2011) showed that good news from New York has a positive impact on returns of Tallinn's stock market, while bad news from Moscow and New York has a negative impact on returns on this stock market. The shocks arising in New York have larger effects than those of Moscow on the returns of Tallinn's stock market. According to this empirical study, good news from Moscow has no significant impact on returns in Vilnius stock market, whereas bad news has a negative impact and the market reaction to bad news from Moscow is quite fast, i.e., within the same day. Brännäs and Soultanaeva (2011) found that news arriving from New York has stronger impacts on market returns in Tallinn and Vilnius than news from Moscow. They found no evidence of

asymmetric impact of good and bad news from New York on returns in Baltic States, while for Vilnius they found no volatility spillovers from New York in contrary for Tallinn.

Nikkinen et al. (2012) analyzed the linkages between developed European stock markets and three Baltic stock markets during the period of 2004–2009. Nikkinen et al. (2012) payed a special focus on the integration of these emerging stock markets and European stock markets during recent financial crisis. They applied the Granger (1969) causality test and vector autoregressive analysis (VAR) in order to investigate the financial integration of the Baltic stock markets at the European level. The empirical results of this study demonstrate a high segmentation of the Baltic stock markets before the recent financial crisis which has significantly decreased during the crisis. These empirical findings suggest that the Baltic stock markets are closely integrated with the major European stock markets especially during the crisis period.

So, despite the low international integration, the spillover effect from the major stock markets on the Baltic stock markets was identified in most empirical studies. The main research questions of this empirical study are: can the spillover effect transmit from the major stock markets on the Baltic stock markets despite the low international integration, and what type of shocks cause the cross-border contagion risk transmission to the Baltic stock markets? This empirical study also attempts to identify the episodes of cross-border contagion risk transmission through stock markets channel in the Baltic countries.

3   Research Methodology and Data

There are a range of econometric tools and techniques used to study the cross-border contagion risk transmission through stock markets channel. All these econometric methods can be distinguished into two main groups: econometric methods that clearly define the beginning of crisis period and investigate the linkages between two stock markets before and during the crisis and econometric methods that investigate the structural breaks of relationship between two stock markets without dating the beginning of crisis period a priori. This empirical study will apply the statistical methods from the second group: the Dynamic Conditional Correlation Generalized Autoregressive Conditional Heteroskedasticity (DCC-GARCH) model and Favero and Giavazzi outlier test.

The DCC-GARCH (p, q) model that was introduced by Engle (2002) is an econometric tool used to model correlation between two or more data series. The standard DCC-GARCH (1,1) model was applied in this empirical study [see Engle (2009) and Nakatani and Teräsvirta (2009)]. The estimation of a GARCH (1,1) model is an intermediate step in order to derive inputs for the DCC-GARCH (1,1) model that was used to model correlation between two particular stock market indexes. In this case, we have n stock market indexes and the return vector is a

column vector $\varepsilon_t = (\varepsilon_{1t}, \ldots, \varepsilon_{nt})'$ with assumptions $\varepsilon_t | F_{t-1} \sim N(0, \ H_t)$. That is, $E[\varepsilon_t | F_{t-1}] = 0$ and $E\left[\varepsilon_t' \varepsilon_t | F_{t-1}\right] = D_t P_t D_t = H_t$. Nakatani and Teräsvirta (2009) and Engle (2009) define DCC-GARCH (1,1) model as follows:

$$Y_t = \mu_t + \varepsilon_t, \tag{1}$$

$$\varepsilon_t = D_t z_t, \tag{2}$$

where Y_t—n-dimensional vector of logarithmic returns of the stock exchanges indexes at time t;

μ_t—n-dimensional vector of the expected value of the conditional Y_t ($\mu_t = E(Y_t | F_{t-1})$);

ε_t—n-dimensional vector of mean-corrected logarithmic returns of the stock exchanges indexes at time t;

$D_t = \mathrm{diag}\left\{\sqrt{h_{1t}}, \ldots, \sqrt{h_{nt}},\right\}$ and $\sqrt{h_{it}}$ are the conditional standard deviations of ε_{it}. The conditional variance follows a univariate GARCH process:

$h_{it} = \alpha_{i0} + \sum_{j=1}^{q} \alpha_{ij} \varepsilon_{i,t-j}^2 + \sum_{j=1}^{p} \beta_{ij} h_{i,t-j};$

z_t—n-dimensional vector of iid errors with $E[z_t | F_{t-1}] = 0$ and $E\left[z_t' z_t | F_{t-1}\right] = P_t = [\rho_{ij,t}]$, where F_{t-1}^{t-1t-1} is the information set up and including time $t-1$

H_t—time-varying conditional covariance matrix of the process ε_t ($[H_t]_{ij} = h_{it} h_{jt} p_{ij,t}$, $i \neq j$, where $1 \leq i, \ j \leq n$)

P_t—time-varying positive definite conditional correlation matrix of the process ε_t.

$$p_{ij,t} = E\left[z_{it} z_{jt} | F_{t-1}\right] = \frac{E\left[z_{it} z_{jt} | F_{t-1}\right]}{\sqrt{E\left[z_{it}^2 | F_{t-1}\right] E\left[z_{jt}^2 | F_{t-1}\right]}} = \frac{E\left[\varepsilon_{it} \varepsilon_{jt} | F_{t-1}\right]}{\sqrt{E\left[\varepsilon_{it}^2 | F_{t-1}\right] E\left[\varepsilon_{jt}^2 | F_{t-1}\right]}}$$

$$= \mathrm{corr}\left[\varepsilon_{it}, \varepsilon_{jt} | F_{t-1}\right].$$

The Favero and Giavazzi (2002) outlier test is similar to the multivariate version of the Forbes and Rigobon test, as both procedures amount to testing for contagion using dummy variables. The Favero and Giavazzi (2002) approach consists of two stages: (1) identification of outliers using a vector autoregressive (VAR) model (3) and (2) identification of shocks analyzing the outliers of the previous step using dummy variables (4).

$$
\begin{bmatrix} Y_{1,t} \\ Y_{2,t} \\ \vdots \\ Y_{n,t} \end{bmatrix} = \begin{bmatrix} A_{10} \\ A_{20} \\ \vdots \\ A_{n0} \end{bmatrix} + \begin{bmatrix} A_{11,k} & A_{12,k} & \dots & A_{1n,k} \\ A_{21,k} & A_{22,k} & \dots & A_{2n,k} \\ \vdots & \vdots & \ddots & \vdots \\ A_{n1,k} & A_{n2,k} & \dots & A_{nn,k} \end{bmatrix} \begin{bmatrix} Y_{1,t-k} \\ Y_{2,t-k} \\ \vdots \\ Y_{n,t-k} \end{bmatrix}
$$

$$
+ \begin{bmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \\ \vdots \\ \varepsilon_{n,t} \end{bmatrix}, \quad \varepsilon_{i,t} \sim WN(0, \Sigma_\varepsilon) \tag{3}
$$

where $Y_{1,t}, \ldots, Y_{n,t}$—n-dimensional vector of variables (logarithmic returns of the stock exchanges indexes) at time t

$A_{10}, \ldots, A_{n0}$—n-dimensional vector of variables' intercept

$A_{11,k}, \ldots, A_{nn,k}$—$n$-dimensional coefficients' matrices;

$\varepsilon_{1,t}, \ldots, \varepsilon_{n,t}$—an unobservable zero mean white noise vector process with time invariant covariance matrix.

$$
d_{i,t} = \begin{cases} 1: & |v_{i,t}| > 3\sigma_{v,i} \\ 0: & \text{otherwise} \end{cases} \tag{4}
$$

where $d_{i,t}$—a unique dummy variable corresponding to each outlier

$v_{i,t}$—the residuals from a VAR that contains the logarithmic returns of all the stock exchanges indexes in the system with respective variances $\sigma_{v,i}^2$.

That is, a dummy variable is constructed each time an observation is judged extreme, $|v_{i,t}| > 3\sigma_{v,i}$, with a one placed in the cell corresponding to the point in time when the extreme observation occurs, and zero otherwise.

This empirical study focuses on daily stock market indexes for three Baltic countries: Lithuania (LTU), Latvia (LVA), and Estonia (EST) and largest stock markets at global level: United States (USA), China (CHN), Japan (JPN), United Kingdom (GBR), Canada (CAN), France (FRA), Germany (DEU), Australia (AUS), India (IND), Brazil (BRA), Korea (KOR), Hong Kong (HKG), Switzerland (CHE), Spain (ESP), Russia (RUS), Netherlands (NLD), South Africa (ZAF), Sweden (SWE), and Mexico (MEX). Daily data on the sample stock markets indexes were obtained from Thomson Financial DataStream for a 14-year period, i.e., from 2000 to 2014Q3.

4   Research Results

The dynamic conditional standard deviations of the logarithmic returns of the Baltic stock indexes derived from DCC-GARCH (1,1) model are presented in Fig. 1. The empirical results suggest that dynamic conditional standard deviations of the
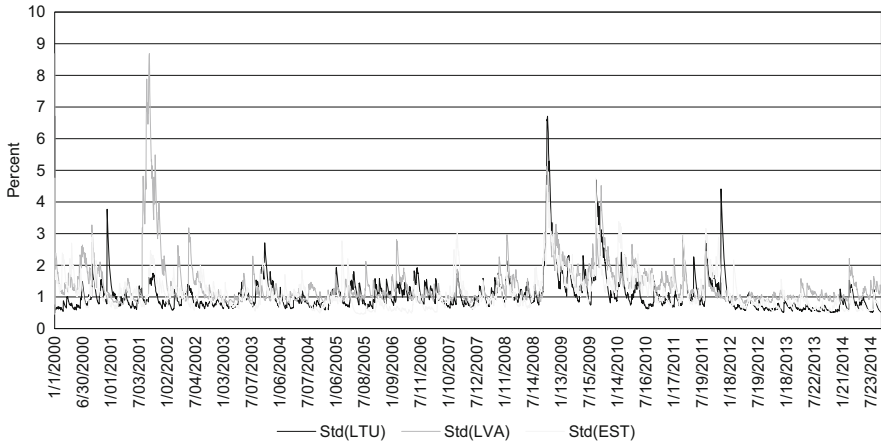
Fig. 1 Conditional standard deviations of the logarithmic returns of the Baltic stock exchanges indexes using DCC-GARCH (1,1) model
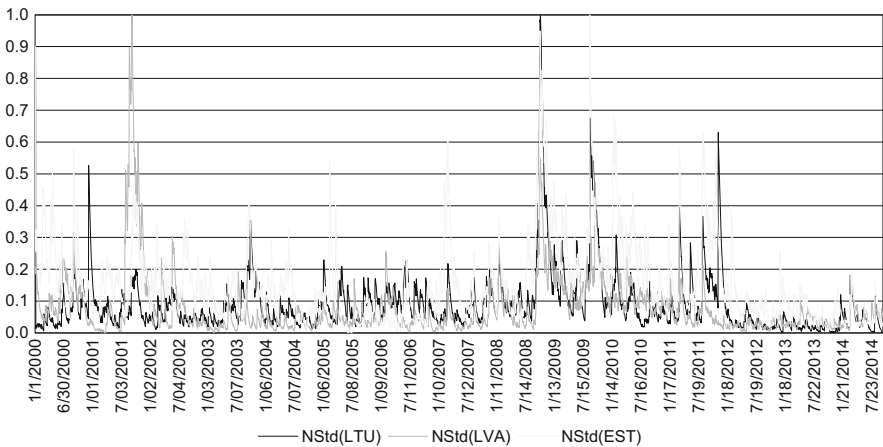
Fig. 2 Normalized conditional standard deviations of the logarithmic returns of the Baltic stock exchanges indexes using DCC-GARCH (1,1) model

logarithmic returns are very unstable and time varying. The highest value of conditional standard deviation of Lithuanian stock index (6.71) was observed on 10/15/2008, a month after the collapse of Lehman Brothers bank in USA (September 15, 2008). In Latvia and Estonia, the highest values of conditional standard deviations of the logarithmic returns were caused by internal shocks in stock markets: in Latvia (8.69) on 9/06/2001 and in Estonia (4.75) on 8/25/2009.

In order to compare conditional standard deviations of the logarithmic returns of different Baltic stock exchanges indexes, the conditional standard deviations were normalized by using min–max method (see Fig. 2). Min–max method normalizes indicators to have an identical range [0, 1] by subtracting the minimum value and

Table 1 The outliers of the normalized conditional standard deviations of the Baltic stock exchanges indexes logarithmic returns

Lithuania		Latvia		Estonia	
Date	Normalized conditional standard deviation	Date	Normalized conditional standard deviation	Date	Normalized conditional standard deviation
10/10/2008	0.98	9/04/2001	0.96	10/13/2008	0.95
10/13/2008	0.98	9/05/2001	0.99	10/14/2008	0.91
10/14/2008	0.99	9/06/2001	1.00	8/25/2009	1.00
10/15/2008	1.00	9/07/2001	0.93	8/26/2009	0.93
10/16/2008	0.96				
10/17/2008	0.95				

dividing by the range of the indicator values. The outliers (>0.9) of the normalized conditional standard deviations of the Baltic stock exchanges indexes logarithmic returns are presented in Table 1. The empirical results presented in Table 1 suggest that the spillover effect is transmitted from the US stock market to the Lithuanian and Estonian stock markets after the collapse of Lehman Brothers bank, while the other two shocks in Latvian and Estonian stock markets were caused by internal factors. The empirical results of this study confirm the findings of earlier studies by Eun and Shim (1989), Koch and Koch (1991), and Liu and Pan (1997) that the USA is the major source of internationally transmitted shocks. The Latvian stock market seems to be quite autonomous to external shocks, and the strongest impact of US stock market on the Lithuanian and Estonian stock markets may be due to the fact that these stock markets are larger than that Riga's. Besides, the conditional correlation between the logarithmic returns of the Baltic and US stock indexes also increased during this financial turmoil suggesting about the cross-border contagion risk transmission through stock markets channel in the Baltic countries.

The outliers of the Baltic stock indexes logarithmic returns derived using the Favero and Giavazzi (2002) outlier test (VAR model) are presented in Fig. 3. The empirical results suggest that the spillover effect transmitted simultaneously from the US stock market to the Baltic stock markets during 10/06/2008–10/16/2008 after the collapse of Lehman Brothers bank in USA (September 15, 2008). While the spillover effect of other system-wide shocks [e.g., September 11 attack on the World Trade Center (September 11, 2001), the internet bubble burst (May 21, 2002), the Middle East financial markets crash (May 2006), Greek debt crisis (April 23, 2010), Ireland's debt crisis (September 1, 2010), Portugal's debt crisis (May 16, 2011)] on the Baltic stock markets was not observed. These empirical results confirm that the spillover effect can transmit from the major stock markets to the Baltic stock markets despite the low international integration. The shocks caused by the cross-border contagion risk transmission to the Baltic stock markets are system-wide events (e.g., banking crisis) in major world countries. The main episode of cross-border contagion risk transmission through stock markets channel
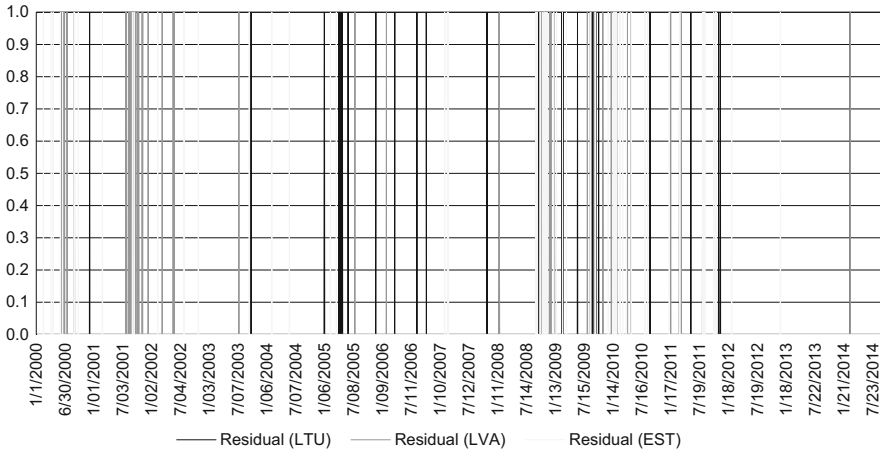
Fig. 3 The outliers of the Baltic stock indexes logarithmic returns using the Favero and Giavazzi (2002) outlier test (VAR model)

in the Baltic countries was in October 2008, a few weeks after the collapse of Lehman Brothers bank in USA. Baek and Jun (2011) provided some empirical evidence on the existence of the incubation periods before contagion takes effect. The case of the Baltic stock markets confirms that incubation periods, before cross-border contagion takes effect, really exist.

The results of this empirical study confirm that contagion is a complex phenomenon. Small and open economies like the Baltic States do not seem to be more susceptible to system-wide shocks, e.g., financial crises than other countries. The empirical results of this study also imply that the usefulness of the emerging stock markets, e.g., the Baltic stock markets as a diversification tool, has diminished in the recent years. The overall findings of this empirical study suggest that there are no substantial differences among Baltic stock markets with respect to investors' reaction to system-wide shocks arriving from abroad.

5   Conclusions

This empirical study attempts to answer the research questions: can the spillover effect transmit from the major stock markets to the Baltic stock markets despite the low international integration, what type of shocks cause the cross-border contagion risk transmission to the Baltic stock markets, and how to identify the episodes of cross-border contagion risk transmission through stock markets channel in the Baltic countries. This empirical study focuses on daily stock market indexes for three Baltic countries and the largest stock markets at global level for a period from 2000 to 2014Q3. In order to answer the research questions, the following statistical methods   were   applied: Dynamic   Conditional   Correlation   Generalized

Autoregressive Conditional Heteroskedasticity (DCC-GARCH) model and Favero and Giavazzi outlier test. The results of this empirical study allow to identify some episodes of the cross-border contagion risk transmission through stock markets channel in the Baltic countries, for example, the announcement of the Lehman Brothers bank collapse on 15 September, 2008, etc. The empirical results also confirm that incubation periods, before cross-border contagion takes effect, really exist. The empirical results of this study suggest that despite the low degree of the Baltic stock markets' global and regional integration, system-wide shocks in the global financial centers affect the Baltic stock markets. The most significant effect of the cross-border contagion risk transmission was identified in Estonian and Lithuanian stock markets, while the reaction of investors in Latvian stock market was more conservative.

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The Issue of Convertible Bonds on the Polish Bond Market Catalyst in the Years 2009–2013

Bożena Kołosowska and Agnieszka Huterska

Abstract The purpose of this study is to determine the significance of convertible bonds as an instrument of raising capital by companies on the Polish capital market. This study contains an analysis of some examples of convertible bonds issued on the Polish Catalyst market that operates on the transaction platforms of the Warsaw Stock Exchange and of BondSpot. The data come from reports published by companies on the Catalyst. As research method applied is a case study. The analyses performed allow the indication of increasing utilization of convertible bonds by economic operators to raise capital. The applied solutions concern varied situations in which companies found themselves. In extreme cases it concerned companies that were unable to pay off their liabilities generated by issued bonds.

Including bonds convertible into shares into financing strategy of a company allows to obtain borrowed capital cheaply in comparison with traditional bonds or a bank loan, in exchange for the possibility of their conversion into shares. The level of the development of Poland's capital market indicates opportunities for further growth in using convertible bonds by companies as an instrument for collecting funds and in the case of investors for investing capital.

Keywords Bonds • Corporate finance • Convertible bonds • Polish corporate bond market

1 Introduction

The market of corporate bonds allows for conversion of capital into financial instruments with an adequately high return. Its development depends on numerous factors. It certainly requires the existence of well-organized operating institutions and, most of all, managing underwriters—banks and brokerage houses. The economic growth rate is related to an appropriate demand of investors for such bonds. However, the most crucial are enterprises playing the role of the issuer, which are

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becoming more and more aware in their searching for more diversified sources of financing. Łukasik (2005) indicates that the main aim of the strategy for capital market development is more widespread application of corporate debt securities, which are competitive for the banking sector, in the process of capital allocation and in the financing of processes of development. The launching of the bond market Catalyst in Poland in 2009 has allowed business entities to increase their engagement into accessing debt capital.

According to the data presented by the Federation of European Securities Exchanges (FESE) at the end of December 2012, the bond market Catalyst took the second place after CEESEG Vienna in terms of the number of issues released to the market. Observing the most important statistics of bond markets in the world, we can notice that the bond market in Poland has great potential for development. Compared with the developed markets of Western Europe, we are at the very beginning of the development process. Both trading in bonds in relation to trading in stocks and the volume of issuances are considerably smaller. When comparing the volume of issues of corporate debt securities and debt securities of financial institutions in relation to the GDP, it is clear that the indicator for Poland is barely 6 %. The ratio in Ireland is 310 %, in the United States 150 %, in Great Britain 140 %, and in Germany it amounts to 100 % (Grant Thornton 2013). The numbers speak for themselves; they indicate the direction the bond market in Poland should follow and how remarkable its abilities to develop are.

The confirmation of the flexibility of a bond issue is also the fact of enterprises issuing yet another series of bonds in situations of financial problems. In this way the issuer repays the obligations due to previous bondholders with current inflows from new issues. The fact of "rolling over" debt often appears in practice. In the case of issues of bonds convertible into shares, so-called hybrid financing occurs in an enterprise, which becomes a very convenient way to finance investment requirements of an enterprise (Damodaran 2007).

Additionally, bonds become a beneficial source of financing for many entities from the sector of small- and middle-sized enterprises (MŚP) due to problems with finding appropriate credit securities. In this way the limiting of the lending activity of banks may have a positive influence on the development of the corporate bond market. On the other hand, it must be noted that those issues are for enterprises with a good financial standing. Dębski (2011) claims that Catalyst holds out the prospect of fast development of bonds in the nearest future.

The aim of the study is to specify the meaning of using convertible bonds as an instrument of raising of capital by enterprises on the Polish capital market. In the article an analysis of examples of convertible bond issues on the Polish bond market Catalyst is undertaken. Data taken from the information presented by companies on the Catalyst platform are used. The case study method is adopted as a research method.

2 Legal Regulations

A bond convertible into shares is a bond which entitles a bondholder to its conversion into shares of the bond issuer (Jajuga 2009; Lewis and Veld 2014). According to Antkiewicz (2002, 2009), bonds convertible into shares are treated by issuers and investors as classic bonds with all their basic features, additionally equipped with an option to convert bonds into the issuer's shares. This option can be differently fit with the construction of the security; thus those bonds are a flexible form of corporate financing. He describes that those bonds "are originally sold as debt securities giving the owner an adequate rate of return, and simultaneously offer him the possibility to convert them, in a specified period of time and at a price that was agreed upon earlier, into bonds of an ownership character—shares" (Antkiewicz 2009, p. 56). As stated by Dutordoir et al. (2014), convertible bonds "are debt instruments that can be converted into common equity at the investor's discretion."

A convertible bond is a bond made up of two instruments: an ordinary bond and the right to convert it, which its owner acquires (Jajuga 1997; Chkraborty and Yilmaz 2011). The definition of a convertible bond as a debt instrument with the option is also presented by Schulman (2014). Convertible bonds are bonds that give an investor a noncash benefit in the form of delivering shares of the company being the bond issuer to a bondholder (Sobolewski 1999). According to Batten et al. (2014), convertible bond is equivalent to a bond with an embedded call option on the firm's stock. These are "(. . .) bonds giving a bondholder the entitlement to subscribe for shares issued by a company in return for receivables arising from bonds" (Poślad et al. 2006, p. 130). They can give an investor an interest-bearing cash benefit and the right to convert them into shares. The right to convert bonds into shares may or may not be exercised by an investor. In the situation when an investor does not implement the right to convert bonds to shares, the issuer has to redeem them. Due to the fact that an investor has to pay for the right to convert bonds into shares, the convertible bond interest should be lower than the interest of a classic bond issued by the same issuer. It results from the fact that the capital raised by the issue of convertible bonds may be cheaper for a company that the capital raised by the issue of classic bonds (Poślad et al. 2006).

On 16 April 2013, the Council of Ministers adopted assumptions for the draft Act on Bonds and for the law on guarantees and endorsements granted by the Treasury and certain legal persons. Modified regulations which may have an influence on the security of investors can be found in the Act on Bonds of 15 January 2015, which should enter into force on 15 July 2015. In the scope of convertible bonds, the new act did not introduce any changes in relation to the act from 1995. In accordance with Article 19 of the Act on Bonds of 15 January 2015, a joint stock company can issue bonds giving the entitlement to subscribe for shares issued by the company in return for the bonds, i.e., convertible bonds. But it is possible only when the statute of a company allows for such an issuance. A resolution on issuing convertible bonds and shares transferred in return in accordance with Article

19 paragraph 1 of the above Act must be submitted to the Registry Court. It is also crucial that, if a company which is conditioned with the registration in the National Court Register (KRS) is the issuer, the resolution reference indicating the maximum increase of capital is also conditioned with the registration in the Register. An issue of convertible bonds involves an increase in the capital stock (equity capital) (GPW Catalyst 2015c) spread over time, which is an increase postponed until a later time and generally successive (KNF 1996). Convertible bonds give the entitlement to two benefits: a cash benefit, interest, and a noncash benefit, the right to conversion into the issuer's shares. The right is the same as a call option of the issuer's shares (GPW Catalyst 2015c).

Due to the criterion of the subject of rights included in bonds, bonds that are only monetary debts, bonds granting bondholders the share in profits (dividend), and convertible bonds can be listed on the market Catalyst (which is particularly useful in the case of simultaneous stock listing in an organized trading system (e.g., GPW or NewConnect) (GPW Catalyst 2015c). Among the listed Polish companies, Optimus S.A. issued convertible bonds for the first time in 1996. The issue value amounted to USD 30 million, the maturity period was 5 years, and the interest rate was 3 % (GPW Catalyst 2015c).

3   The Benefits for the Issuer from an Issuance of Convertible Bonds

A bond convertible to shares is an instrument placed between equity capital and borrowed capital. Convertible bonds are a specific form of bonds that at a specified in the terms of issuance moment or in a specified in the terms of issuance period entitle an investor to their conversion at a specified ratio (conversion ratio) into the issuer's shares. They are issued by joint stock companies and they are an instrument of raising of capital, both equity capital and borrowed capital (Mamcarz 2013).

As a source of capital raising by companies, they have numerous advantages. First of all, bonds, when compared with traditional bonds or bank loans, enable the issuers to raise cheap borrowed capital in return for the possibility to convert them into company shares. The issuer does not have to fear losing control over the company. Those instruments enable the improvement of the composition of the balance sheet and the use of the financial leverage and thereby give tax benefits (the possibility to claim the interest paid to the issuers as financial costs that reduce the income tax base). Convertible bonds also allow postponing a bond issuance until a later date when the run of the market improves or a business valuation reaches a higher level. Another advantage of convertible bonds is the possibility to postpone the effect of EPS indicator dilution resulting from a higher amount of shares outstanding. Simultaneously, debt for equity swap makes it unnecessary to return the capital raised, and the flexible character of the instrument allows to match issuance to the situation a company finds itself in freely. According to Dorion

et al. (2014), convertible bonds can be attractive to young companies due to its relatively low coupon.

An issuance of debt instruments, including convertible debts, on Catalyst entails additional benefits for the issuers such as direct access to capital and investors, a simplified and fast issuance procedure in an alternative trading system, improved credibility of a company through fulfilling the information duties, facilitating the raise of capital in the future or corporate promotion. From a potential investor's point of view, according to KNF "a bond convertible to shares is particularly useful when an enterprise conducts risky projects. When those projects prove successful, the prices of the company's shares will grow in the future. In such a situation, shares with higher value can be obtained for the same bond" (KNF 2009, p. 11). Convertible bonds can prove to be a good investment in fragile economic times. Since they grant the right to convert into the issuer's shares at the price agreed upon earlier, they can yield a profit when the share market recovers. But when share prices decline, the bonds can generate noticeable revenue in the form of interest rate (Frick 2011).

4 Examples of the Issues of Convertible Bonds on the Polish Capital Market

The bond market Catalyst was launched on 30 September 2009. From the organizational perspective, the market operates on four trading platforms: two operated by the regulated market of the Warsaw Stock Exchange (GPW) and two operated by BondSpot, dedicated to wholesale investors. The market can accommodate issues of different sizes and parameters and also needs. During the 4 years of its operating, 205 entities have decided to list their bonds. They have issued the total of 529 series of bonds amounting to over PLN 27.9 billion (Grant Thornton 2013).

Among the analyzed series of corporate bond issues, only 1.89 % of the issues noted on Catalyst let the investors convert the bonds into the issuer's shares. Estimating the companies that decided on such an issue, we notice that out of ten such issues, five have been conducted by property companies (Grant Thornton 2013). Two have provided financial services. The market is dominated by companies whose shares are listed on the GPW Main Market (six companies) and two can be found on the NewConnect. In 2013 one issue of bonds convertible into shares was carried out by the foreign company Warimpex valued at PLN 26.5 million. Convertible bonds provide the owner with an additional benefit of an embedded option to convert them into shares. Therefore, the issuer offers lower interest than in the case of a bond issue under the same conditions but without the embedded option. Table 1 shows examples of companies issuing bonds with the option to convert them into shares.

Table 1 Companies issuing bonds convertible into shares on the market Catalyst in the years 2009–2013

Name of the company	Shares listed on the market	Sector of issuer	Issue value	Date of issue
MCI management	Main market	Financial services	50,000,000	11.09.2009
Marvipol	Main market	Developers	39,400,000	29.06.2010
Gant development	Main market	Developers	26,000,000	29.09.2010
Mera	NewConnect	Building materials	758,500	24.03.2011
Rubicon Partners NFI	Main market	Financial services	32,000,000	26.04.2011
Warimpex	Main market	Developers	66,250,000	29.04.2011
MEW	NewConnect	Energy sector	5,060,000	15.06.2011
Miraculum	Main market	Pharmaceutical	4,775,000	30.12.2013
Marvipol	Main market	Developers	30,791,000	16.09.2011
Warimpex	Main market	Developers	26,500,000	29.10.2013

Source: Grant Thornton (2013)

4.1 Mera S.A.

Mera Schody S.A. with its registered seat in Lewin Brzeski has dealt with manu-facture and sales of stairs and wooden elements of staircases (the construction sector) (GPW Catalyst 2015a) since 1996 and as part of private placement (Puls Biznesu 2010) issued 2-year unsecured convertible bonds of series D with the total nominal value of PLN 3,000,000 (3000 bonds with the individual nominal value of PLN 100) (GPW Catalyst 2015a). The right to subscribe for shares of series D through the conversion of bonds could be exercised within 10 working days before 24 months from the allotment date. The price of the conversion was PLN 5.00, which means that one bond could be converted into 20 bonds of series D (CorporateBonds 2015). The offer was addressed to those who purchased the Company's ordinary debentures in 2009—a conversion from ordinary debentures into convertible bonds was carried out in that way (Puls Biznesu 2010). The debut took place on 24 March 2011 on ASO Catalyst. The bondholders were offered a coupon rate paid quarterly in the amount of WIBOR 3 M + 8 % of the margin per year (GPW Catalyst 2015a). The PKO BP Brokerage House was the authorized adviser of the issue (GPW Catalyst 2015a). Following the conversion of bonds into shares of series D, it was assumed that the Company's share capital would increase by no less than PLN 600,000 (CorporateBonds 2015). The redemption of bearer convertible bonds of series D ended on 23 April 2012. Due to the absence of applications by interested persons, the bonds were not converted into shares (Bankier 2012) and were redeemed by the company on the redemption date.

4.2 MCI Management S.A.

MCI Management S.A. with its registered seat in Wrocław was started in 1999, and it is a private equity group of multistage character in Emerging Europe specializing in digital transformation processes (MCI Management S.A. 2015a), which on 11 September 2009 conducted private issue of bonds convertible into shares addressed mainly to institutional investors (MCI Management S.A. 2015b).

MCI issued 3-year bearer bonds convertible to shares with the total value of PLN 50 million (5000 bonds with individual nominal value and the issue price of PLN 10,000) with maturity set on 10 September 2012 (if the right to convert the bonds into shares is not exercised). The amount of the issue amounted to 5000 items with the total value of PLN 50 million. The conversion price amounted to PLN 6.25, with MCI Management S.A. having the right of early redemption of bonds but not earlier than after 11 September 2011 and on condition that at least once the price of MCI Management S.A. shares listed on the Warsaw Stock Exchange exceeded the conversion price by 50 %. The bonds granted the right to interest paid every 6 months. Raiffeisen Bank Poland (MCI Management S.A. 2015b) was the issuance agent and the bonds were listed on the Catalyst (Onet Biznes 2012). The aim of the issue was not indicated in the issue conditions and the bonds were unsecured (Biznes.Interia.pl 2009). Due to the high demand, which exceeded the supply of the bonds, a reduction of applications was necessary (MCI Management S.A. 2015b). The bondholders demanded the bonds to be converted into MCI ordinary shares in December 2010, and in February 2011, the remaining part of the liability arising from the discussed convertible bonds with the nominal value of PLN 22.5 million was bought back by the issuer and settled in cash on 10 September 2012 according to the issue conditions (Onet Biznes 2012).

4.3 Marvipol S.A.

Marvipol S.A. with its registered seat in Warsaw is a company operating in the development industry and also dealing with sales of cars and operating of car wash stations (Marvipol S.A. 2011). On 29 June 2010 (GPW Catalyst 2015b) via a public offering, the company issued 3-year unsecured bonds of series B convertible into shares of series F with the total value of PLN 39,400,000 (34,400 bonds with the nominal value of PLN 1000). The bondholders were paid interest quarterly at a variable rate: 3-month interest rate WIBOR 3 M determined for each interest period during the closing auction 3 working days before the beginning of a given interest period plus margin of 3.00 %. The conversion of bonds into shares could occur on a bondholder's written request every 6 months, but the conversion price was PLN 12.80 (GPW Catalyst 2015b). In September 2011 the company issued bonds of series D convertible into shares of series G with the nominal value of PLN 30.79 million. The bonds could be converted into shares at the price of PLN 11 in 2012, of

PLN 12 in 2013, and of PLN 13 in 2014. The coupon rate was paid quarterly at a 3-month rate WIBOR plus margin. The funds acquired were to be used to purchase land for new investments and increasing the working capital (Marvipol S.A. 2011).

4.4 Gant Development S.A.

Gant Development S.A. with its registered seat in Warsaw is a company operating in the development industry, and it issued 2.5-year convertible bond series ZA into shares series S with the total value of PLN 26,000,000 (26,000 bonds with the individual nominal value of PLN 1000). The bondholders were entitled to a coupon rate paid on a semiannual basis at a rate WIBOR 6 M + 4 %. The bonds were unsecured (Gant 2010; maza/lk 2001).

4.5 Rubicon Partners NFI S.A.

Rubicon Partners National Investment Fund S.A. on 19 April 2011 adopted a resolution on issue of 32,000 2-year convertible bonds of series B with a nominal value of PLN 1000 each. These were unsecured bonds, with a quarterly paid variable interest WIBOR 3 M + 6 % a year. The conversion price was PLN 1.60. The aim of the issue was to raise funds for financing the issuer's investment activity (Bankier 2011). Rubicon Partners S.A. bought back all convertible bonds of series B for their redemption on 29 April 2013 (Rubicon Partners 2013a, b).

4.6 Warimpex

Warimpex Finanz- und Beteiligungs AG is a real estate investment and development company headquartered in Vienna, and it issued 3-year convertible bonds with the nominal value of PLN 26.5 million through a private placement addressed to selected investors in particular in Poland, excluding the USA, Great Britain, Canada, Australia, and Japan (Onet 2013). The interest rate was 4.875 % per year and the conversion price was PLN 7.06 (Bankier 2013). The funds raised were used to refinance its current liabilities and to finance its investments. Another issue of convertible bonds took place on 29 April 2011. The total nominal value of the issue amounted to PLN 39.5 million (the nominal value of one bond was PLN 250,000). These were 3-year bonds with a coupon rate of 8.5 % per year paid quarterly. The price of the conversion was set at PLN 12.79 (Warimpex 2011). Another issue of the Company's convertible bonds took place on 29 October 2013. The company issued then convertible bonds with a nominal value of PLN 16.5 million with an

annual coupon rate of 3.9 % paid on the semiannual basis and with the conversion price of PLN 7.65 (CBonds 2015; EurobuildCEE 2013).

4.7 MEW S.A.

MEW S.A. is a company operating in the energy sector, and it issued on 15 June 2011 46,000 3-year convertible bonds with the total nominal value of PLN 5,060,000 (the nominal value of one bond was PLN 110). The interest rate of 12 % per year was paid every 6 months. The bonds were unsecured and the aim of the issue was not specified. The conversion price was PLN 5.5. The bonds were seeking introduction to trading in an alternative trading system on the market Catalyst (Pieniadz 2011).

4.8 Miraculum S.A.

Miraculum S.A., a company in the cosmetic industry, on 30 February 2013 adopted a resolution on issue of convertible bonds with the nominal value of PLN 4 million. The initial interest rate amounted to 15 % per year and was reduced to 10 % per year (Biznes.pl 2014). The company offered an interest paid quarterly (every 3 months) in arrears (Wirtualna 2013). The bonds are secured; the conversion price was from PLN 0.09 to PLN 0.2 depending on the conversion date. The redemption date was set on 30 September 2015. The purpose of the issue was an early redemption of bonds of series ZZ. (Miraculum 2015).

5   Conclusions

Bonds convertible to shares are a flexible instrument that enables adjusting of an issuance to the situation a company finds itself in. Considering those instruments in the strategy of financing an entity enables raising of cheap borrowed capital when compared with traditional bonds or a bank loan, in return for their conversion into a company's shares. Convertible bonds influence the cost of a company's equity capital and its market value. The conducted analysis indicates the fact of the increased use of convertible bonds to raise capital by business entities. The applied solutions concerned different situations enterprises found themselves in. In extreme cases they concerned companies that were not able to repay their obligations related to issued bonds. The level of the Polish capital market development indicates the possibility to increase the use of convertible bonds as an instrument of both raising capital by companies and investing capital by investors.

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Government Strategies Based on Sukuk Issues

Piotrowski Dariusz

Abstract Sukuk are innovative instruments of Islamic finance. The primary issuers of certificates are governments and public institutions from countries in Southeast Asia and the Persian Gulf region. In recent years, the group of issuers was joined by Turkey, Great Britain, Luxembourg, the Republic of South Africa, and Hong Kong. The paper aims at indicating the motives for carrying out sukuk issues by governments of selected countries. The work presents actions supporting the development of the Islamic finance sector, detailed conditions of government sukuk issues, as well as the significance of these instruments in public debt management strategies and the development of the financial markets of individual countries. Research was conducted by way of applying critical analysis to the literature of the subject and on the basis of government documents. The research resulted in determining the materiality of nonfinancial factors decisive for carrying out sukuk issues. It was stated that sukuk issues are often treated by governments as part of the development strategies of the Islamic financial market.

Keywords Islamic finance • Sukuk • Government strategies

1 Introduction

The Islamic capital market is treated as a separate element of the global financial system which owes its specific character to the construction of financial instruments and the principles of trading in these instruments based on rules resulting from the shari'a. In the first period of its functioning, i.e., in the 1990s, the investment offer included mainly funds allocating money in raw materials, in the real estate market, and in shares of companies approved in the screening process by shari'a councils. The dynamic development of institutions functioning in the sphere of Islamic finance, in particular banks highlighted the need to construct a safe instrument used in liquidity management and serving to finance investments. Institutions expected the development of an Islamic equivalent of the conventional bond.

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Sukuk are currently the most well-known instruments of the Islamic finance. They combine the traditional techniques of the Islamic finance with the modern approach in the scope of raising and investing capital. The primary issuers of certificates are the governments and public institutions of countries in Southeast Asia and in the Persian Gulf region. In recent years, interest in the issue of sukuk was expressed also by entities from outside the abovementioned areas. One example is the issues of sukuk carried out by the governments of Luxembourg, the United Kingdom, and Senegal or the representatives of the financial sector, such as the American Goldman Sachs and the Japanese Bank of Tokyo-Mitsubishi UFJ (Thomson Reuters 2014a).

2   Research Methodology and Sources of Research Material

The paper aims at indicating the motives for issuing sovereign sukuk—this category includes also the offer of central banks of given countries. The research covered Malaysia, Turkey, the United Kingdom, and the Republic of South Africa. These countries differ with respect to the level of development of the Islamic financial market, including the sukuk market, as well as the share of Muslims in the society. The paper presents actions of governments and public institutions supporting the development of the Islamic finance sector, regulations regarding sukuk, as well as the place and significance of these instruments in public debt management strategies and strategies regarding the financial market. The work has adopted the following research hypothesis: The intention to raise capital was the main factor deciding on the issue of sovereign sukuk. Research was conducted by way of critical analysis of the literature on the subject, as well as on the basis of government documents.

3   The Definition of Sukuk

In general, sukuk are financial instruments whose construction and trading principles correspond to the requirements of shari'a. The definition of the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) is widely used throughout the world. In accordance with the shari'a standard, sukuk are certificates of equal value representing undivided shares in ownership of tangible assets, usufruct, and services or (in the ownership of) the assets of a particular project or special investment activity; however, this is true after receipt of the value of the sukuk, the closing of subscription, and the employment of funds received for the purpose for which the sukuk are issued (Accounting and Auditing Organization for Islamic Financial Institutions 2008). The Islamic Financial Services Board (IFSB) defines sukuk as certificates with each sakk representing a proportional undivided ownership right in tangible assets, or a pool of predominantly tangible assets, or a

business venture. These assets may be in a specific project or investment activity in accordance with shari'a rules and principles (Islamic Financial Services Board 2009).

4   Potential Objectives of Government Strategies Involving Sukuk Issues

In general, actions taken by governments may be of an operational nature—related to the current management of public affairs or a strategic nature—regarding the long-term vision of the development of certain areas of the state or the economy. The shape and functioning of the financial market, as well as objectives and tools for managing public debt are included in government strategies. The paper adopts the assumption that the analyzed issues of sovereign sukuk are an element of programs regarding the development of the Islamic financial market or public debt management strategies. The high level of complexity of the sukuk construction and higher issue costs as compared to bonds allow for an assumption that the motives for issuing certificates are related to the long-term objectives formulated in the strategies.

The basic purpose of sukuk issues is to raise funds from the financial market. In the case of an issue of government securities, these funds may serve to finance substantial investments projects, implement state social programs, or, most often, be used to cover the lending needs of the state. When deciding on sukuk issues addressed to international markets, governments may, as in the case of Eurobonds, shape the currency exposure of the public debt.

In certain circumstances, raising funds from the market may be the primary objective or one of many objectives associated with the issue of securities. In the case of sukuk, which are relatively little-known financial instruments, functioning generally within the Islamic financial market, the assumption of additional objectives of issues seems justified. The potential motives of issuing sovereign sukuk may essentially be classified as either based on economic analysis of the benefits and costs or as a form of supporting market development. The most important purposes which may be formulated in government strategies involving sukuk issues are presented as positioning of a given market as an Islamic finance hub or as an Islamic finance friendly, demonstrating the readiness of the financial system to service sukuk issues, setting a benchmark for corporate issues, diversifying investor base, providing an instrument meeting the expectations of Islamic financial institutions, and reducing the dependency of financial institutions in Islamic countries on the economic and political situation on global markets (Thomson Reuters 2014b).

5 The Market of Sovereign Sukuk Issues

In the 1990s, which was the pioneering period for the sukuk market, entities from Malaysia and Sudan where the only issuers (International Islamic Financial Market 2009; Zawya 2009). In the new millennium, interest began to be shown by issuers from the public and private sector in Bahrain and other countries from the Persian Gulf region, as well as Indonesia, Brunei, Pakistan, and Turkey. Although in the period until the end of 2013 the sukuk market saw issues from entities from countries outside the Organization of Islamic Cooperation (OIC), they were not issues carried out by governments. In 2014, apart from Senegal, in which 96 % of the population is Muslim, the market witnessed several debuting sovereign sukuk issues from countries in which the percentage of Muslims is small: the United Kingdom (4.6 %), Luxembourg (2.3 %), the Republic of South Africa (1.5 %), and Hong Kong (1.3 %) (Thomson Reuters 2014b). The features of these issues are presented below.

The analysis of the data included in Table 1 helps formulate the theorem that the global sukuk market owes its development to the efforts of governments, which included not only the preparation of the regulatory sphere but also practical market formation through own sukuk issues. This stance is supported by market data covering the period from January 1996 to September 2013, which show that sovereign sukuk issues amounted to USD280.5 billion, which constituted a 57.5 % share in the market estimated for USD488.2 billion. Issues of government securities, totaling 1356 in the analyzed period, dominated the global sukuk market with the total number of offers of 3543, also from the quantitative standpoint. Generally, government issues constitute a major part of the sukuk market in such countries as Malaysia, Indonesia, Pakistan, and Turkey. In countries in the Persian Gulf region, data from the past dozen years indicate a lower, almost 50 % share of government issues in terms of value (Thomson Reuters Zawya 2013). This should be associated with the relatively good situation of the public finance of the abovementioned group of countries in the period before the global financial crisis on the one hand and significant activity in this time of companies from the sectors of financial services, power and utilities, transport, and real estate on the other hand.

The outbreak of the crisis led to the breakdown of the sukuk market in 2008. Fearing a repetition of instances of insolvency, investors reduced the demand for sukuk issued by companies. The resulting gap on the supply side was filled by issues of sovereign sukuk, characterized by a high level of investment security (Thomson Reuters Zawya 2013). As a result, in the period from January 2009 to July 2014, there was an almost twofold increase of the share of government issues both in the domestic market (from 30 % to around 70 %) and in issues addressed to international markets (from 15 % to above 30 %) (IIFM 2014).

The increased presence of governments in the sukuk market, observed in the years 2009–2013, may have been motivated by many factors. The drop of budget revenue caused by the deteriorating situation in the raw materials market may be indicated as the first one. The second motive is the search for sources of financing of

Table 1 Features of selected first sovereign sukuk issues

Country	Issue date	Structure	Issue size (USD million)	Currency	Tenor (years)
Bahrain	September 2001	Ijara	100	USD	5
Malaysia	June 2002	Ijara	600	USD	5
Turkey	September 2012	Ijara	1500	USD	5.5
United Kingdom	June 2014	Ijara	334	GBP	5
Senegal	July 2014	Ijara	200.5	XOF	4
Hong Kong	September 2014	Ijara	1000	USD	5
South Africa	September 2014	Ijara	500	USD	5.75
Luxembourg	September 2014	Ijara	252.5	EUR	5

Source: International Islamic Financial Market, 2009. *Sukuk Report. A comprehensive study of the Global Sukuk Market*. [online] IIFM. Available at: http://www.kantakji.com/media/7465/c9.pdf [Accessed 11 December 2013]; International Islamic Financial Market, 2014. *Sukuk Report. A comprehensive study of the Global Sukuk Market*, Manama: IIFM

additional state social expenditure intended to suppress the spread of revolutionary moods in Arabic countries. The increase of issues classified as government issues in the last period may also be explained in part by the support in the scope of liquidity which began to be granted to Islamic banks by central banks of individual countries. However, the most important factor of the development of the sovereign sukuk market may have been the supply for these instruments generated by the QE programs implemented by the American Fed (Thomson Reuters 2014b).

6 The Analysis of Strategic Objectives of Sovereign Sukuk Issues on the Basis of the Experience of Selected Countries

This part of the paper presents selected fragments of government strategies regarding the sukuk market, as well as the practical implementation of their provisions. However, it should be noted here that the documents formulated at the level of individual countries are accompanied by strategies and recommendations in the scope of the development of the Islamic financial market prepared by international institutions such as the Islamic Financial Services Board, the General Council for Islamic Banks and Financial Institutions, Islamic Research and Training Institute, or the Standing Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation (Islamic Research and Training Institute 2006; COMCEC 2013; Islamic Financial Services Board 2013). Publications of

these institutions determined the conditions for the development of the sukuk market which largely coincide with the conditions expressed with respect to the bonds market. The recommendations include, among other things, legal and regulatory adjustments, the development of the institutional infrastructure of the market, attention to market liquidity, investor protection, and, what is particularly important in the case of the Islamic financial market, the standardization of solutions in the scope of financial instruments (Kusuma and Silva 2014).

The paper researches the sovereign sukuk market in Malaysia, Turkey, the United Kingdom, and the Republic of South Africa. Malaysia, which similarly to Turkey is a member of the OIC, has the best-developed Islamic financial market in the world and boasts the leading position with a ca. 67 % share in the global sukuk market (International Islamic Financial Market 2014). Turkey, on the other hand, although it is a country inhabited mainly by a Muslim population, still has a small Islamic finance market measured by the value of assets estimated in 2013 at around USD45 billion. The origins of the Islamic finance market in the United Kingdom, just as in Malaysia and Turkey, were associated with the Islamic banking services. However, for almost a decade, emphasis has been placed on the importance of the sukuk market, for which the London exchange remains one of the largest trading centers worldwide (Maslakovic 2013). Against the background of the abovementioned countries, the Republic of South Africa, debuting in the sovereign sukuk market in 2014, exhibits the least experience in the Islamic finance sector.

6.1   Malaysia

Malaysia is the leading country in the sphere of Islamic finance, with sector assets estimated at the end of 2013 by KFH Research Ltd. at USD391.2 billion (22 % of global assets). The dynamic and sustainable development of the Islamic financial market is a result of systemic measures on the part of the government. The state introduced dedicated legal regulations and promoted the development of institutions and services of the Islamic finance. From the point of view of the sukuk market, a very significant event was the establishment in 1996 of the Shariah Advisory Council at the Securities Commission Malaysia. This institution is the only one in the country which is responsible for issuing shari'a interpretations regarding the use of Islamic capital market instruments. In contrast to Arabic countries, where shari'a councils usually operate at the level of individual financial institutions, this solution ensures uniformity of regulations within a given market segment and common acceptance for financial instruments created on their basis (Shaharuddin 2011).

The systemic nature of measures in the scope of the development of the Islamic finance market, including the sukuk market, is most visibly manifested by the adoption by the Securities Commission and implementation at government level of the Capital Market Masterplan for the years 2001–2010 and 2011–2020 (Abdullah and Zainal 2014). The Capital Market Masterplan set out a dozen

recommendations regarding one of the six main objectives of the plan, which was to establish Malaysia as an international Islamic capital market center. The objective was to be reached through the implementation of strategic initiatives such as to facilitate the development of a wide range of competitive products and services related to the Islamic capital market; to create a viable market for effective mobilization of Islamic funds; to ensure that there is an appropriate and comprehensive accounting, tax, and regulatory framework; and to enhance the value recognition of the Malaysian Islamic capital market internationally (Securities Commission Malaysia 2001). From among the dozen recommendations relating to the Islamic capital market, one concerned the necessity to consider the issue of Islamic debt securities in the global market by the government and government-related entities. The purposes of these transactions were to provide liquidity and to facilitate asset management within the Islamic banking system (Securities Commission Malaysia 2001). The main objective, i.e., positioning Malaysia as a global hub for Islamic capital market products and services, was also included in the government's 5-year plan for the years 2006–2010 (The Economic Planning Unit 2006). Greater internationalization of the capital market was indicated as a critical aspect of the strategy to strengthen Malaysia's positioning of the global ICM hub in Capital Market Masterplan 2 (Securities Commission Malaysia 2011).

The development level of the Malaysian sukuk market allowed for an assumption that the use of sukuk in the area of the country's public debt management is as important as in the case of Bahrain, where 25 % of state lending needs are fulfilled by the issues of certificates (International Islamic Financial Market 2014). The analysis of government documents indicates that the Malaysian government covers its lending needs through the issue of such instruments as Malaysian Government Securities (MGS), Government Investment Issue (GII), Malaysian Islamic Treasury Bills (MITB), and Malaysian Treasury Bills (MTB) (Bank Negara Malaysia 2012). The data of the Central Bank of Malaysia for the years 2012–2014 confirm the high importance of sukuk issues in state debt management. In the analyzed period, the capital market annually provided around RM 97–99 billion, of which an average of 53 % through the issues of MGS and 47 % through the issues of Islamic instruments, mainly GII, and to a small extent the Government Housing Sukuk. Additionally, the abovementioned Islamic financial instruments are purchased almost solely by domestic investors (Bank Negara Malaysia 2015).

6.2 The United Kingdom

The United Kingdom enjoys a significant position in the global sukuk market. Apart from Kuala Lumpur, Dubai, and Dublin, London is the main sukuk trading center of an international character. For years, London has been predisposed to perform the function of the Western center of Islamic finance. The conducive factor was the developed trade contacts with Muslim countries. An increase in the significance of Islamic finance on a worldwide scale, the advent of new center aspiring to become

Islamic finance hubs, and plans for issues of sovereign sukuk have led to increased interest of state authorities in this segment of the market. First actions intended to identify obstacles to the development of the Islamic finance market in the United Kingdom were taken as early as in 2001 by the Bank of England, when it established the Islamic Finance Working Group, whereas the following bodies were created with government support: Islamic Finance Experts Group in 2007, the UK Islamic Finance Secretariat in 2011, and the Islamic Finance Task Force in 2013. These initiatives aimed at ensuring a leading position of London in the Islamic finance market through supporting development and promotion (United Kingdom Trade & Investment 2014). One of the objectives was also to grant all citizens, regardless of their religious beliefs, access to the competitive offer of financial products (United Kingdom Debt Management Office 2007). This was best expressed by the Economic Secretary to the Treasury: "We are determined to do everything we can to deliver greater opportunities for British Muslims—and also to entrench London as a leading centre for Islamic finance in the world" (United Kingdom Debt Management Office 2008). The efforts to create a center for Islamic finance required in the first place that legal obstacles be removed. In the case of sukuk, defined in the language of law as alternative finance investment bonds, changes were introduced to enhance their cost competitiveness with respect to conventional debt instruments. This was achieved primarily by the reduction of the Capital Gains Tax, the avoidance of double application of the Stamp Duty Land Tax, as well as the treatment of issues, trading, and payments resulting from sukuk in a manner similar to the case of bonds (Mauro et al. 2013).

The analysis of government documents indicates that the main objective of the government is to strengthen the position of London and the United Kingdom in general as a hub for Islamic financial activities and the global gateway for Islamic trade and investment. Strategic objectives related to the sukuk market may be seen in the document prepared by the London Stock Exchange addressed to the Financial Services Strategy, HM Treasury. The consultation on the legislative framework for the regulation of alternative finance investment bonds (sukuk) mentions the fact that the government objective which will be fulfilled by the sukuk issue is the strengthening of international competitiveness of London and establishing the city as the leading center in the scope of sukuk issues with an aim to attract corporate sukuk listings to the London market (London Stock Exchange 2009). The issue of sovereign sukuk, ultimately carried out in 2014, is accompanied by the following objectives, apart from those mentioned above: to provide a benchmark Sharia'a-compliant risk-free rate, to stimulate the market for Sharia'a-compliant securities in London, and to provide a catalyst for the development of new Islamic retail financial products (United Kingdom Debt Management Office 2008).

The analysis of government documents indicates that sukuk issues are not ascribed a significant role in the United Kingdom's public debt management strategy (United Kingdom Debt Management Office 2014). This is expressed in the small issue amount; lack of declarations regarding the repetitiveness of the operation, as well as in the position of the UK Government that sovereign sukuk would not offer value for money at the present time (McKenzie 2012).

6.3   Turkey

Republican ideas advocating the secular character of the state have somehow limited the development of the Islamic finance sector in Turkey. However, in recent years, Turkey is making up for lost distance and is gradually achieving the position which should be taken in the Islamic finance market by a country with over 70 million Muslim citizens. In accordance with government plans, participation banks, which are the equivalence of Islamic banks, should triple their share in the assets of the banking sector, which is currently below 6 %, by 2023 (Ernst & Young 2014). The second pillar of the Istanbul International Financial Centre 2023 is based on the development of the market of sukuk described as lease certificates. As the data contained in Table 1 show, the Turkish government made its debut in the sukuk market as recently as in 2012. The years 2010 and 2011 saw two sukuk issues carried out by the participation bank Kuveyt Türk. In accordance with the data as of July 2014, the total value of Turkish issues helped to take over Brunei and Pakistan which are longer present in the sukuk market and to go level with Sudan and Bahrain. However, it is still only halfway with respect to Indonesia. To date, apart from the government, also Islamic banks have decided for sukuk issues. Their aim was to raise funds and improve capital adequacy ratios. The increase in the value of the sukuk market should be viewed as positive, but the objectives of the market development strategy will be achieved only if companies from other sectors of the economy decide to enter the sukuk market. This scenario is viable due to the potential of the Turkish economy and financial market and their attractiveness for investors from Muslim countries (Kotilaine 2013).

The most important changes from the point of view of the development of the sukuk market had to be made in the sphere of legal regulations. Apart from determining the form of the instruments, they were intended to decrease costs of organizing issues and trading in sukuk. The Capital Markets Board of Turkey was appointed, and its main achievement is the determination of the standard for lease certificates in April 2010, which made it possible to apply the ijara structure in the case of the onshore market and the murabaha structure for the international market. Subsequently, in February 2011, it introduced numerous exemptions from fees and taxes for the issuers of and investors in sukuk, and in June 2013, it extended the options of raising capital through the issue of murabaha, walaka, musharaka, mudaraba, and istisna' sukuk (Raza 2013).

6.4   The Republic of South Africa

The market of Islamic finance services in South Africa is the smallest in the group of the analyzed countries. South African authorities began the process of adapting legal regulations to the requirements of the sector in 2010. The dynamic development of the global sukuk market led to the National Treasury considering an issue

of certificates as early as in 2011 (National Treasury 2011). The main objective of that operation was to broaden South Africa's investor base, to diversify away from conventional Eurobond buyers (National Treasury 2015). Moreover, the analysis of government documents indicates that the sukuk issue programs are intended to reduce refinancing risks and to set a benchmark for state-owned companies seeking diversified sources of funding for infrastructure development (National Treasury 2014).

7 Conclusion

The research carried out in the paper indicates that governments are active participants of the sukuk market. It may be assumed that the issue carried out by South African authorities created the sukuk market in that country, and in the other reviewed countries, government issues strengthened the growth dynamics of the functioning sukuk markets created, thanks to the efforts of entrepreneurs. The analysis of government documents has showed that only in the case of South Africa were sukuk issues accompanied by a clearly defined objective which was to raise financial resources. In the case of Malaysia, the size of the market leads to the conclusion that the matter of raising funds by the state and enterprises by way of sukuk issues is important although the provisions of government strategies do not directly indicate it. In the case of the United Kingdom and Turkey, the issues of sovereign sukuk are a part of a program of constructing centers for Islamic finance. Therefore, it should be stated that the hypothesis adopted in the paper has been verified negatively, as it was shown that raising funds from the market was not always the most important motive accompanying sovereign sukuk issues.

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Business Valuation: Premiums and Discounts in International Professional Practice

Olga Ferraro

Abstract The valuation of a (nontotalitarian) shareholding in the capital stock is characterized by some critical conditions, which are mainly related to the fact that the transfer or acquisition of the same may determine the transfer of control from one subject to another. It follows that the value of the shareholding may not simply be equal to the pro rata value of the business capital, but rather its valuation has to take into consideration the features, peculiarities, and effects, which are inherent to the typology of the shareholding to be transferred. Discounts and premiums do not just affect the value of a company; they play a crucial role in influencing a host of other factors and conditions that can make or break a deal. When it comes to business valuations, it is the business appraiser's responsibility to be intimately knowledgeable with every aspect of discounts and premiums: the different types, the situations when they may or may not apply, and how to quantify them. The paper aims to examine if the Italian professional practice adopts premiums and discounts, when to value the company, and how to quantify them.

Keywords Business valuation • Discounts • Premiums • Nontotalitarian shareholding

1 Introduction

The valuation of a (nontotalitarian) shareholding in the capital stock is characterized by some critical conditions, which are mainly related to the fact that the transfer or acquisition of the same may determine the transfer of control from one subject to another. It follows that the value of the shareholding may not simply be equal to the pro rata value of the business capital, but rather its valuation has to take into consideration the features, peculiarities, and effects, which are inherent to the typology of the shareholding to be transferred.

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Particularly, the transfer of a shareholding produces some effects, which may affect the investee company or the purchaser (or the transferor). In the first case, it is possible to talk about entity level effects, in order to indicate those economic benefits or advantages which may affect the profit-making capacity of the investee company, such as, for example, the variations, which have been observed in the business flows and risk profile, the loss of key people, and the cessation of some relationships with clients or suppliers. In the second case, it is possible to talk about effects at the shareholder level, and reference is made to those effects which arise exclusively vis-à-vis the subject, who is directly involved in the transfer of the shareholding. The previously mentioned effects are, for example, the private benefits issuing from the faculty of exercising the control of the organizational unit.

The effects of the transfer of the shareholding affect the valuation process of the same. They in fact cause some adjustments on the parameters used for the valuation of the business total economic value (and, therefore, subsequently, these effects fall back on the pro rata value of the shareholding) or some adjustments in the final stage of the process through the introduction of premiums and discounts.

There are several levels of control/non-control positions in a privately held enterprise. In Table 1, we show the examples.

This study just aims at describing a general framework, which may clearly identify the valuation process that the business expert shall follow for the valuation of the shareholdings to the business capital. Moreover, it will identify the typologies of premiums and discounts to be applied, in case the business control is transferred (or it is lost).

This study is structured as follows. Section 2 summarizes the definition of premiums and discounts and the role that the same play in the valuation of the economic value of a shareholding. Section 3 identifies the valuation process to be followed for the valuation of the shareholdings. Section 4 depicts the main typologies of premiums and discounts, which are acknowledged by the international professional practice. Finally, the study will identify some different adjustments to the economic capital of the investee company, which may be recognized in the various particular cases.

Table 1 Range of control

Controlling
100 % equity ownership position
Control interest with liquidating control
51 % operating control
Two equity holders, each with 50 % interest
Minority with largest block of equity interest
Minority with "swing vote" attributes
Minority with "cumulative voting" rights
Pure minority interest—no control features
Lack of control

2   Premiums and Discounts: Definition Aspects

In the practice of all countries, control premiums (majority premiums) are acknowledged to the value of equity stakes, which guarantee the companies' control, that is the exercise of a series of faculties and powers (with the consequent benefits) in order to make, inside the shareholders' meetings, all the fundamental decisions, or most of them (Guatri 1998), for the business management.

As far as the definition is merely concerned, the control premium is, therefore, the amount or percentage to be added to the value basis of the business capital, considered as pro rata. This aims at introducing, in the value of the equity stake, the benefits and advantages for the subject who holds the control of a given company, though he/she does not own the whole share capital.

The minority discount is intended as the minor value, which is acknowledged to a shareholding, when the same shareholding does not attribute the benefits deriving from the control of the investee company. It may also be influenced by the minor marketability of a minority block of shares, if compared to a majority shareholding, thus becoming comparable to a discount for lack of liquidity. Nevertheless, often, the two aspects of the minority discount may be distinguishable with difficulty, in that, the minor marketability is, in the case at issue, strictly correlated with the lack of the control power on the investee company. What is aforesaid makes the investment, for a potential purchaser, less attractive, and consequently, for the shareholder the coming out from the investment becomes more difficult.

In the professional practice, it often occurs that the minority discount is considered the opposite of the control premium, even if this does not mean an equivalence on the quantitative plan, and therefore, a relation as the below does not exist (Guatri 1998):

$$W_{\mathrm{MP}} = X\%W_{\mathrm{MP}} + \mathrm{P.M.} + Y\%W_{\mathrm{MP}} - \mathrm{S.M.} \qquad (1)$$

where:

W_{MP}: It represents the value of the economic capital of the whole business.
$X\%$: It represents the percentage corresponding to the majority shareholding.
$Y\%$: It represents the percentage corresponding to the minority shareholding.
$X\%W$ and $Y\%W$: They express the intrinsic value, which is assumed proportionate to the exchanged shareholding.
P.M. and S.M.: They express the majority premium and the minority discount, respectively.

Moreover, according to some scholars, the minority discount, when it is not confused with the lack of marketability (which leads to the so-called discount of liquidity), does not exist at all or it exists in extreme hypotheses.

That being stated, the definition of premiums and discounts is not as clear as it appears, and the topic has to be dealt with very carefully. It is necessary to take into consideration the possible typologies, which may be identified with regard to the different categories of shareholdings (which are the object of valuation) and to the

situations (first the ownership structure, the model of corporate governance) (Syriopoulos and Tsatsaronis 2012; Nordin and Hamid 2013), to which premiums and discounts should apply.

3 The Different Approaches Provided for the Valuation of the Shareholdings to the Business Capital

In the time, the economic-business literature has identified different approaches for the valuation of the shareholdings to the business capital, each approach of which determines a different structure of the valuation process.

The first approach is based on the valuation of the shareholdings using valuation parameters capable of representing the determinants of the value of a given equity stake, consistently with the followed valuation logic (Bernini 2011). In the second approach, the valuation of the shareholding is made by adding, algebraically, to the pro rata value of the investee company, some adequate premiums or discounts, as the expression of the effects induced by the transfer of the shareholding. The third approach may be considered a middle way between the two preceding approaches, since it takes jointly into account the effects induced by the transfer of the shareholding, by acting both on the valuation parameters of the methods and by considering the premiums or discounts. In order to avoid duplications in the valuation, in this case the business expert has to act coherently so that the "adjustments" in the valuation parameters exclusively reflect the economic-financial effects produced by the transfer of a given shareholding on the business trends, whereas the introduction of premiums (or discounts) reflects the control transfer or the lack of liquidity.

With regard to the choice of the approach to be followed for the estimate of the value of a nontotalitarian shareholding, in the doctrine and professional practice different orientations may be found. The followers of the second approach affirm that the application of adjustments in the flows and in the discount rates may turn out to be less provable, if compared to the application of premiums and discounts of such an entity that they may represent all the effects produced by the transfer of a given shareholding (Zanetti 2004).

On the contrary, the followers of the adjustments on the flows and rates (present in the first and second approach), in support of their thesis, highlight the difficulties inherent to the valuation of premiums and discounts, since the same valuation derives from data which exclusively arises from empirical evidence (Oricchio 2013; Coronella 2010; Barclay and Holderness 1989; Zingales 1995; Dick and Zingales 2001; Massari et al. 2004; Hanouna et al. 2001; Nicodano and Sembenelli 2000; Caprio et al. 1994; Doidge 2004; Bigelli and Sapienza 2003).

Though aware of the difficulties related to the valuation of premiums and discounts, according to the person who writes the approach exclusively based on the introduction of premiums or discounts at the pro rata value of the whole
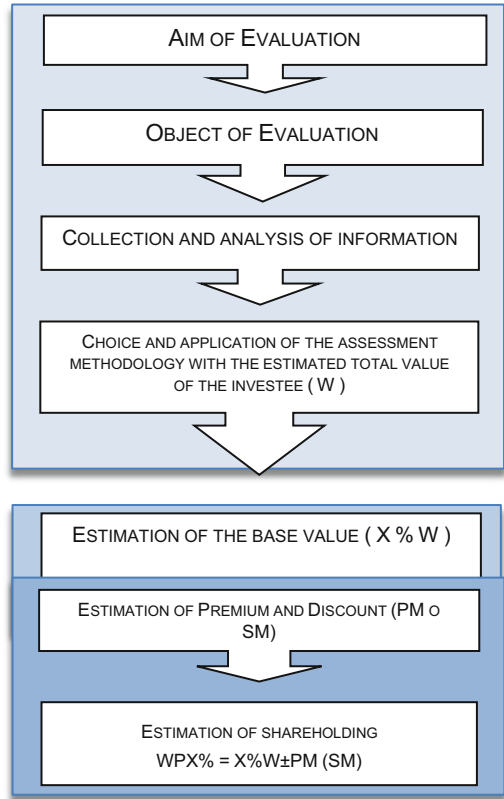
business represents the valuation logic, to be promptly applied by the professional.
Figure 1 represents the model used.

In fact, by following this kind of approach for the estimate of the value basis of
the investee company, it is possible to rely on valued and settled evaluation criteria
proposed by the doctrine and used in the professional practice, without letting the
same be influenced by subjectivity elements, thus leading to an intrinsic value
(or an essential or fundamental one) (Musaio 1995). In order to take into consi-
deration the different risk profile (compared to that one of the business as a whole),
as well as the benefits (or disadvantages) deriving from the investment in nontotal-
itarian shareholdings, it is sufficient to "adjust" the intrinsic value through the
introduction of the so-called "pure" premiums and discounts, that is to say, pre-
miums and discounts capable of expressing additive and subtractive elements,
which are not already contained in the value basis, which they apply to (Guatri
and Bini 2005).

Nevertheless, because of the lack of satisfying theoretical models for the valu-
ation of premiums and discounts, owing to the numerosity of the variables which
influence their calculation (and that it is difficult to represent in an ordinary
calculation function), it often happens that their valuation depends on empirical

evidence based on (raw) price differences, that is to say comprehensive of the so-called subjective conditions of marketability.

It follows that the adoption of the valuation process, which is abovementioned, appears the most correct and the best to be promptly applied, on condition that the valuation of premiums and discounts is not exclusively based on the percentages arising from the empirical evidence. In fact, it is necessary to make also some analyses in order to go back to those economic determinants which, among others, take into consideration the different control levels on the business management by the risk-capital holders and which may lead toward valuations of "pure" premiums (or discounts).

4   The Typologies of Premiums and Discounts: The Different Classifications

The existence of different categories of shareholdings implies the acknowledgement of different categories of premiums and discounts which, in the time, have variously been classified. In particular, it is possible to find different approaches, which the same typologies of premiums and discounts actually match. Here below there is the illustration of the main classes of discounts and premiums. They are among those which are more commonly accepted in the international professional practice and reported in the "Business Valuation Standards VII—Valuations of Discounts and Premiums" of the American Society of Appraisers.

The purpose of this Standard is to define and describe the requirements for the use of discounts and premiums whenever they are applied in the valuation of businesses, business ownership interests, securities, and intangible assets.

In particular, the *Business Valuation Standards VII* identifies seven classes of discounts and one class of premium, that is to say:

- The discount for lack of control or minority discount: it reflects the lack of some or all powers which are conferred by the control and concerns the minority shareholdings.
- The discount for lack of liquidity: it reflects the difficulty in carrying out the investment in the business securities and concerns the minority shareholdings.
- The discount for lack of marketability or marketability discount: it reflects the difficulty in freely marketing the shareholding [e.g., because of a lock-in clause requested on the occasion of an IPO (the initial public offering) for the listing of the securities] and concerns the controlling block of shares.
- The discount for lack of voting rights: it reflects the minor value that a security may have, for the enjoyment of the rights of limited vote or the lack of voting rights and concerns the equity securities with the lack of voting right or with limited vote.
- The blockage discount: it reflects the protracted times necessary to sell off the shares on the organized market, without interfering with the listing of the

security, and it concerns some minority blocks of securities which, nevertheless, do not qualify as a stable shareholder.
- The key person discount: it reflects the risk connected to the coming out of key people from the business, following the transfer of the shareholding, and it concerns the controlling block of shares.
- The portfolio discount: it reflects the fact that business controls activities which are not synergic and which are also differentiated, and it concerns the minority shares.
- The control premium: it reflects the control power and it concerns the majority block of shares.

5 The Empirical Studies for Estimating Premiums and Discounts

In this section we report the main models and empirical studies proposed for estimating premiums and discounts. In particular, the Table 2 shows the main results emerged from empirical researches conducted in different countries for the estimated premium discounts.

Table 2 Summarizing plan of premiums and discounts

Research	Years	Premium value (mean) (%)
Dick and Zingales (2001)	1990–2000	37
Massari et al. (2004)	1993–2003	12.2
Hanouna et al. (2001)	1986–2000	6.95
Nicodano and Sembenelli (2000)	1987–1992	27
Linciano (2002)	1989–2000	62.28
Zingales (1995)	1987–1990	82
Nenova (2003)	1997	29.36
Bigelli and Sapienza (2003)	2000–2002	52.58
Research	Years	Discount value (mean) (%)
Mercer (1997)	1988–1995	29
Moroney (1973)	1969–1973	36
Maher (1976)	1969–1973	35
Silber (1991)	1981–1988	34
Gelman (1972)	1968–1970	33
Trout (1977)	1986–1972	33
SEC Institutional Investor Study (1971)	1966–1969	26
FMV opinions Inc. (2007)	1980–1997	22
Johnson et al. (1999)	1991–1995	20
Finnerty (2002)	1991–1997	20
Hertzel and Smith (1993)	1980–1987	14
Bajaj et al. (2001)	1990–1995	7

6 Conclusions

If for the absolute majority blocks of shares the acknowledgement of a majority premium represents a practice, which is already well established in many countries, in the hypothesis of the relative majority, and of the minority blocks of shares (which participate to the control for the time being), its attribution very often appears questionable.

In fact, in case of relative majority blocks of shares, it should not to be forgotten that the same premium does not allow a stable and certain control, just a relative one (e.g., this is the case of a share ownership ranging between 30 and 50 %). In such situation the acknowledgement of a majority premium often appears questionable and, generally, it does not apply. Nevertheless, whereas the control exercised through a non-majority ownership has some characteristics of stability and appears doomed to be long lasting, it is possible to attribute, even if to a limited extent, a majority premium.

Also in the valuation of minority blocks of shares (which do not participate to the control), the attitude of the professional practice appears expected, that is, it concerns the application of a considerable reduction in the value of the block of shares.

With regard to the different typologies identified by the doctrine and by the valuation bodies, the Italian professional practice makes mainly reference, according to the typology of the exchanged shareholding, to the majority premium or to the minority discount and to the marketability discount.

In Table 3 there is the illustration of the different adjustments to the economic capital of the investee company, which may be recognized in the various particular cases, thus differentiating the cases of the controlling shareholdings from those of

Table 3 Summarizing plan of premiums and discounts

Type of shareholding	Control premium	Discount for lack of control	Discount for lack of marketability
Listed controlling shareholdings	Yes (if the shareholding is nontotalitarian)	No	No
Non-listed controlling shareholdings	Yes (if the shareholding is nontotalitarian)	No	Possible
Listed minority shareholdings	No	Probably no, if the reference basis for the valuation is the market price. Yes, if the reference basis for the valuation is the economic capital of the investee company	No
Non-listed minority shareholdings	No	Yes	Yes

Source: Bertoni and De Rosa (2014)

uncontrolling ones and dealing distinctly with the cases of the shareholdings, which are listed in a regulated market.

As it has been possible to highlight in this paper, the application of the adjustments requires a careful consideration of the specific characteristics of the shareholding to be valued.

Finally, particular care is needed in the contemporaneous application of the discounts for lack of control and for lack of marketability to the minority shareholdings, in order to avoid the risk of calculating twice the same reduction factors of the economic value.

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The Role and Implications of Internal Audit in Corporate Governance

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Abstract This article aims to address audit role in corporate governance in the light of scientific literature. The foundation of this study is achieved by synthesizing current state of knowledge through quantitative and qualitative research. So we extracted the main lines of topics: conceptual levels on internal audit, corporate governance developments at national and international levels, internal audit in corporate governance of public and private entities from Romania and other corporate governance issues. As a research method, we used survey and data were processed using a statistical program. The novelty that we caught in the present paper is the analysis of the role of internal audit in the governance in public and private entities through two pillars: promoting ethics and values within the organization and ensuring effective organizational performance management/ governance.

Keywords Internal audit • Corporate governance • Audit role • Ethics and value • Performance management

1   Introduction

As we cannot build a strength building without a strong foundation, so we cannot achieve good governance unless we respect a number of requirements and essential features. Through our article, we want to emphasize the importance of internal audit in improving corporate governance.

   In carrying out this paper, we have focused on the various issues of the corporate governance and the internal auditing of organizations, starting on the assumption that creating the syntheses containing the results of these comparative studies is essential, thus enabling them to become real lessons for the practical applicability of the various corporate governance theories, with the possibility of outlining the best practice guidelines for corporate governance in general and for auditing in particular. Therefore, we set out to grasp the attitude towards the value of internal

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auditing in the public and private organizations comprised in the sample by means of the questionnaire. We chose to analyse both sectors in order to draft a comparison that would pertinently emphasize the methodology and implications of the internal auditing in the corporate governance within the public and private entities in the North-Eastern part of Romania.

2 The Conceptual Spectrum of Internal Auditing

During the last years, we have witnessed an acceleration of events in regard to the global economy. Therefore, we have experienced an unmatched rise due to certain factors such as the independence, expertise, professionalism, impartiality and quality services being rendered. The retechnologization, the realignment and the excessive sector specialization offered the dream of endless prosperity to the corporations and led to ignoring the risks, the defective control and the trust granted to the employees without any verification. The same direction was taken by the internal auditors, adopting a libertine and gentle position towards the organizations. What followed, and here we make reference to the financial collapse, the accounting frauds, was a catastrophe, given that the entities no longer presented any credibility, they were in inability to pay and the price of the shares had dropped. The trust of the stakeholders as well as of the other users of financial accounting information was regained by the internal auditing secured on each level of the enterprise's functions. Through auditing, the verticality of the profession was regained, as well as the credibility of reporting.

The definition of internal auditing (IIA 1999) is now familiar and well accepted: "Internal auditing is an independent, objective, assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes".

Internal audit is a permanent and active instrument of corporate governance because we recounted it in the financial accounting, operational, commercial and IT functions.

Internal auditing is a profession that has always redefined itself throughout time, given the wish to meet the ever-changing necessities of the enterprises. In time, a shifting in the objectives of the auditing occurred from focusing on the financial accounting problems of the enterprises to identifying the risks and evaluating the internal control to currently holding a position of evaluation and counselling.

Through the activities unfolded, the internal auditing adds value both by evaluating the internal control system and by analysing the risks associated with the auditable activities, as well as through the recommendations to be found in the auditing report drafted and transmitted in order to ensure that the organization meets its objectives.

3 Corporate Governance: Ideological Landmarks

The issue of corporate governance expanded greatly, as mentioned before, during the last decades on the international level and during the last 10 years on the national level. As a natural consequence to the rise in the concept's importance, a series of theories and models of corporate governance developed, which define and underline the significant elements.

In the literature we find various models of corporate governance. However, only a few are approached with frequency: the model based on the analysis and solving of the divergences that might occur between the owners and the managers (agency theory), the model founded on the idea that the success of a company can be quantified by its capacity of creating capital acquired for all of the interested parties (stakeholders theory), the model focusing on the management philosophies of the administrators (stewardship theory), the political model, the model based on theory of the hegemonic management, etc.

In conformity with the agency theory, the principles of corporate governance protect the interests of the investors that are interested in recovering the investment made, as well as the benefits afferent to it, and solve the conflicts that might occur between the owners and the managers (Tricker 2012). The stakeholders' model associates the corporate governance with a system that ensures the optimum usage of resources in favour of the interested parties. Mulili and Wong (2011) consider that a participation of the groups of interests in the decision-making process may generate an increase in the organizational efficiency and reduce the conflicts of interest. The political model, in conformity with Turnbull (1997), takes into consideration the fact that allocating the corporate power, the privileges and the profits between the owners, managers and other interested parties is highly influenced by the political factor. The stewardship theory (the administration theory) established the fact that the managers are skilled administrators that render quality services in the interest of the companies' owners because they consider this approach the most favourable one to their interest on the long term; therefore, they will not pursue their own benefits (David et al. 1997). An interesting research in this area was made by Syriopoulos and Tsatsaronis (2012) which claim that agency and stewardship theories put forward conflicting arguments in favour or against CEO duality/separation.

Regardless of the moment of occurrence or the context in which they were applied, each of the theories described has a well-established place in the literature dedicated to the methodology of governing the corporations, constituting the fundament for subsequent approaches in the development of the concept of corporate governance at the scale of global economy. Tricker (2012) firmly advocates the idea that all of the entities need to be managed and governed, even if they are public or private, governmental entities, charitable organizations, academic institutions or non-profit associations, mentioning that if during the twentieth century the management was at the centre of attention, in the twenty-first century, the focus will be on a relatively new concept, that of corporate governance.

The difference between corporate governance and management is the following: the executive management is responsible for managing the company and the governance ensures that the business unfolds in the best direction, in conformity with the objectives established by the owners at the shareholders' general meeting, agreed upon and subsequently assimilated by the other internal stakeholders of the organization (Pirtea et al. 2014).

4   Can We Talk About Corporate Governance at Public Organizations?

The concept of corporate governance has been assimilated by the auditors and provided also by the international internal audit standards. Public internal auditing plays an important role in corporate governance through its monitoring function (Ghita et al. 2010). According to national legislation represents a functionally independent and objective activity that gives assurance and advice to management on the good administration of public revenue and expenditure, perfecting the public entity activities. Also, internal audit helps the public entity to fulfil their objectives through a systematic and methodical approach which evaluates and improves the efficiency and effectiveness of the management based on risk management, control and management processes.

The updated Public Internal Audit Act 672 (2002) specifies that internal audit departments exercise the following types of actions: audit system, performance and regularity. Through their work, auditors can bring balance between current activity and the expectation of public entities on the basis of risk quantification. Outside the executive function, the public internal audit can have a supportive role in corporate governance. Public internal audit could contribute by supportive role in legislative adjustment or in initiation of a legal system more efficient and effective governance that bring added value to public entities.

Through auditing missions, supportive legislator's activity occurs most "gentle" in the system of corporate governance. Identifying risk in the existing legal system, nuisance and problems leading to inconsistencies and difficult operation of the entities will be made directly to the scheme.

The role of internal auditor will be an intermediary between persons who perform gainful activity in various departments, divisions, departments and public entities and the promoters of the missions' legislative project with supportive role. For corporate governance, to provide a coherent legal system that is pragmatic, transparent and effective requires a special effort from both the auditors and the authorizing officers. The role of the auditor can be expressed through *plastic magnifying glass effect* element which aims to highlight the problems of a system and to provide the superior hierarchical structures with decisional capacity.

In conclusion, the role of internal audit through supportive role for legislative issues, although it only has an advisory function, is a key element in the development of laws with significant repercussions on corporate governance.

5 The Involvement of the Position of Internal Auditor in the Governing Process of the Public and Private Entities in the North-Eastern Part of Romania

5.1 Research Method

The governing process of the entity is unfolded effectively by the persons or managerial divisions whose owners delegate authority in this sense, such as the administration council, the management, the auditing committee, the internal and external auditors and the regulating factors within the different areas that have as main competence the monitoring of risks and performing the verifications adopted by the management, in view of reaching the objectives of the entity and maintaining its value (Chambers and Odar 2015).

The purpose of the research is to provide pertinent scientific conclusions in view of improving the relationship between the producer and the beneficiary of the internal auditing recommendations and to emphasize its role within the corporate governance.

In order to gather data, we have used the most known method: the investigation. This consists of a questionnaire and a sample representative for the population being considered and that has been chosen for the present research. In unfolding the research, we have chosen to analyse the private companies and the public institutions in the North-Eastern area of Romania. The sampling unit in the present case is represented by the staff of the private companies that hold executive positions, the public servants and the contract personnel. The investigation unfolded by using electronic questionnaires sent by email to the entities being analysed, as well as by travelling to the headquarters of certain public institutions that had responded positively to our solicitations, but chose to communicate personally.

The questionnaire developed is characterized by a high level of structuring, which contains questions that are mostly closed and some open questions. The main open questions refer to the respondent identifiers (county, type of entity, respondent's position in the organization) but also aspects related to the role and duties of the persons that govern the entity or the impact of internal audit in corporate governance.

In achieving the paper and in the idea of obtaining relevant information, we have chosen as a sample private companies and public institutions in the North-East Romania with the districts of Iasi, Suceava, Bacau, Botosani, Neamt and Vaslui.

The database included mainly large- and medium-sized organizations, where suitable a priori recommendations on the field of corporate governance but also a

number of small institutions, such as communal city halls. So, private entities over which the questionnaire was applied are listed on the Bucharest Stock (Exchange) since those companies are subject to the Code of Corporate Governance and perform internal audit activities. We chose to analyse the public institutions also, more exactly the local public administration authorities, as they are under the law that stipulate the obligation to perform internal audit activity. Sampling units in this case were person with power of decision within the various structures of governance of the entities, mostly managers, shareholders in such companies, authorizing officers in public institutions, members of the boards of directors, business executives and financial accountants.

Data collection was conducted from September to November 2014, and this requires a continuing effort to get as many answers, ensuring constantly the respondents about the confidentiality of the data highlighted in the questionnaire.

Throughout the investigation, we have also had difficulty in obtaining the information in the sense that the number of persons who responded were less than expected compared to the initial sample. Having the possibility of directly contacting the responsible persons may lead to a decrease in the level of risk and to an increase in the level of trust. However, the lack of resources and, particularly, the distance did not permit us to apply these measures.

Following submission of the questionnaire via email and through direct contacts to a number of 412 organizations, we have received response from a total of 43 public entities and 36 private companies. We believe that the response rate of 19.17 % is a satisfactory response rate compared to other studies with similar methodology.

We can state the fact that during the last years, a growing interest in the relation between the internal auditing and the corporate governance of both private and public organizations is noticeable. The research unfolded showed that 40 % of the private organizations in the sample have been implementing the internal auditing as a pillar of the corporate governance for at least 2 years. If in the case of multinational companies, the internal auditor benefits from experience gained within the group, in the case of public institutions the department for internal auditing has been created only quite recently, starting from zero or, alternatively, taking over the staff and the methodology of the older structures of internal financial control.

Regarding regional distribution of respondents (Fig. 1), there is an increased receptivity of organizations from Suceava county, since most of these were personnel contacted to complete questionnaires, compared with Vaslui County that had a small number of responses.

5.2   Results and Discussion

The analysis at private entity level (listed on the stock exchange) reveals that the internal audit activity is organized in the proportion of 87.80 %. Detailing the
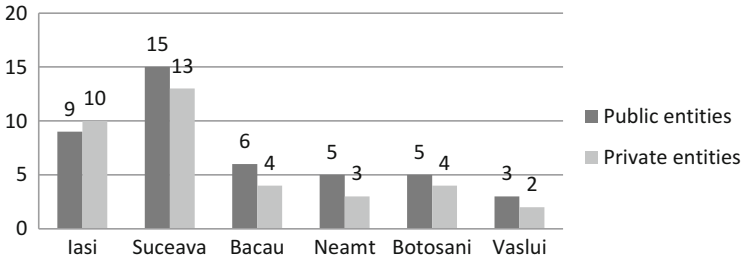
Fig. 1 The distribution by county
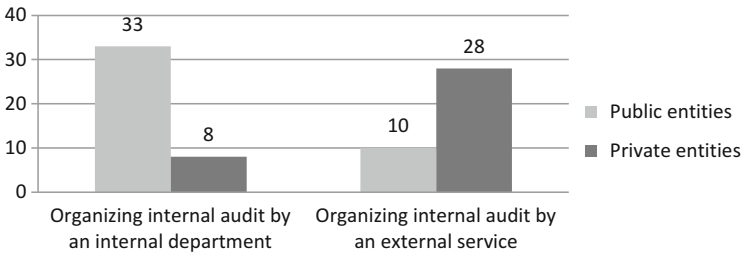
Fig. 2 The organization of internal audit at public and private organizations in Northeast Romania

results obtained, we can say that a total of 8 units have a Department of Internal Audit; the remaining 28 units have outsourced function through an external service.

Within public institutions, the internal audit activity is organized in 95.55 % of cases (33 institutions within their own department and 10 institutions have outsourced the service) as we can see in Fig. 2.

What we can observe is that, in terms of the organization of internal audit, public institutions have largely internal audit department, which is due to new legal regulations existing, and private entities have outsourced internal audit through external services.

In order to analyse the role of internal audit in public and private entities in the Northeast Romania in terms of implementing the recommendations of good governance, it was proceeded to testing of an econometric nature. Regarding this, we firstly proceeded to the coding of responses received from respondents, giving scores to each question. So, score was ascending given, as the answers correspond to the recommendations of good governance. Because all the questions in the questionnaires were fully completed, we didn't normalize values.

The internal audit activity should assess and make appropriate recommendations for improving the governance process. In this idea we analysed the entities in terms of promoting appropriate ethics and values within the organization and ensuring effective organizational performance management/governance. We believe that through analysis of these two pillars, we can confirm the hypothesis from which we started, namely, internal audit plays an important role by being a basic support for good governance in public and private entities.

The first line of research, promoting appropriate ethics and values within the organization, provides an overview of the degree to which ethics and values are promoted properly according to the needs of the organization. In a democratic society, a distinctive feature of the profession of internal auditor is to establish a code of ethics regulated at national level. Ethics is a set of principles that give moral value. Ethical behaviour is necessary for an organization to function in an orderly manner. AICPA Code of Professional Conduct provides both general rules for ideal conduct and specific conduct rules with concrete application (Arens and Loebbecke 2000).

From Table 1 we can see that ethics and values are promoted to a great extent (43 %), positive aspect for our analysis. Also from Table 2 we can see that most public institutions and private entities put great emphasis on promoting ethics and values within the organization. Internal auditing help corporate governance by reviewing the organization's code of conduct and ethics policies to ensure they are current and are communicated to employees.

Everett and Trembla (2014) consider that ethics of auditing is not enough to focus only on the practice of auditing; it is also necessary to consider the ethical character of the auditor herself or himself. One need ask about the type of person or character most valued in the field of audit (Francis 1990). This is not to overstate the need to focus on character, however, as virtue ethicists focus on both a person's thoughts and actions, or intentions and behaviours as Armstrong et al. (2003) said. The virtuous person is one who thinks and, more importantly, acts in a virtuous way.

Figure 3 shows that public entities take into the discussion ethics and values to a medium and large extent, private entities alike, with one exception: we have a public organization that emphasizes not all with this variable. The results are more than satisfactory, since an equal number of seven public and private promote ethics and values in very large measure.

The second pillar investigated regarding the performance management/governance reflects a satisfactory situation. Table 3 highlights the following aspects: 17 public institutions argue that the governance has an average performance, largely 14, 10 have a very large extent, and only two entities have a low efficiency. Private entities said they own a largely efficient management.

Ernst&Young (2008) emphasized that besides the methods (identified in 2007 survey) used in measuring internal audit's performance like completed internal audits in comparison to the internal audit plan and the length of time for issuing internal audit reports, there is one more frequently used, namely, *the results from shareholders surveys*. They identified that only 34 % of respondents use length of time to resolve internal audit findings and only 22 % use support of key business initiatives as a key metric.

A strong preoccupation for internal auditors with regard to effectiveness and performance of management can be observed in Fig. 4. The technology provides a great added value for a lot of activities including internal auditing and performance management. Thanks to technology, now, internal auditors have the possibility to

Table 1 Promoting appropriate ethics and values within the organization—global values

		Frequency	Valid percent	Cumulative percent
Valid	Not at all	1	1.3	1.3
	In a small measure	9	11.4	12.7
	In a medium measure	21	26.6	39.2
	Largely	34	43.0	82.3
	In a very large measure	14	17.7	100.0
	Total	79	100.0	

Table 2 Promoting appropriate ethics and values—detailing by types of entities

Count

		Promoting appropriate ethics and values					
		Not at all	In a small measure	In a medium measure	Largely	In a very large measure	Total
Entity	Public	1[a]	5[a]	12[a]	18[a]	7[a]	43
	Private	0[a]	4[a]	9[a]	16[a]	7[a]	36
Total		1	9	21	34	14	79

[a]Each subscript letter denotes a subset of promoting appropriate ethics and values categories whose column proportions do not differ significantly from each other at the 0.05 level
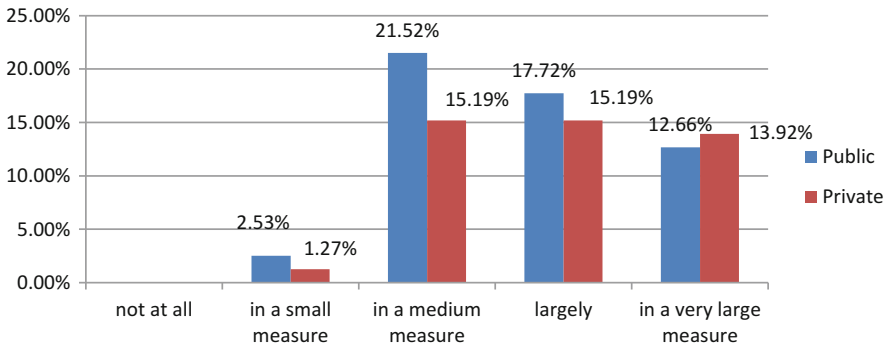
Fig. 3 Ethics and values on public and private entities

Table 3 Effective organizational performance management/governance

		Effective organizational performance management/governance				
		In a small measure	In a medium measure	Largely	In a very large measure	Total
Entity	Public	2[a]	17[a]	14[a]	10[a]	43
	Private	1[a]	12[a]	12[a]	11[a]	36
Total		3	29	26	21	79

[a]Each subscript letter denotes a subset of effective organizational performance management/governance categories whose column proportions do not differ significantly from each other at the 0.05 level
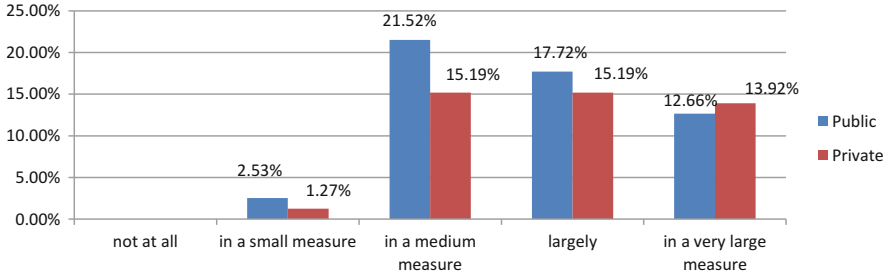
Fig. 4 Effective organizational management in public and private entities

assess the entirety of their transactions, being able to develop data analysis more accurately and completely.

Regarding the quantification of performance management, we released the following hypothesis: there is a strong relationship between the performance management and the incomes collected from the work carried out.

To prove this hypothesis, we used Pearson correlation coefficient that measures the strength and direction of the relationship between the two variables.

The correlation between effective organizational performance management/governance and managers' salaries/authorizing officers is 0.213 (less than 0.5) indicating a direct and weak connection between the two variables as we can see in Table 4. This is highlighted by the bidirectional level of significance or probability of 0.06 which is much higher than the 0.001, so we can guarantee a 0.95 % probability that the Pearson correlation coefficient is significantly different from 0. So, correlation is not statistically significant. The degrees of freedom (df) are 77 (79-2).

There is a direct, weak and insignificant relationship between governance performance and salaries for the work achieved by managers/authorizing officers ($r = 0.213$, df $= 77$, $p > 0.001$). The activity of private entities, managers and authorizing officers in case of public institutions is not strongly influenced by the level of salaries. In other words, our hypothesis was disproved, the governance performance is not influenced by the incomes received, other elements are more influenced, and we will identify them in a future study.

To confirm those mentioned above, we created the scatter diagram for the two variables in order to highlight the lack of correlation between them.

What we can easily observe from Fig. 5 is the existence of a direct relationship between governance performance and salary levels, but the spread of the points in diagram is pointing the lack of a strong correlation between the two variables. A very important element that has marked the evolution of audit activity is the internal audit approach in a more comprehensive spectrum, being identified multiple connections that exist between audit, governance and social responsibility of organizations (Soh and Martinov-Bennie 2015).

More than that, Porter and Schwab (2008) advance the idea that professional accountants specializing in audit, through a three-pronged approach (internal

Table 4 Descriptive statistics

		Effective organizational performance management/ governance	Salary
Effective organizational performance management/governance	Pearson correlation	1	0.213
	Sig. (2-tailed)		0.060
	N	79	79
Salary	Pearson correlation	0.213[a]	1
	Sig. (2-tailed)	0.060	
	N	79	79

[a]Correlation is significant at the 0.05 level (2-tailed)
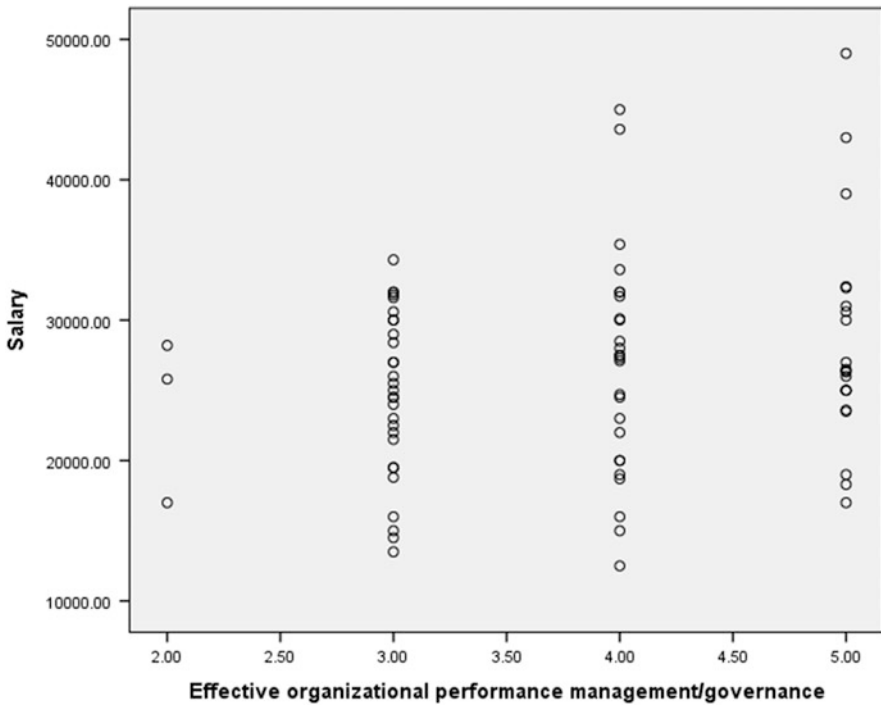
Fig. 5 Scatter diagram

auditors, external auditors, audit committees), could be the main key in ensuring accountability to stakeholders.

Even before the recent changes that have affected the corporate governance procedures, a large number of sampled individuals have acknowledged the great challenge faced by internal audit in managing the agenda of corporate governance, a function that may enable them to directly support the requirements and

responsibilities of senior management in this respect. Another study argues that internal auditors generally regard the leanings of corporate governance as benefitting their cause—such as, for instance, the first Turnbull Report of the UK (1997)—and have reported that the managers of public institutions allege that these leanings have helped them change their attitude towards internal audit in a positive way and, thus, departments have frequently asked for the advice of internal audit when they had to enforce new procedures (Spira and Page 2003). Moreover, Goodwin (2004) has found evidence that organizations possessing an integrated framework of risk management are more likely to use internal audit.

6   Conclusions

In the context of corporate governance, effective internal audit plays a key role, providing an important support to the organizations management in fulfilling its responsibilities by ensuring a supervisory on internal controls of the organization. Realizing this task, the internal audit is seen as the "last line of defence" against inappropriate corporate governance practices and financial reporting.

By analysing the two pillars (promoting appropriate ethics and values within the organization and ensuring effective organizational performance management/governance), we have highlighted how public and private entities regard these two variables as significant painters in the internal audit role in the spectrum of corporate governance.

We can affirm that the internal audit activity improves the efficiency and performance of the entity by expanding the responsibilities of internal audit and setting up of audit committees, promoting ethics and values at the entity level, understanding significance of transparency and quality of financial information and improving management. Consequently, corporate governance will be at a high level. Following the study conducted, we conclude by saying that there is a close and favourable relationship between audit, managers and corporate governance.

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Financial Liquidity and Profitability Management in Practice of Polish Business

Katarzyna Goldmann

Abstract From the point of view of companies' survival strategies, in the short term, financial liquidity plays a more important role than profitability does. In the case when the company is not profitable in the short term but is characterized by good financial liquidity, it has the potential for further development and for improving its performance. However, in a long-term perspective, profitability is more important because its lack in the long term will result in lacking financial liquidity. Therefore, an important element of company management is making a systematic analysis of financial liquidity and profitability, both on the basis of financial statements and on data derived from its accounts. The objective of the article is to present Polish companies' approach to managing financial liquidity and profitability. The article presents the results of a survey made on the issue. Based on the survey, the extent of the use in making management decisions of the following was determined: liquidity ratios, working capital and the demand for working capital, analysis of the cash flow statement, and indicators of profitability. The researched entities indicated the extent of usefulness of managing receivables, liabilities, inventory, and cash in financial liquidity and profitability management.

1 Introduction

According to the theory of the market economy, running a business is profit oriented, and the basic measure of the extent of its realization is profitability. Providing financial liquidity is equally important to gaining profits (Zuba 2010). From the point of view of companies' survival strategies in the short term, financial liquidity plays a more important role than profitability does. In the case when the company is not profitable in the short term but is characterized by good financial liquidity, it has the potential for further development and for improving its

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performance. However, in a long-term perspective, profitability is more important because its lack in the long term will result in lacking financial liquidity. Thus, an economic downturn and a decrease in sales revenue in an enterprise may result in lower cash flow and a lack of cash for making payments (Ciechan-Kujawa 2013), and disturbance of the ability to repay obligations by means of external financing may lead to insolvency. Entities with lower levels of debt are more profitable, which is consistent with the theory of the hierarchy of funding sources, according to which companies firstly use their internally generated capital (Chojnacka 2014).

The challenge in liquidity management is to achieve desired trade-off between liquidity and profitability (Raheman and Nasr 2007). Liquidity requirement of a company depends on the peculiar nature of the company, and there is no specific rule on determining the optimal level of liquidity that a company can maintain in order to ensure positive impact on its profitability (Owolabi and Obida 2012).

Liquidity analysis is of particular importance both for the company and the environment. A weak liquidity position poses a threat to the solvency as well as profitability of a company and makes it unsafe and unsound. Potential investors are paid more attention on the profitability ratios, in particular return on equity. Managers on the other hand are interested in measuring the operating performance in terms of profitability. The liquidity and profitability goals are contradictory to each other in most decisions (Niresh 2012). In the context of the needs and expectations of financial statements defined by different groups of stakeholders, the knowledge and assessment of profitability, financial liquidity, and forecasts of trends in this scope seem to be very useful, and the willingness to use them, among others, for management purposes should be emphasized (Ciechan-Kujawa 2014). Therefore, an important element of company management is making a systematic analysis of financial liquidity and profitability, both on the basis of financial statements and on data derived from the accounts. The objective of the article is to present Polish companies' approach to managing financial liquidity and profitability in this respect.

2 Research Methodology and Characteristics of Companies

The research was conducted in the first quarter of 2015. The questionnaire was sent by mail to approximately 2000 companies operating throughout Poland and selected in a purposeful manner. The criterion for selection was the preparation of financial statements including the balance sheet, profit and loss account, statement of changes in equity, and cash flow statement. Responses were obtained from 294 companies; however, 228 properly completed questionnaires were classified to the research sample. Based on that sample of respondents, the statistical part was conducted and the results were compiled.

Table 1 Characteristics of companies

Specification	Total	
	Number	%
Overall	228	100
Type of business activity conducted[a]		
Manufacturing company	133	58.33
Trading company	40	17.54
Service-providing company	55	24.12
Time of operating on the market		
From 1 up to 5 years	10	4.39
From 6 up to 10 years	19	8.33
More than 10 years	199	87.28
Range of operations		
Local	26	11.40
National	92	40.35
International	110	48.25
Company size		
Small	42	18.42
Medium	90	39.47
Large	96	42.11

[a]Dominating type of activity

Among the surveyed companies, the dominating group were manufacturing companies (58 %), followed by service-providing companies (24 %) and by commercial ones (18 %), presented in Table 1.

The vast majority of respondents (87 %) are companies that have been conducting business activity for more than 10 years on international markets (48 %) and national ones (41 %). Almost half of them are large-(40 %) and medium-sized (39 %) companies.

3 Financial Liquidity Management

Preliminary analysis of the cash flow statement is carried out in three-quarters (76 %) of the surveyed companies, while the indicator analysis of cash flow in 69 % of them, which is presented in Table 2. This applies in particular to large manufacturing companies with the time of operating on the market exceeding 10 years and with the international reach. If the analysis is not performed, it is because in the entities examined there is no need to do so, and if it is necessary, then there is no such a person who could conduct this analysis. These are mainly service-providing companies.

Preliminary analysis of the cash flow statement is carried out in the surveyed enterprises more frequently than the indicator analysis of the cash flow statement. However, in the case the indicator analysis of the cash flow statement is carried out,

Table 2 Preliminary analysis and the indicator analysis of the cash flow statement in companies

Specification	Total	
	Number	%
Overall	228	100
Preliminary analysis of the cash flow		
Yes	174	76.32
No	54	23.68
The indicator analysis of cash flow		
Yes	158	69.30
No	70	30.70

Preliminary analysis of the cash flow ➡ 3.87

⬇

The indicator analysis of cash flow ➡ 4.01
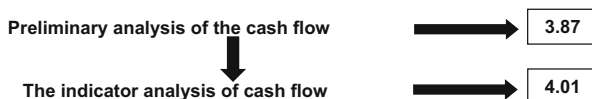
Fig. 1 The degree of usefulness of preliminary analysis and the indicator analysis of the cash flow statement in managing liquidity

then the degree of its usefulness in making management decisions in the enterprise is higher than that of the preliminary analysis, as is shown in Fig. 1.

Then respondents stated whether they calculate dynamic indicators in the scope of cash flow statement, and if yes, which ones. Based on the data presented in Table 3, it follows that most enterprises calculate the indicators of the cash flow structure, next, cash sufficiency indicators, and cash performance indicators. However, according to the respondents, the most useful in companies' decision-making are the following in the presented order: cash sufficiency indicators, cash performance indicators, and, finally, indicators of the cash flow structure.

Ratio analysis is complemented by an analysis of working capital and the demand for this capital. The main task of net working capital is to maintain the optimal size of current assets so that, on the one hand, the company was able to settle its current liabilities and, on the other hand, had the opportunity to invest its assets in order to increase profitability (Goldmann 2013).

The majority of companies (75 %) determine the working capital in the company, and half of them determine it on a regular basis (usually every quarter or every month), and the rest only when needed. The degree of usefulness in decision-making is on average 3.93 (on the Likert scale, it ranges from 1 to 5). The demand for working capital is determined by 70 % of respondents, and most of them (63 %) determine its level only when needed, and the remaining companies do it on a regular basis. From the responses received and presented in Table 4, it can be concluded that the researched entities tend to check the level of working capital, which aims to secure financial liquidity in the enterprise more often, than to figure out the demand for this capital. The demand for working capital is typically a point of reference in relation to working capital and is to help in making decisions about the company's striving to maintain its optimal level.

Table 3 The indicators of the cash flow statement calculated in companies and their degrees of usefulness in managing liquidity

Specification	Total			
	Number	%		
Overall	228	100		
The indicators of the cash flow structure			➡	4.04
Yes	146	64.04		
No	82	35.96		
Cash sufficiency indicators			➡	4.24
Yes	130	57.02		
No	98	42.98		
Cash performance indicators			➡	4.18
Yes	112	49.12		
No	116	50.88		

Table 4 The working capital and the demand for working capital and their degrees of usefulness in managing liquidity

Specification	Total			
	Number	%		
Overall	228	100		
The working capital			➡	3.93
No	57	25.00		
Yes, when needed	87	38.16	75%	
Yes, regular*	84	36.84		
The demand for working capital			➡	3.85
No	68	29.82		
Yes, when needed	101	44.30	70.18%	
Yes, regular*	59	25.88		

*usually every quarter or every month

The vast majority of enterprises that determine both the working capital and the demand for this capital manage the working capital. In this regard, respondents realize the strategy of managing working capital in their companies. The majority of the surveyed companies (73.61 %) conduct a moderate strategy, and then it comes conservative. Only a small proportion of them (2.78 %) lead an aggressive strategy. Table 5 presents the results of the survey made on the issue.

The companies have determined what liquidity ratios they calculate, and the findings are presented in Table 6. The vast majority (84.21 %) calculates static indicators, and 62.28 % of all enterprises have dynamic indicators. However, the degree of usefulness of indicators in managing liquidity was higher for dynamic indicators of financial liquidity—above 4—while all the static liquidity indicators were characterized by average degrees of usefulness below 4.

Table 5 The managing of working capital and the strategy of managing working capital in companies

The managing of working capital		
Yes	144	63.16
No	84	36.84
The strategy of managing working capital		
Moderate strategy	106	73.61
Conservative strategy	34	23.61
Aggressive strategy	4	2.78

Table 6 Static indicators and dynamic indicators of financial liquidity of the cash flow statement calculate in companies and their degrees of usefulness in managing liquidity

Specification	Total			The degree of usefulness in managing liquidity		
	Number	%				
Overall	228	100				
Static indicators of financial liquidity				The cash ratio	3.71	3.88
Yes	192	84.21	→	Quick ratio	3.97	
No	36	15.79		Current ratio	3.95	
Dynamic indicators of financial liquidity						
Yes	142	62.28	⟶			4.03
No	86	37.72				

Almost all of the researched companies manage cash. Next, they manage, in the following order, receivables, liabilities, and inventory. The usefulness of specific areas in the management of financial liquidity is as follows:

– Management of cash, receivables, and liabilities oscillates at the same level and averages at 4.46.
– Inventory management is less useful for companies with the average of 4.16. However, for manufacturing companies, the degree of usefulness was at 4.36. Table 7 presents the results of a survey made on the subject.

Proper management of working capital contributes to minimization of excess inventory and timely payment of liabilities and hence determines the maintenance of liquidity (Tokarski et al. 2014). In order to make management of working capital effective, it is necessary to maintain the harmony between the ability to pay obligations and achieve profits (Singhania et al. 2014).

4 Profitability Management

The surveyed companies determined whether they calculate, and if yes, which profitability ratios. Almost all of the companies surveyed (96.05 %) calculate their return on sales, more than three-quarters of the companies (79.39 %) prepare

Table 7 Management of cash, receivables, liabilities, and inventory and their degrees of usefulness in managing liquidity

Specification	Total					
	Number	%				
Overall	228	100				
Management of cash						
Yes	219	96.05	→	4.46		
No	9	3.95				
Management of receivables						
Yes	217	95.18	→	4.45		
No	11	4.82				
Management of liabilities						
Yes	210	92.11	→	4.48		
No	18	7.89				
Inventory management				4.16	Manufacturing company	4.36
Yes	196	85.96	→		Trading company	4.10
No	32	14.04			Service-providing company	4.05

their return on assets, and more than half (64.04 %) return on equity, as presented in Table 8.

The degree of usefulness of particular groups of profitability ratios in managing profitability is as follows:

– The highest average degree of usefulness has the return on sales (4.48).
– For indicator return on equity, the average degree of usefulness amounts to 4.25.
– The lowest average degree of usefulness has the return on assets (3.96).

The question—"does the company during the year also carry out an analysis and evaluation of the profitability based on data derived from the books?"—was answered affirmatively by almost three-quarters of respondents (74 %). Detailed study results showed that such an analysis is conducted mostly once a month (52 %), and next it was once a quarter (36 %) and twice a year (12 %). Companies, in particular, calculate their return on sales. Table 9 presents the results of a survey analyzing the issue.

Then the surveyed companies informed whether they make analyses and evaluations based on the financial statement on the profitability of competition. The research shows that about 43 % of enterprises perform such an analysis mainly in the scope of sales profitability. The results of it are contained in Table 10.

5 Summary

Based on the questionnaire survey conducted, the following conclusions can be drawn:

Table 8 Profitability ratios calculate in companies and their degrees of usefulness in profitability management

Specification	Total			
	Number	%		
Overall	228	100		
Return on sales (ROS)				
Yes	219	96.05	➡	4.48
No	9	3.95		
Return on assets (ROA)				
Yes	181	79.39	➡	3.96
No	47	20.61		
Return on equity (ROE)				
Yes	146	64.04	➡	4.25
No	82	35.96		

Table 9 Frequency analysis of the profitability based on data derived from the books

Specification	Total	
	Number	%
Overall	228	100
Does the company during the year also carry out an analysis and evaluation of the profitability based on data derived from the books?		
Yes	**169**	**74.12**
No	59	25.88

once a month	**52%**	
once a quarter	**36%**	
twice a year	**12%**	
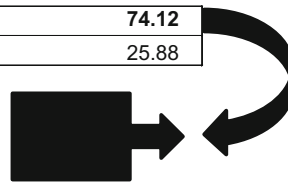
Table 10 Analyses and evaluations based on the financial statement on the profitability of competition

Specification	Total	
	Number	%
Overall	228	100
Yes	**99**	**43.42**
No	129	56.58

ROS	**98%**	
ROA	**46%**	
ROE	**41%**	
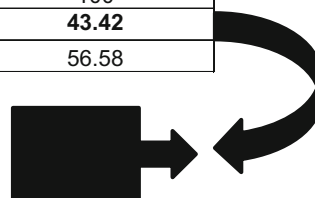
In the scope of financial liquidity management, greater usefulness in this area has the management of individual areas, cash, receivables, liabilities, and inventory, rather than dynamic and static indicator analyses of financial and evaluation of working capital. [1]

Cash and cash equivalents constitute a very important element for entities, since in the short term, it is not profits gained, but own financial means that are most important (Goldmann et al. 2009). It follows that companies while making decisions on the management of financial liquidity, based in particular on simple and transparent positions, as the rates and volumes calculated on the basis of data from the financial statements often are ambiguous and require deeper analysis.

In the scope of profitability management, enterprises on the basis of the financial statements calculate their return on sales, which they consider to have the highest degree of usefulness in managing profitability. More than half of them additionally analyze the profitability of the company every month based on data derived from their books, and it concerns in particular the sales profitability ratios. In this area, every second company[2] also analyzes its competition; however, in the author's opinion today, almost all businesses should do it.

Summing up the results of the survey, companies manage liquidity and profitability at a similar level. However, if we focus on financial indicators, then their use by respondents in the scope of managing profitability is higher than in the management of financial liquidity.

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[1]In relation to the survey conducted in the first quarter of 2014 on trends in liquidity management in the case of 193 companies, the results were confirmed. As indicated by the respondents, the highest degree of usefulness in the management of liquidity had the following (in that order): cash, receivables, and payables. Then the companies considered the financial result, cash flow, inventory, total assets, and profitability ratios. However, the items that are assigned in the subject literature to the analysis of financial liquidity—the liquidity ratio, working capital, and the demand for working capital—were the last on the list. Detailed results of the research are presented in Goldmann (2014).

[2]In relation to all of the analyzed companies, in relation to companies that calculate a given indicator or value

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The Business Audit as an Alternative to Discriminant Analysis in Assessing Risks of Going Concern

Marlena Ciechan-Kujawa

Abstract The ability of a business entity to develop and at least to survive is crucial for all stakeholders. Nowadays, mostly statistical methods are applied in its assessment. Efficiency of these methods is restrained by multiple and changing factors influencing the risk of disruption of continuation as a going concern, which raises the necessity of seeking an alternative solution. A new solution should be aimed at the analysis of the ability and not only the assessment of threats to continuing operation. The objective of the work is to present the research findings which justify the necessity of a multidimensional evaluation of an entity to define its ability to keep operating under the conditions of sustainable development. The article presents the findings of the expert research and surveys conducted in the years 2013–2015. As an alternative to discriminant analysis models, the author presents the concept of a multidimensional assessment of an entity, its scope, and the interpretation of its results. The presented model allows the assessment of the maturity level of an organization in the implementation of a sustainable development strategy, the assessment of an entity's ability to continue as a going concern, and its potential to create value for stakeholders.

Keywords Business audit • Discriminant analysis • Going concern • Sustainable development • External audit

1 Introduction

An economic entity's ability to develop or at least to survive is crucial to internal and external stakeholders. It is for a reason that "the going concern assumption" is one of the primary rules of accounting. According to IAS 1, the assumption framework of financial reporting contains the requirement that the management conducts an analysis of the entity's performance in this respect (IFRS Foundation 2012). The confirmation of this evaluation is also confirmed by a statutory auditor. The audit is intended to show whether while applying accounting principles

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(policies) an entity will be able to continue its operations in the foreseeable future, without significant changes in the scope of its activity and without declaring liquidation or bankruptcy. According to ISA 570, threats to continuing operation may result either from financial threats, internal or external operational threats, and other business threats (IFAC 2015).

The research conducted both in Poland (e.g., Szczerbak 2007) and worldwide (e.g., Black et al. 2000) confirms that the main reason for the loss of the ability to continue operations is nonfinancial factors. Financial ones are simply their consequence. The key causes of bankruptcy include first of all the loss of markets and mismanagement and only then the lack of sufficient financial control, negative financial results, and a high level of debt and overdue liabilities. Other significant causes of bankruptcy are deliberate action to the detriment of the company, taking remedial action too late, overinvestment, unfavorable credit policies of banks, and dependence on a single customer. Evaluation of the reliability of the management's declaration concerning the continuing of operation requires not only considering of the declaration itself but also actual circumstances and plans underlying it.[1]

The main methods used for assessing the threats to continuing operation are primarily statistical ones, the most important one being a multidimensional linear discriminant analysis (Goldmann 2009). For years these methods have been subject to criticism (for instance, see Hamrol and Chodakowski 2008; Mączyńska and Zawadzki 2006; Prusak 2011; Fanning and Cogger 1994). The following are emphasized:

– The lack of universality resulting in limitations in the assessment of the risk of bankruptcy of companies conducting various activities under different macro-economic and legal conditions and under different accounting systems
– High ability to make correct forecasts only a short time before the bankruptcy
– Methodology applied for their development (e.g., flattening in models the sample of companies not threatened by bankruptcy with the group of companies recognized as bankrupts which may lead to the distortion of the results, because in reality the number of companies not jeopardized by bankruptcy significantly exceeds the number of bankrupt companies)

Despite this criticism and the emergence of other solutions, such as, for instance, neural networks, the subject literature presents a view that for the average user, discriminatory methods, if compared with newer generation methods, are less expensive, more communicative, and transparent, and their results are easier to interpret and compare (Mączyńska and Zawadzki 2006).

Approximately 60 % of the discriminant analysis models use only financial indicators, and 7 % supplement them with data from the cash flow statement. In

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[1]However, according to the research conducted, declarations made by the management to continue as a going concern are usually very general in nature, whereas statutory auditors' conclusions expressed in the opinion of the vast majority of cases confirm the validity of the assumption of the management (e.g., see, Wielogórska-Leszczyńska 2012).

other cases references made to some extent to industry factors, macroeconomic factors, and location can be found (Adnan and Humayon 2004). Therefore, in the majority of models, universal ratios were applied. The dominant role is played by three areas: ratios of profitability, liquidity, and financial support, with particular consideration within this group of the indicators of the capital and asset structure. Ratios that consider added value are also used. Variables that directly depict a company's environment (the state of the economy, the phase of the business cycle, etc.) or variables derived from the capital market are used relatively infrequently (Mączyńska and Zawadzki 2006). Also, an overview of Polish discriminatory models indicates that they are based on financial factors included in company reports. Attempts made by researchers to use quality variables (Prusak 2005) were not effective. Qualitative factors are, in fact, taken into account by external bodies (such as, for instance, banks) while assessing threats to going concern; however, they usually constitute approximately 20–30 % of the total weight (Urbańczyk and Klemke-Pitek 2004, 2005; Kitowski 2014).

The multitude and changeability of factors of contemporary influence on the threat to continuing company's operation limit the effectiveness of the previously mentioned methods and make it necessary to search for alternative solutions. The aim of the work is to present the research findings which justify the necessity of a multidimensional evaluation of an entity in order to define its ability to continue operation under the conditions of sustainable development. While searching for alternatives to discriminant analysis, apart from literature studies, the author conducted a number of empirical studies during the last 2 years. These were:

1. Expert studies (by means of the Delphi method), aimed at identifying the factors influencing the threat to continuing company's operation, as well as an assessment of their significance
2. Questionnaire interviews addressed to statutory auditors, whose aim was to determine which factors that potentially influence continuing operation are actually studied by statutory auditors in practice
3. Survey studies of companies operating in Poland, in order to define the methods of evaluating the continuing of operation used in economic practice
4. The analysis of the statutory auditor's reports, in order to define the methods applied by auditors

2 Financial and Nonfinancial Factors Influencing Companies' Loss of Ability to Continue Operation

The expert study was conducted in 2013. 24 experts from different fields of academic science and economic practice were invited. They were members of supervisory boards, boards of directors, chief accountants, and auditors. Based on literature studies, several dozen aspects of potential influence on the threat to continuing operation were listed. As a result of the expert studies, a list of 53 aspects

was finally developed and divided into eight areas on the basis of the content. Next, the experts evaluated the impact of the aspects defined on a company's ability to continue as a going concern, assigning them a measure of importance, where "0" meant no influence at all and "1" meant a crucial influence[2]. The average measure of importance was presented in Table 1.

Among the eight areas of an entity's operations, the area of accounting and finances is perceived as the most significant for ensuring the company's continuing operation, but a comparable role is also attributed to such areas as customers and markets and organization management. Their influence on the continuing of a given entity's operations was defined by the experts as at least high and highly probable. Detailed research findings are shown in Fig. 1.

The factors pointed to as having a decisive influence on continuing an entity's operation (evaluation 1) were as follows:

– Customer's portfolio quality—size, structure, and sustainability (4.1)
– Rules of managing liquidity, profitability, debt, and effectiveness (6.2)
– Revenue streams—their level, structure, and sustainability (6.3)
– Monitoring operation effects—the financial situation, balancing assets and liabilities, diversifying in terms of investment objects and subjects which are relevant from the point of view of operation safety and compliance with legal rules (6.5)
– Identification of and compliance with relevant legal regulations (8.1)

Table 1 The level of impact of the key areas of management systems on going concern

Number of the area	Name of the management system area	Number of key aspects in the area	Average measure of importance
I	Organization management	11	0.81
II	Structure and internal relations	7	0.61
III	System of control and surveillance	7	0.5
IV	Customers and markets	6	0.85
V	Processes and investment	5	0.66
VI	Finance and accounting	9	0.88
VII	Communication with stakeholders and social relations	4	0.68
VIII	Corporate governance	4	0.68

Source: elaborated by the author based on Ciechan-Kujawa (2014a)

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[2]In the adopted measurement scale, the impact level was determined as a percentage, where 0 means no impact or no likelihood of impact; 0.1, almost no impact and unlikely; 0.2, fairly small impact and unlikely; 0.3, small and potentially possible; 0.4, less than average and potentially possible; 0.5, average and probable; 0.6, more than average and highly probable; 0.7, quite large and likely; 0.8, big and highly probable; 0.9, very large impact and very likely; and 1, decisive influence—a very large and certain.
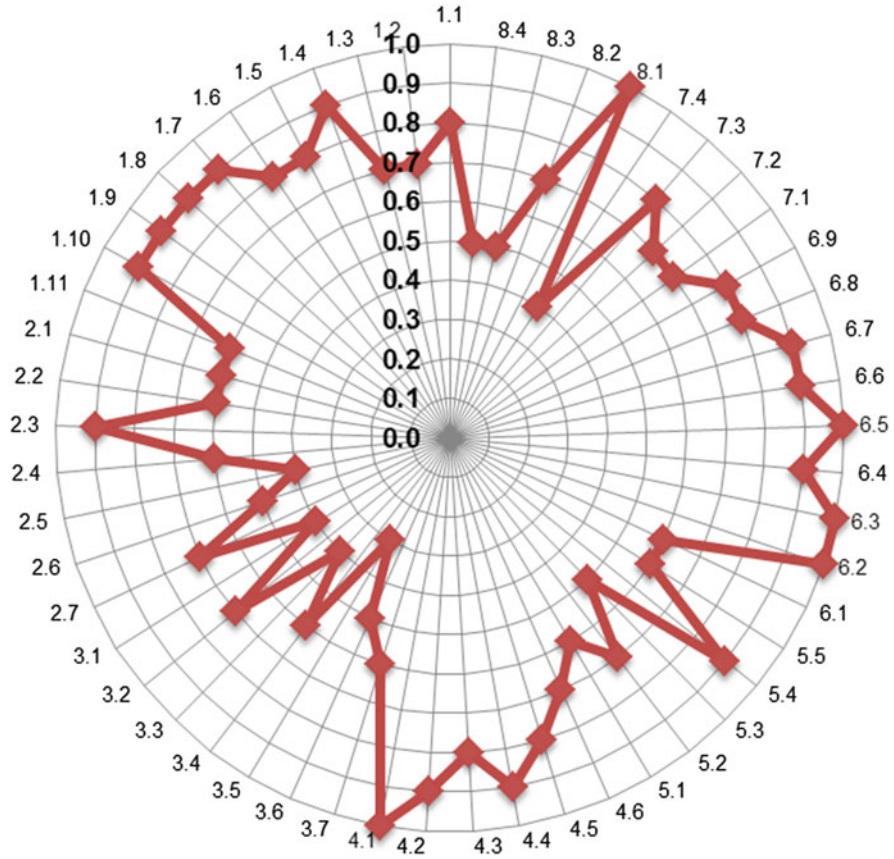
Fig. 1 The level of importance of the factors which affect an entity's ability to continue as a going concern

Furthermore, the following were indicated as issues with a very large impact and very likely (assessment: 0.9) excluding any factors from the accounting and finance areas:

– The adequacy of key financial and nonfinancial resources for the realization of the set objectives (point 1.4)
– Risk management—the effectiveness of methods, rules of identification, measurement, responding to risk, and reporting (1.7)
– The adequacy of arrangements for monitoring and effective oversight of the business processes (1.8)
– Adapting the structures, goals, processes, and products to changes in market conditions—the adequacy and efficiency of the implementation of the changes and the effectiveness of implemented solutions (1.9)
– The adequacy of the scope, extent, frequency, and quality of internal reporting (1.10)

– Explicitness, the adequacy of the safety procedures—procedures for accessing data, preventing loss, and ensuring integrity during processing (2.3)
– Customer service procedures and services—the relevance, timeliness, and compliance with the requirements (4.2)
– Sales and distribution channels—diversification, sustainability, and efficiency of structure (4.4)
– Procedures for planning, execution, and control of operational activities—the adequacy and compliance (5.4)

The complete list of the aspects included in the model was presented by Ciechan-Kujawa (2014c).

3 Level of Study of the Factors Affecting the Company Going Concern by Statutory Auditors

In order to identify which factors and to what extent they are evaluated by statutory auditors, another study was conducted, with 44 auditors participating. The study was based on a list of 53 aspects influencing the continuing of operation. The findings are presented in Table 2[3].

Table 2 The level of covering aspects affecting the company going concern during financial audit in comparison with their significance

Number of the area	Name of the management system area	The average measure of importance	The average measure of covering by an audit
I	Organization management	0.81	0.54
II	Structure and internal relations	0.61	0.58
III	System of control and surveillance	0.5	0.72
IV	Customers and markets	0.85	0.48
V	Processes and investment	0.66	0.36
VI	Finance and accounting	0.88	0.91
VII	Communication with stake-holders and social relations	0.68	0.35
VIII	Corporate governance	0.68	0.75

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[3]For the purpose of carrying out analysis in this respect, the following assumptions concerning the assessment were made: 1 (100 % coverage), in the case of the auditor's declaration on the completed implementation of the audit; 0.5 (50 %), for the declaration of a partial assessment; and 0 (0 %), in the absence of assessment. The author is aware of the shortcomings of the adopted scale for a partial assessment (as this assessment is blurred—can take values different from 50 %); however, it allows outlining the scale of the issues in question and makes a visual presentation. Detailed results of the research are presented in Ciechan-Kujawa (2014c).

The extent to which an audit covers the evaluations of the continuing of operation was analyzed from two different points of view: according to the highest significance of a given factor's influence on continuing an entity's operation (Graph 1) and according to the dimensions of evaluating an entity's operations, i.e., the areas of the management system (Graph 2).
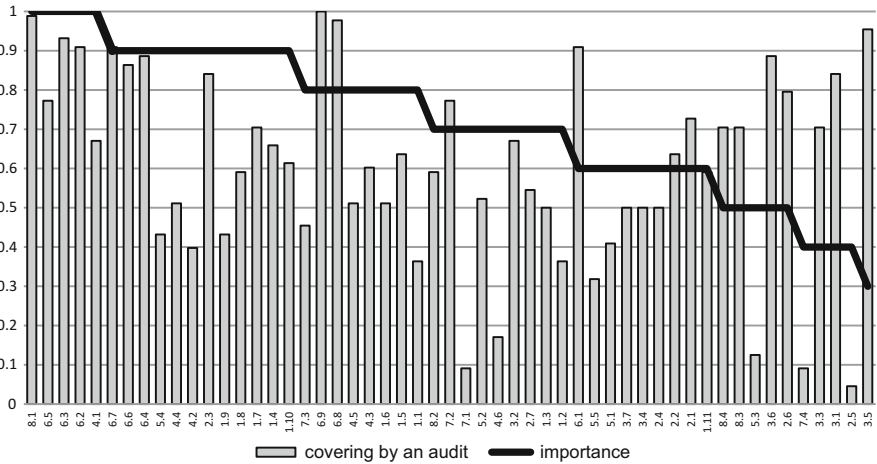
Graph 1 Covering by an audit according to the highest significance of a given factor's influence on continuing an entity's operation
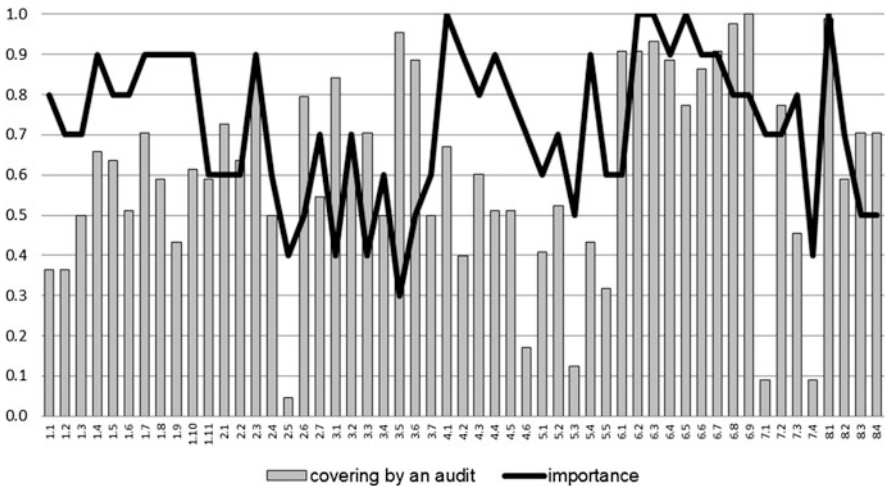
Graph 2 Covering by an audit according to the dimensions of evaluating an entity's operations, i.e., the areas of the management system

Graph 1 shows that the aspects which the experts had pointed to as certain to continuing operation (evaluation: 1) coincide with the auditors' assessment. The analysis of the next areas is not so positive though. 25 % of the most important aspects influencing the continuing of operation (whose range of influence was defined between 0.9 and 1) are matched during an audit at the level of 0.71. Graph 2 confirms that the area which is the most frequently studied is finances and accounting. One can also notice that the greatest discrepancies between a given aspect's influence on continuing operations and the extent to which it is studied have been noted in such areas as customers and markets (deviation 0.37), communication (deviation 0.3), processes (deviation 0.3), and organization management (deviation 0.27). Thus, it can be stated that the match in the finance-related aspects comes as no surprise; the most significant threats (which obviously influence the continuing of operation) are covered by an audit. The remaining ones (the measure of influence of 0.8–0.9) unfortunately are not, and what is especially disturbing is the limited extent of evaluation in the categories such as customers and markets and organization management, as they were the domains that the experts had pointed to as especially significant to continuing of operation.

4   The Manner of Evaluation of Continuing Operation Used in Economic Practice

In the first quarter of 2015, the author conducted survey studies in order to determine whether the discriminant models are actually used by companies and statutory auditors. An additional research objective was the evaluation of the effectiveness of these business models, made by representatives of companies, while analyzing the threat of an entity's bankruptcy, its suppliers, and key customers.

The research was conducted among companies operating on the Polish market. The questionnaire was sent out by email to representatives of financial and accounting departments. Half of the companies that participated in the survey were manufacturing companies (49 %), 31 % were companies rendering services, and were 20 % commercial ones. Companies with the prevailing Polish capital and functioning on national and international markets for at least 10 years were dominant. Most of the entities examined are commercial law companies (44 %) and medium-sized ones (58 %). The criterion for being selected for the examination was the possession by the entity of the financial statement that is subject to mandatory auditing. In all of the cases, the statutory auditor's report drawn up on the entity's financial statement for 2013 was also analyzed.

Out of 512 entities studied, 501 answered the question concerning the methods used for evaluation of continuing operation. Only 75 turned out to be conducting the evaluation by means of discriminant analysis. They were mostly large manufacturing companies, which had been functioning on the market for more than 10 years,

their area of operation being international. As many as 92 % of the entities which did not use discriminant models declared the reason was the lack of their usefulness for making long-term decisions and evaluation of continuing operation of the entity, suppliers, or customers. About 6 % of the respondents said that the reason was the lack of staff capable of using the method. The entities which use discriminant analysis assessed on average its usefulness as 3.85 on the 5 degree Likert scale. The average evaluation from the entities which did not use discriminant analysis was 1.2.

A review of the reports by statutory auditors drafted for the same entities also points to infrequent use of discriminant models. Such an analysis was not presented in any of the reports. In six cases a statement was noted that "the analysis was conducted, and its results confirm lack of threats to continuing operation." The confirmation of this state of affairs is also reflected in other studies (e.g., Andrzejewski and Mazurczak 2011).

5   Assumptions of the Business Audit Model

The business audit is understood as an independent evaluation of the effectiveness of the mechanisms of management implemented in a company concerning the company's potential, operational risk, interactions with stakeholders in order to determine the entity's ability to continue operation, at the same time complying to the rules of sustainable development.

The following factors are evaluated: systems ensuring compliance, the degree of keeping the compliance, and the effectiveness of solutions. The result of the evaluation is the level of risk resulting from the designed solutions, business practice, and effectiveness of operation (see Fig. 2).

Similar to the assessment of credit rating, the usefulness of the model required the use of scoring, which makes it possible to make a comparison in time and space. The assessment in each of the three dimensions is based on the already established eligibility criteria for observations as strong or weak sides of the organization under scrutiny using the rule of grading the observation weight on a 1–5 scale. The basis for this qualification is the rules set out in Table 3.

The results obtained by the entity are the result of the assessments made in many areas and are presented in the form of an average. In view of this, in order to assign them to one of the five levels defined for each perspective, a conversion scale should be used. The criteria that form the basis for the interpretation of results are contained in Table 4.

The point evaluation method allows one to determine and communicate the results in different cross sections: in the form of partial indicators with varying degrees of aggregation (according to various aspects that are subject of the assessment, according to the eight areas identified in the assessment, according to the individual dimensions) and a holistic index (general, the overall result of the evaluation). This approach also gives the possibility of positioning the entity on

Criteria for the evaluation	Evaluation of conformity										(III) Evaluation of the effectiveness					The SUM	Level of impact	Product (the sum of x level)	Average (product/number of criteria)	The scope of the evaluation
	(I) Designing solutions					(II) Business practice														
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5					
Area 1																				The average level of uncertainty generated in the areas
1.1			•				•					•				8	80%	6.4	2.13	
1.2		•					•					•				6	70%	4.2	1.4	
1.3			•						•					•		…	…	…	…	
1.4			•						•				•			…	…	…	…	
…																…	…	…	…	
Area 8																⋮				
Average (total/number of criteria)	The level of risk resulting from designed solutions					The level of risk resulting from business practice					The level of risk resulting from business efficiency									
Ability of going concern																			RESULT	

Fig. 2 Business audit model. *Source*: elaborated by the author based on Ciechan-Kujawa (2014c)

the axis of perfection. When presenting the information on the strengths and weaknesses of the solutions adopted by the entity, a platform for improvements is created, and at the same time, it allows pointing to good practice in the entity and using it to promote the organization.

6   Conclusion

Despite the fact that the ability to continue operation is influenced by both financial and nonfinancial factors, under currently used methodological solutions, it is the financial factors that are mostly assessed. It concerns both the use of the

Table 3 Criteria for assessing compliance in the concept of multidimensional business audit

Level	Perspective of compliance		Perspective of effectiveness
	(I) Designing solutions	(II) Business practice	(III.1) Assessment relative to plans (III.2) Assessment of trends (III.3) Assessment in space
1	Lack of established rules. No evidence (0 % occurrence)	Lack of evidence for implementation; it does not occur in practice (0 % compliance)	Failure to meet expectations—unrealized requested values to any extent (0 % of the plan); decrease in the level and dynamics of indicators; definitely below the average or pattern
2	The process is marginally documented. There is limited evidence (25 % occurrence)	Practice occurs only in selected areas of activity; there is little evidence of implementation (25 % compliance)	Definitely below expectations—the lack of implementation of the requested values in most of the planned areas (less than 50 % of the realized values); maintenance of the level, but decline in the dynamics of indicators; slightly below the industry average or pattern
3	Partially developed solutions. There is evidence (50 % occurrence)	The practice commonly known, but not everywhere used; the results and evidence of improvements are visible (50 % compliance)	Below expectations—implementation in most of the planned areas (over 50 % of the realized value); maintaining the level and dynamics of indicators; at the level of the average for the industry or pattern
4	In most cases the developed solutions are confirmed by clear and unambiguous evidence (75 % occurrence)	The practice often used with some exceptions, visible continuous improvement. Clear and unambiguous evidence. (75 % compliance)	Slightly below expectations—implementation in most of the planned areas (over 80 % of the realized value); an increase in the level but the maintained dynamics of indicators; slightly above the average for the industry or pattern
5	Comprehensive guidance on every aspect confirmed by comprehensive evidence (100 % occurrence)	The practice applied to a full extent without any exceptions. Comprehensive evidence. Visible and supported by the evidence systematic improvement of results in the long term (100 % compliance)	At or above expectations—the implementation in any scope (100 % of plan); an increase in the level and dynamics of indicators, definitely above the average or pattern

Source: elaborated by the author based on Ciechan-Kujawa (2014c)

Table 4 Eligibility criteria for entities according to the risk level of activity in the concept of multidimensional business audit

Level	Average	Risk Level
1	1.0–1.5	The level of uncertainty—low ability to continue operations (lack of supervision, negative trends, unfavorable comparisons, unattained objectives, evidence showing that continued operations may be threatened)
2	1.0–1.5	The level of relative uncertainty—decreasing ability to continue operations, unclear trends, unfavorable comparisons, objectives mostly not reached, evidence of the deteriorating situation of the entity
3	1.0–1.5	Neutral level—the average capacity to continue operations—goals achieved at the level of the industry, the lack of significant grounds for threatening the operation
4	1.0–1.5	The relative level of certainty—growing ability to continue operations—positive trends, objectives achieved, in most comparisons favorable conditions for improving the situation of the entity
5	1.0–1.5	Full ability to continue operations—the objectives achieved, positive and lasting trends, favorable comparisons—the entity's functioning is not threatened

Source: elaborated by the author based on Ciechan-Kujawa (2014c)

discriminant analysis and other methods used by auditors. In order to evaluate the threat to continuing an entity's operation in advance, it is essential to evaluate not only the trends in shaping the level of rates or financial quantities, but first of all the mechanisms which cause the existence of those particular trends.

New solutions should be oriented not as much toward assessment of threats to continuing operation, but rather toward the evaluation of a company's ability to continue operation. The effectiveness of tools for early identification of risks is a prerequisite for rapid response (Ciechan-Kujawa 2014b). Alternative or complementary solutions could not only affect the rationalization of business management and control (by supervisory boards, statutory auditors, business courts, and other) but also increase macroeconomic efficiency.

The method of risk assessment of going concern presented in this article is one of the three perspectives of assessment realized within the designed business audit model. In addition to the risk assessment, the model allows the assessment of the effectiveness of building value for the organization (its weaknesses, strengths, and as a result the potential of improvement) and the effectiveness of creating value for stakeholders (the level of assurance and implementation of business practice based on the consideration of the interests of all stakeholders, leading to building relationships based on a spiral value). The model is described in more detail by Ciechan-Kujawa (2014c). Assessing organizations in all dimensions included in the model should provide an answer to the question whether the organization is managing risk effectively and allocates resources to ensure the survival and sustainable development.

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Part II
Economics

Finance-Driven Globalization: Empirical Evidence from the Commonwealth of Independent States

Argiro Moudatsou and Georgios Xanthos

Abstract Finance-driven globalization has produced winners and losers in the developing world. Over the past 30 years, many developing countries have experienced spurts of economic growth followed by collapses. In the process, some have fallen further behind the advanced economies, while only a few have enjoyed sustained economic growth. The main purpose of this paper is to provide an assessment of the empirical evidence on the effects of financial globalization for developing economies of the Commonwealth of Independent States (former Soviet Republics). This group of countries was chosen for reasons of geographic proximity and similarities in economic structure; we tried to answer the question: Did the drive by the financial sector globalization empower the growth for the sample countries? On the basis of Blundell and Bond (Journal of Econometrics 87:115–143, 1998), a dynamic panel data model is employed. The econometric methodology is the system GMM two-step estimator developed by Arellano and Bover (Journal of Econometrics 68:29–51, 1995), Blundell and Bond (Journal of Econometrics 87:115–143, 1998; Econometric Reviews 19:321–340, 2000), and Roodman (The Stata Journal 9:86–136, 2009). Considering a possible correlation between the lagged dependent variable and the panel fixed effects and the "small T, large N" restriction, Windmeijer's (Journal of Econometrics 126:25–51, 2005) procedure is implemented so that standard errors become robust after getting small sample size of the dataset under control.

Our results show that only trade has a positive effect on growth, while FDI financial openness and financial integration do not have any impact on growth for the counties' sample.

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1   Introduction

The recent phenomenon of financial globalization which has intensified since the mid-1980s was marked by a sharp increase in capital flows among industrialized countries and between industrialized and developing countries. Theoretical models have identified a number of channels through which capital flows can promote economic growth in developing countries. However, a systematic examination of the evidence shows that while these capital flows have been associated with high rates of growth in some developing countries, during the same period, some other countries have caused a collapse of growth rates and severe economic crises. Therefore, a heated debate has emerged in both academic and policy circles on the effects of financial integration for developing economies. But much of the debate has been based on limited empirical evidence (Prasad et al. 2003).

The main purpose of this paper is to provide an assessment of the empirical evidence on the effects of financial globalization for developing economies of the Commonwealth of Independent States (former Soviet Republics).

The rest of the paper is organized as follows: Sect. 2 reviews related and relevant literature on the topic area; Sect. 3 explains the methodology used to analyze the panel dataset and presents the results and the discussions of the panel regression; Sect. 4 concludes and summarizes the findings of the study.

2   Literature Review

The term "finance-driven globalization" (FDG) was chosen from Supachai (2012) to characterize the dominant pattern of international economic relations during the past three decades. The financial deregulation by opening the capital account and the rapid growth of international capital flows are the main forces shaping global economic integration since the collapse of the system of Bretton Woods. Financial markets and institutions tend to dominate the real economy, distorting trade and investment, by increasing the levels of inequality, and posing a systemic threat to the financial stability. Supachai (2012) argues, inter alia, that the FDG failed to capitalize on the ability of the market to support a broad-based development instead affected negatively and increased destabilizing tendencies.

Many scientific studies have attempted to examine the relationship between financial integration and economic growth. Some of them result in a significant positive effect of capital account liberalization on growth; others find negative effects, while others cannot identify any relationship. Subsequently, we will present some of these works.

Calderon and Liu (2003) found that the financial development generally leads to economic growth, and the financial deepening enhances economic growth through faster capital accumulation and productivity growth; its effect is more evident in the case of developed countries. Moreover, there is two-way causal relationship between financial development and economic growth. Finally, the longer the period covered by statistical data, the greater the effect of financial development on economic growth.

Levine (2001) found that financial integration contributes to efficient allocation of capital by strengthening the domestic financial sector, thus causing a positive impact on increasing investment and growth opportunities. In addition, a positive side effect may be the increase in yields of domestic companies which are forced to compete with foreign companies.

Edwards (2001), using cross-country dataset to investigate the effects of capital mobility on economic growth, concludes that more open capital account countries have outperformed those countries that have limited capital mobility. Also, there is evidence that an open account affects positively growth only after a country has achieved a certain degree of economic development.

Kose et al. (2006) report that economic integration promotes economic growth of developing countries, because it facilitates capital flows from developed to developing economies that have limited capital, necessary condition for their economic development. Also, financial integration can help poor countries to become active in other sectors outside the agricultural and extraction of natural resources. This differentiation could make them less unstable in macroeconomic variations.

Edgar and Tovar (2012), using annual data, over the 1995–2008 period, covering 26 transition countries, conclude that under the condition of a better performance of the financial system, there is a positive effect of financial globalization on economic growth.

Ahmed (2011), taking a sample of 25 SSA countries, examines the issues and impact of international and regional financial integration. The research tests conclude that there are both direct and indirect transmission channels of financial integration to the real economy. Directly, it is argued that economic openness affects economic growth through access to foreign financial markets, increasing the efficiency of financial services and helping the dispersion of risks and consumption smoothing. Indirectly, the process of international financial integration facilitates knowledge transfer, promoting trade and enhancing specialization. However the author does not observe a robust link between financial openness and economic growth in SSA region.

Afzal (2007) examines the impact of globalization empirically using trade openness and financial integration measures besides other important and relevant macroeconomic variables expected to influence the economic growth. The results show that financial openness and financial integration do not have short-run impact on economic growth.

Osada and Saito (2010) study the effects of financial integration on economic growth using an international panel data of 83 countries from 1974 to 2007. They

observe that the effects of financial integration on economic growth vary according to the specific characteristics of the countries participating in economic integration and even on the type of external assets and liabilities. In particular, when they break down external liabilities into FDI and equity liabilities and debt liabilities, the former has a positive impact on economic growth, while the latter, especially public debt, has a negative impact. Very important is considered also the existence institutions and well organized and financial markets. Countries with better organized financial markets and institutions benefit more from financial integration.

Edison et al. (2002), using a wide array of measures of international financial integration on 57 countries and various statistical methodologies, observe that financial integration does not accelerate economic growth even when controlling for particular economic, financial, institutional, and policy characteristics. Lane and Milesi-Ferretti (2008) observe that a local shock in an economy has different effects on partner countries, thereby dependent on various parameters such as the level and composition of bilateral investment and positions and the nature of co-movements between home and partner financial returns. They conclude that the asymmetries between international financial linkages and international trade linkages intensify the heterogeneity in the bilateral transmission of shocks with the degree of trade integration between advanced and developing countries to be more important than the degree of financial integration. Mougani (2012) examines the links between financial integration and growth in the case of African countries classified between "open" and "closed" countries for the 1976–2009 period. The evidence is inconclusive indicating that there cannot be established any relationship even under particular economic and financial conditions. However, he considers that the results might be different in case these countries were considered in long term. Actually, he does not contest the theoretical basis of the relationship between financial integration and economic growth.

3   Data and Methodology

3.1   The Countries

Our sample consists of the following Commonwealth of Independent States: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. The time span is from 2005 to 2012.

3.2 The Variables

Dependent variable is the growth as Dlogy ($Y =$ GDP in constant prices 2004). Taking under consideration the lack of data for the countries' sample and the period span, 2005–2012, we construct the following explanatory variables:

Trade openness as $X_1 =$ (exports + imports/GDP).
Foreign direct investment as $X_2 =$ FDI inflows/GDP.
Financial development variables as $X_3 =$ domestic credit to private sector/GDP and $X_4 =$ domestic credit by financial sector/GDP.
Financial integration variable as $X_5 =$ kaopen index (Chinn and Ito 2008).
Data is collected from the World Investment Reports, COMTRADE database, and IMF.

3.3 The Model

Thus, we construct a model where dependent variable is the growth and independent are trade, FDI, and financial variables:

$$g_{i,t} = \mu + \alpha_1 g_{i,t-1} + \sum_{j=0}^{1} \beta_j X_{i,t-j} + \sum_{j=0}^{1} \gamma_j M_{i,t-j} + \sum_{j=0}^{1} \theta_j \text{FDI}_{i,t-j} + \omega_i + \varepsilon_{i,t} \quad (1)$$

$g_{i,t}$ is growth
$t = 2005\ldots2013$, $i = 15$ individual countries
ω_i are the panel level effects (which may be correlated with the covariates)
ε_{it} are i.i.d. over the whole sample with variance σ^2_ε
β_j, γ_j, and θ_j are vectors of parameters to be estimated
$X_{it} =$ trade openness, FDI_{it} foreign direct investment, M_{it} a vector of financial variables

3.4 The Methodology

The econometric methodology is the system GMM two-step estimator developed by Arellano and Bover (1995), Blundell and Bond (1998, 2000), and Roodman (2009). Considering a possible correlation between the lagged dependent variable and the panel fixed effects and the "small T, large N" restriction, Windmeijer's (2005) procedure is implemented so that standard errors become robust after getting small sample size of the dataset under control.

Table 1 GMM estimation results

Explanatory variables	Coefficient	*P*-values
$X_1 =$ Exports + Imports/GDP	5.51e-15	0.019*
$X_2 =$ FDI/GDP	−0.00004	0.998
$X_3 =$ Domestic credit to private sector/GDP	−0.0036	0.824
$X_4 =$ Domestic credit by financial sector/GDP	0.0027	0.847
$X_5 =$ Kaopen (index)	−0.1019	0.210
AR (1)**	$Z = -2.8337$	0.0046*
AR (2)**	$Z = -1.3801$	0.1676
Number of instruments: 34		
Number of groups: 14		
Number of Obs: 98		

*Statistically significant at $a = 0.05$ sign. level
**Arerallo-Bond test for zero autocorrelation in first-differenced errors

4   The Results

After checking for the series stationarity, trying different combinations of the explanatory variables and running all the postestimation tests, we conclude to the specification reported in Table 1.

Trade has a significant positive impact on growth. So the first conclusion is that the classic trade in the given stage of development has a positive effect on growth. FDI does not seem to have any impact on the countries' growth. That means that FDI should be considered according to its composition (i.e., in what sectors it is concentrated). It is quite possible that it is concentrated to sectors that exhibit long-run performance, so the results are not obvious during the investigation period (2005–2012).

The financial development variables do not have any impact on the growth. This may be due to the different structure of the economic system of the Commonwealth of Independent States compared to Western economies' system. Our findings are consistent with those of other researchers in this field, as already has been mentioned in the literature review. Financial integration (kaopen index) has no impact on the growth of the Commonwealth of Independent States group, at least for the period we examined.

5   Concluding Remarks

Turning to the question we tried to investigate (Did the drive by the financial sector globalization empower the growth for the sample countries?), the answer is negative. Here we should refer to kaopen structure (the financial integration variable) and its image for the countries of our sample. We know that kaopen focuses on

financial openness mainly through current account transactions. This index takes on higher values; the more open is a country.

In our sample, if we exclude Estonia, Latvia, Lithuania *(countries bordering on Europe)*, and Kyrgyzstan *(proximity to China)*, the other countries present too low degree of financial openness. So for the former group of countries, we could say that we have border effects. That is, the proximity of these countries to "more capitalist" economies makes them more open compared to the rest of the sample countries. The different degree of financial integration could be a reason for getting insignificant impact of this variable for the whole sample.

Finally regarding the FDI impact on macroeconomic volatility in these countries, we can say that, if the FDI, with the given composition, does not contribute positively to growth (given the data and time span), it is quite possible that enters into the system economic instability.

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Export Diversification in Lithuanian Traditional Technology Industry

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Abstract This research study introduces the analysis of the export diversification in Lithuanian traditional technology industries by commodity groups and the geographical export markets. The actuality of research problem is based on the relation between degree of export diversification and fluctuations in export earnings and economic growth rates. The evaluation of export diversification lays the foundations to reveal the actual performance of low-tech industries and to explore their main export tendencies. The core aim of empirical study is to disclose which low-tech industry is most diversified, e.g., is best protected from possible external upheavals and ensures higher stability to the country's economy. The methods of the scientific research used in empirical study are analysis of scientific literature and mathematic estimations and comparative analysis of export concentration indexes. The calculations of export concentration indexes (HHI) are performed using Lithuanian export-of-goods data, disaggregated to the Classification of Products by Activity (CPA). The results of empirical study demonstrate a moderate level of export concentration of Lithuanian low-tech sector according to both dimensions of geographical regions and commodity groups. In order to improve Lithuanian export competitiveness and to reduce losses of future demand fluctuations in the main export markets, the recommendations for export diversification enlarging are presented in this chapter.

Keywords Export diversification • Concentration index • Herfindahl–Hirschman index • Traditional technology industry

1 Introduction

After the periods of crisis, export in Lithuania regained its position as the key factor for economic growth and prevented negative consequences from occurring. To achieve sustainable growth of export, it is vital to ensure that it is resistant to various shocks in demand and supply. One of the ways to marginalize their effect is

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to diversify exported production by goods and geographic markets. As suggested by various researches (Pineres and Ferrantino 1997; Al-Marhubi 2000; ESCAP 2004; Songwe and Winkler 2012; Cottet et al. 2012), lower degrees of export diversification correlate highly with fluctuations in export earnings and economic growth rates.

Traditional technology industry (also called low-tech sector) creates the largest fraction of export and additional value in Lithuanian economy. The contribution of the low-tech sector to the expansion of Lithuanian economy and its importance for the economy as a whole is confirmed by researches conducted (Pridotkiene et al. 2013; Saboniene et al. 2013; Laskiene and Venckuviene 2014). Due to the impact the sector has on the country's economy, we divide Lithuanian traditional technology industry into separate subsectors and seek to answer the question whether the expansion of the exports in these sectors is capable of withstanding various shocks in demand and supply. Hence, the purpose of the research is, after assessing the level of diversification in different low-tech sectors, to determine which low-tech sector is the most protected from possible external upheavals and ensures higher stability to the country's economy.

To achieve that, we perform a structural analysis on exports of separate low-tech sectors in terms of goods and markets, calculate the indices of export concentration, identify their changes throughout the selected period of time, and determine export tendencies in different subsectors.

2   Methodology and Data

Scientific literature provides various methods for assessing the level of export diversification. The choice of a measure usually corresponds to different definitions, dimensions, forms, and levels of diversification. The measures of diversification are as follows: The Commodity-Specific Cumulative Export Experience Function (CSCEEF), the Absolute Deviation of the Country Commodity Shares, the Commodity Specific Traditionalist Index (CSTI), and the Variance of the CSTI. The most commonly used measures of export diversification are the Concentration Ratios (measuring product or geographic concentration) (Samen 2010). Several measures have been developed to estimate concentration ratios. The Herfindahl–Hirschman index (HHI) is the most widely used measure of the degree of market concentration. HHI shows how a product market is concentrated in a few countries or homogeneously distributed among several countries. Likewise, it shows how exports of particular countries or country groups are concentrated on several products or otherwise distributed in a more homogeneous manner among a series of products.

Herfindahl–Hirschman index as the measure of the degree of market concentration by countries and geographical regions may be expressed as follows (United Nations Conference on Trade and Development 2012):

$$\text{HHI}_j = \frac{\sqrt{\sum_{i=1}^{n} \left(\frac{x_{ij}}{X_j}\right)^2} - \sqrt{1/n}}{1 - \sqrt{1/n}} \qquad (1)$$

where

HHI_j—concentration index of a country or country group,
x_{ij}—value of export for country j and product i,
$X_j = \sum_{i=1}^{n} x_{ij}$—total export,
n—number of products.

Herfindahl–Hirschman index as the measure of the degree of market concentration by products may be written as follows (United Nations Conference on Trade and Development 2012):

$$\text{HHI}_i = \frac{\sqrt{\sum_{j=1}^{n} \left(\frac{x_{ij}}{X_i}\right)^2} - \sqrt{1/n}}{1 - \sqrt{1/n}} \qquad (2)$$

where

HHI_i—value of concentration index for product i,
x_{ij}—value of export for country j and product i,
$X_i = \sum_{i=1}^{n} x_{ij}$—total export,
n—maximum number of individual economies.

HHI value can vary between 0 and 1. When total export consists only of a single group of products or the products are exported to a single country—trade partner, the index gains its highest value. An index value that is close to 1 indicates a very concentrated market. On the contrary, the bigger is the number of exported product groups or export countries the lower is a possible value of the index. Value 0 reflects a completely equal distribution of products or countries.

Sub-ranges of Herfindahl–Hirschman index are listed below (U.S. Department of Justice and the Federal Trade Commission 2010; Mundeikis 2013):

HHI < 0.01 indicates a highly diversified market,
0.01 < HHI < 0.15 indicates an un-concentrated market,
0.15 ≤ HHI < 0.25 indicates a moderately concentrated market,
HHI ≥ 0.25 indicates a highly concentrated market.

The HHI calculations are performed using Lithuanian export-of-goods data, disaggregated to the Classification of Products by Activity (CPA 2008) at 2-digit and at 4-digit group level. The choice of CPA classification has been determined by the fact that it enables to select the volumes of the export of the products which are

exclusively of Lithuanian origin. Since our aim is to evaluate diversification level of the export of the products that have been manufactured in Lithuanian industry, our analysis does not include the data of reexport. For the analysis, we use the data from the Lithuanian Department of Statistics (Statistics Lithuania) bases for the years 2008–2011.

3 Finding and Discussion

3.1 *Export Structure of the Traditional Technology Industry in Terms of Goods Sold*

According to previous research of Laskiene and Venckuviene (2014), the traditional technology industry can be divided into four main groups (CPA_2008 2-digit group level codes are provided in the brackets):

- Food products, beverages, and tobacco products (10, 11, 12);
- Textiles, wearing apparel, leather and related products (13, 14, 15);
- Wood and wood products, except furniture; paper products; printing (16, 17, 18);
- Furniture and other manufactured goods (310, 329).

Export volumes of traditional technology industry groups for 2008–2011 are presented in Table 1. Analysis of 4 year averages showed that the largest part of low-tech sector exports can be attributed to food products, beverages, and tobacco products. The second largest sector is furniture and other manufactured goods, with textiles, wearing apparel, leather and related products following directly afterwards. The smallest share of exports amongst the analyzed products is attributed to wood and wood products, except furniture; paper products; and printing.

In the following analysis, the sector of food products, beverages, and tobacco products is excluded, as products from this group are separately analyzed in other research. For this particular research, data from the remaining three groups of products will be used:

- Textiles, wearing apparel, leather and related products (hereinafter referred to as textile products);

Table 1 Export of goods of Lithuanian origin with respect to groups of traditional technology industry, mln. LTL

	2008	2009	2010	2011
Food products; beverages; tobacco products	4342.36	4192.85	5094.23	6098.36
Textiles; wearing apparel; leather and related products	2182.56	1720.20	2032.19	2276.42
Wood and of products of wood and cork; paper and paper products; printing and recording services	1720.02	1324.18	1829.00	2162.02
Furniture; manufactured goods n.e.c.	2144.22	1977.26	2359.89	2834.22
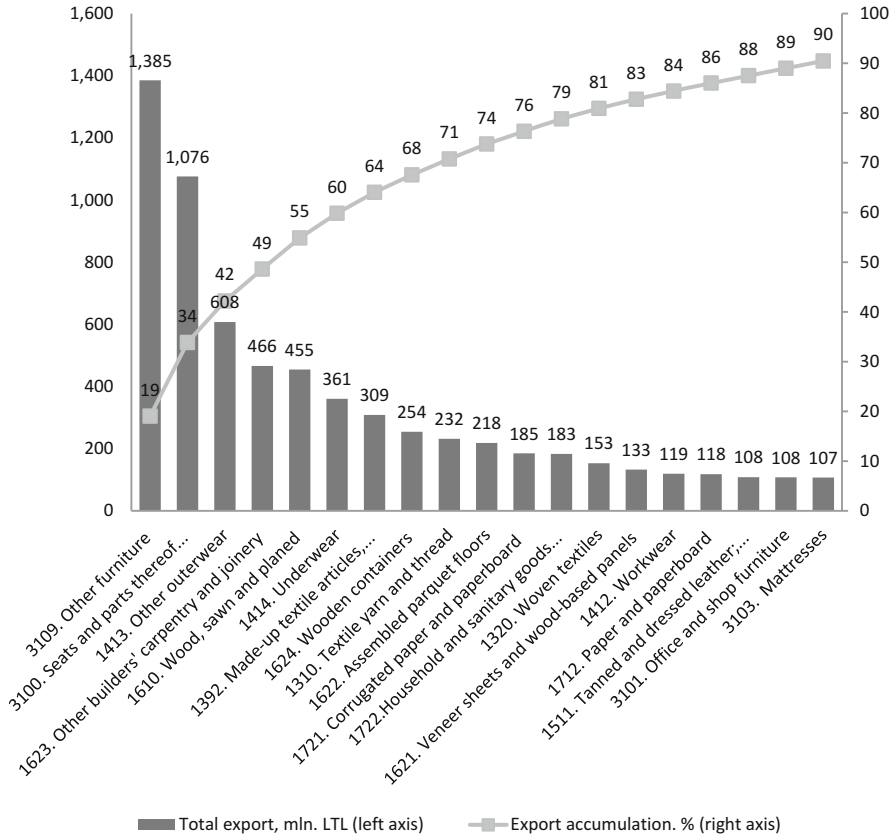
Fig. 1 Export of Low-tech sector (without food products) goods in 2011 (90 % of all export)

- Wood and wood products, except furniture; paper products; printing (hereinafter—wood and paper products);
- Furniture and other manufactured goods [simply furniture, as other manufactured goods constitute insignificant fraction in this group (only 4 %)]. In order to determine the products from these three traditional technology industries with the largest export volumes, the authors used data on exports of products of Lithuanian origin from this specific industry for 2011. After grouping gathered information, export values of different product groups were determined on a 4-digit level. These results are presented in Fig. 1 in descending order.

The vast majority of exported production belongs to "other furniture" group. Export of these goods constituted more than 19 % of the whole traditional technology industry without the foods group and more than 10 % had the foods group been included. The "other furniture" subcategory includes the following products:

wooden furniture for use in the bedroom, dining room, and living room and furniture of plastics or other materials (e.g., cane, osier, or bamboo; finishing services of new furniture; sub-contracted operations). Furniture-related products were also in the second place in terms of export volumes. The products include: Seats and parts thereof and parts of furniture. Export of these products was 15 % of the all low-tech sector exports without the foods group and more than 8 % together with the foods group. More than 8 % of low-tech sector exports without the foods group and more than 4 % with the foods group can be attributed to other outerwear. This product group includes such products as outerwear, knitted or crocheted; worn clothing; and others. Exports of products from "other builders' carpentry and joinery" group constituted more than 6 % of the exports of the traditional technology industry without the foods group and more than 3 % with the foods group.

This product group includes the following goods: windows, French windows and their frames, doors and their frames and thresholds, of wood; shuttering for concrete constructional work, shingles and shakes, of wood; prefabricated wooden buildings; sub-contracted operations as part of manufacturing of other builders' carpentry and joinery; and others. Very similar volumes were reached in the category of wood, sawn, and planed products, as their exports in 2011 reached 6 and 3 %, respectively. Aggregated exports of the remaining products constituted less than a half (45 %) of all exports of the traditional technology industry (without food products group).

To assess export diversification of the traditional technology industry (without foods group) in terms of goods sold, Herfindahl–Hirschman index was calculated. Its value in 2011 was 0.159, and it indicates a moderate level of export concentration for this industry with respect to the goods sold. A moderate concentration of export with respect to the goods sold indicates that there is a risk that the traditional technology industry in Lithuania can be highly affected by shocks in demand of the most vital products in this product category. In the following analysis, the authors seek to determine which low-tech sectors (without the foods group) are more resilient to fluctuations in the number of foreign customers. To achieve that, separate export structures of textile, wood, and furniture product groups are presented, and export diversification levels for these groups are assessed with respect to the goods sold.

Figure 2 shows the export structure of Lithuania's textile products in 2011. From this figure, it can be seen that as much as 27 % of all exports of textile products can be associated with other outerwear, with components such as outerwear, knitted or crocheted, worn clothing and other articles. More than half (56 %) of these exports come from three textile product groups—abovementioned outerwear, underwear, and made-up textile articles, except apparel. Calculated export concentration index for textile goods for 2011 was 0.193, and it allows to concluding that export diversification of these products in terms of goods sold is rather moderate.

Figure 3 presents the export structure of Lithuanian wood and paper products in terms of goods sold in 2011. From the figure, it can be seen that more than a half (54 %) of all exports in this category comes from three main product groups: other builders' carpentry and joinery; wood, sawn, planed; and wooden containers.
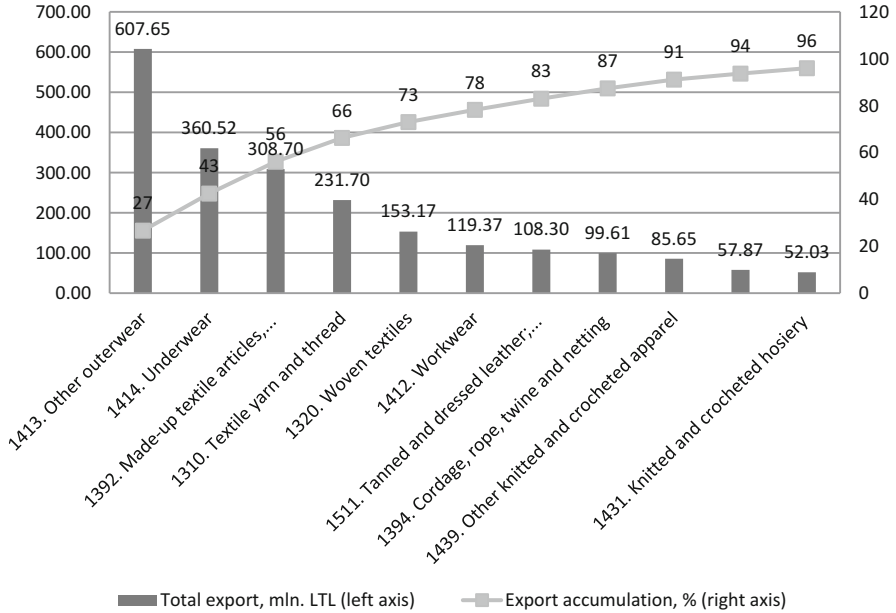
Fig. 2 Export of Lithuanian textile goods in 2011 (96 % of all export)
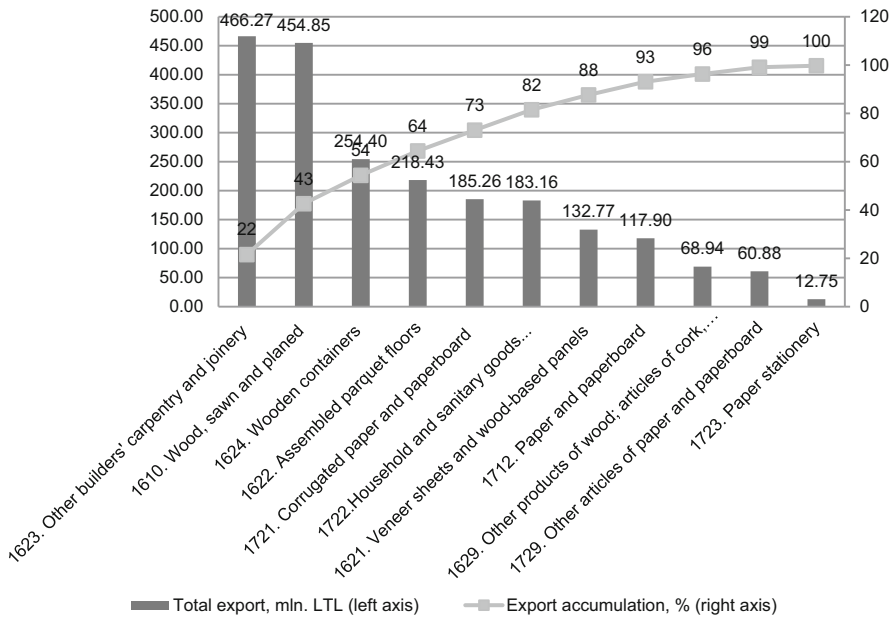
Fig. 3 Export of Lithuanian wood and paper products in 2011
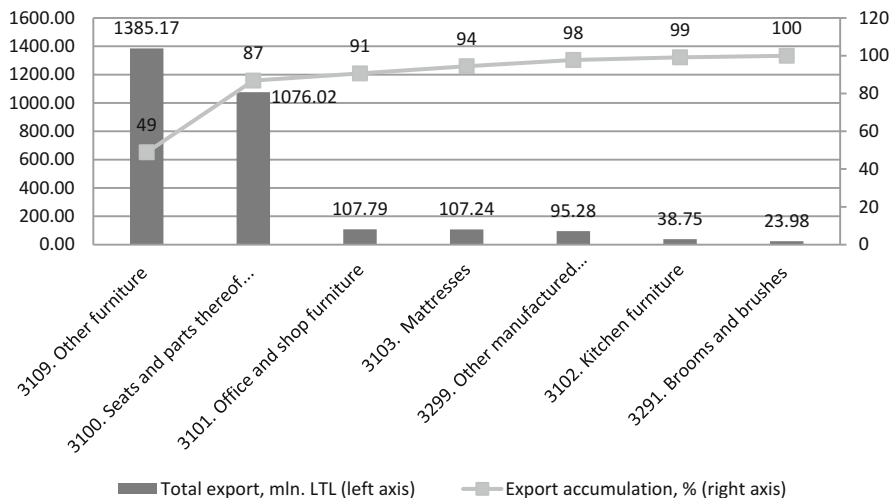
Fig. 4 Export of Lithuanian furniture goods in 2011

Although the production of wood and paper has the smallest part in the traditional technology industry, its export concentration index is 0.142, and it suggests that export of these goods is rather diversified in terms of goods sold. Hence, due to the variety of exported goods, export of wood and paper goods is protected quite well from negative demand fluctuations in foreign markets.

Figure 4 shows the export structure of furniture industry goods in terms of goods sold in 2011. From this figure, it can be seen that 87 % of aggregated exports of this industry come from two main product groups: other furniture [consists of such products as wooden furniture for use in the bedroom, dining room, and living room; furniture of plastics or other materials (e.g., cane, osier, or bamboo), and others] and seats and parts thereof and parts of furniture. The calculated export concentration index in terms of the goods is 0.393 and clearly shows high export concentration in a few distinguished products. It suggests that a decline in the demand for Lithuanian furniture in foreign markets can hugely affect Lithuanian furniture industry.

By calculating the export concentration index, it is possible to also assess the product groups that significantly contribute to the growth of the exports. If export diversification of any product group increases throughout a period, it indicates that exports of less popular goods of the group (constituting smaller fraction of the whole group's exports) were growing faster during the analyzed period than the exports of the more important goods, i.e., the export structure of the particular group of products becomes more equal. When the tendency is opposite—exports of more important products are growing faster than exports of less important products—export diversification of the particular group declines, i.e., specialization in exporting the most important products increases.

Such analysis was conducted to assess changes in export concentration in terms of goods in different low-tech sectors (except foods products) between 2008 and
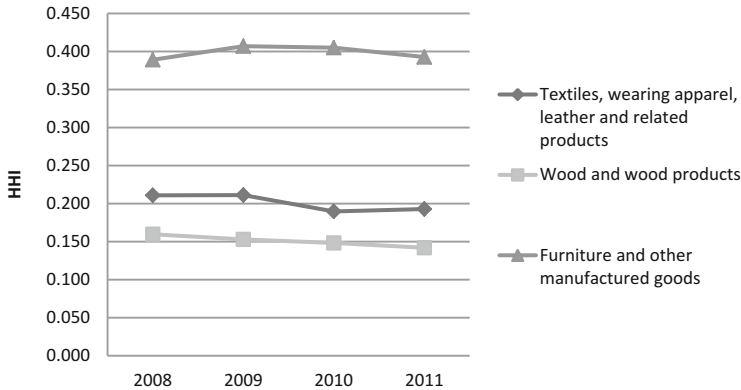
Fig. 5 Changes in HHI in terms of goods sold between 2008 and 2011 in different low-tech sectors

2011. Changes in HHI are presented in Fig. 5 by separating exports into product groups. From information in Fig. 5, it can be seen that the lowest export concentration in terms of goods sold is in the wood and paper products industry whereas the highest in furniture goods. However, by assessing the change in the concentration index during these 4 years, it can be seen that export concentration in terms of goods sold was stable in all sectors although the beginning of this period (especially 2009) was marked by big global economic shocks and sudden decrease in production volumes in Lithuania. Regular, though marginal, tendency of HHI decline can be observed only in the industry of wood and paper products, and it allows stating that the export structure of this industry is gradually becoming more equal. Such tendency does not occur in any other industry sector analyzed.

3.2 Export Markets of the Traditional Technology Industry

Further on, after grouping and generalizing data retrieved from Lithuania's statistical bureau for 2011 on exports of goods of Lithuanian origin by traditional technology industry groups defined by CPA classification on 4-digit level, the main export markets were determined and presented in Fig. 6.

From information in Fig. 6, it can be seen that Germany is the single largest importer of Lithuanian low-tech sector production (except foods products). 17 % of all production in Lithuania was exported to Germany. After it, other big importers were Sweden, the United Kingdom, Norway, Denmark, France, and others, i.e., concentration on economically developed countries which do not have high internal demand fluctuations. This aspect can have a positive impact on the export perspectives of low-tech sector goods of Lithuanian origin (except foods products). However, it must be noted that the main importers of production analyzed are
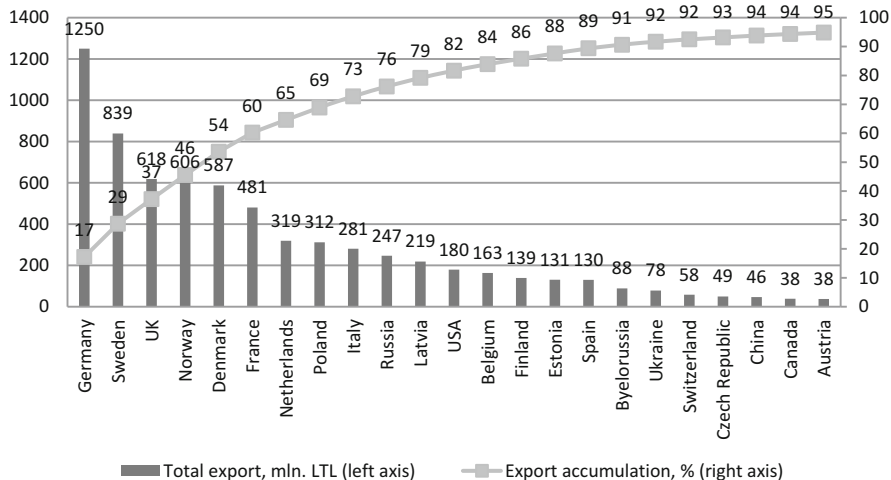
Fig. 6 Export markets for Low-tech sector (except foods products) in 2011 (95 % of all exports)

concentrated in Europe. Also, a part of the production is exported to the United States, China, and Canada; however, it constitutes only a marginal part of all exports.

To assess export diversification of the traditional technology industry in terms of countries, Herfindahl–Hirschman index was calculated. Its value for 2011 was 0.205 and it indicates a moderate export concentration level for this industry. A moderate export concentration in terms of countries indicates that there is a risk that the analyzed Lithuanian traditional technology industry should be diversified amongst foreign markets. In the following analysis, the authors try to determine which low-tech sectors (except foods products) are more diversified in terms of foreign markets. To achieve that, export markets for separate textile, wood, and furniture product groups are presented, and export diversification levels in terms of countries are assessed. Figure 7 shows the main export markets for Lithuanian textile products for 2011 (95 % of all exports).

From information in Fig. 7, it can be seen that the main trade partners are developed European countries: Germany, United Kingdom, Denmark, Sweden, Norway, France, Italy, Belgium, and others. Aggregate exports to these countries account for more than 75 % of all exports of Lithuanian textile products. The biggest export market for these products is Germany, which accounts for as much as 18 % of all Lithuanian textile exports. HHI is 0.219 and indicates moderately concentrated exports.

Lithuanian wood and paper export markets for 2011 (95 % of all exports) are presented in Fig. 8. From information in Fig. 8, it can be seen that amongst the main export markets for this industry, some very unusual countries for the traditional technology industry (except food products) can be noticed, such as Russia (imports approximately 6 % of products), Latvia (approximately 4 %), and Poland (approximately 4 %). However, other major importers of Lithuanian wood and paper
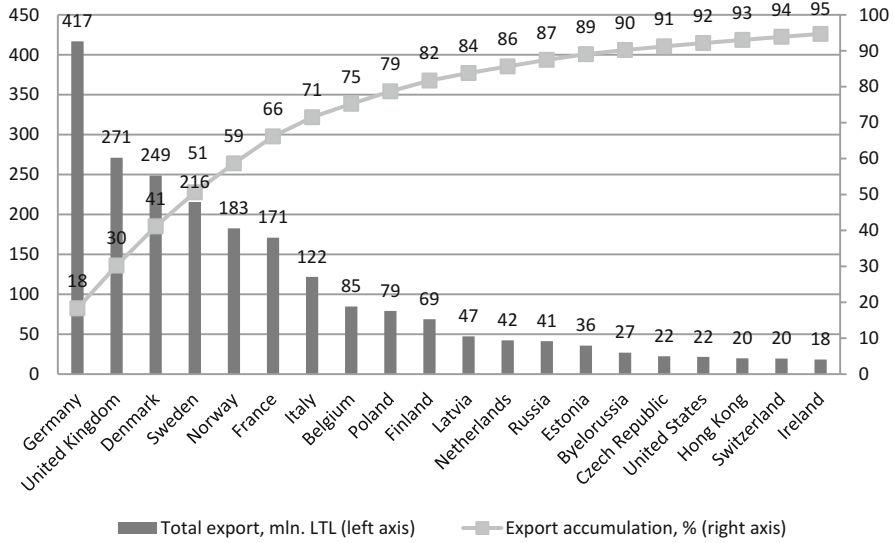
Fig. 7 Export markets for Lithuanian textile products in 2011 (95 % of all exports)

products remain the same: the majority of Lithuanian wood and paper exports are directed to Germany (approximately 18 %). Apart from the already mentioned countries, Lithuanian wood and paper products are exported to Norway, Sweden, Denmark, Netherlands, and other European countries. Also, some of the products are exported to Australia, although its share is just 1 %. HHI index is 0.187 and indicates moderately concentrated exports.

Export markets of Lithuanian furniture products in 2011 (95 % of all exports) are presented in Fig. 9. From information in Fig. 9, it can be seen that the main importer of Lithuanian furniture is Sweden. Exports to this country accounted for 17 % of all furniture exports in 2011. It is related with the orders of IKEA, which are executed by various Lithuanian furniture producers. Other bigger furniture export markets are Germany (approx. 16 %), United Kingdom (approx. 8 %), Denmark (approx. 7 %), and others. Yet again, production of this industry sector is mainly exported to developed European countries, which suggests good perspectives for the industry. Amongst the importers of Lithuanian furniture we can see such countries as the United States, China, Hong Kong, though exports to these countries are rather low. However, this geographical versatility is extremely vital, as it allows lowering the risk related to fluctuations in demand in the main export markets. Therefore, expansion of exports to further regions shall be one of the factors allowing strengthening prospects of these products. Herfindahl–Hirschman index is 0.211 and indicates moderately concentrated exports.

Similarly to the analysis of product groups that contributed the most to the expansion of exports and considering changes in concentration indices in terms of countries throughout the period, it is possible to assess whether the export structure in terms of countries is becoming more equal or diverse; it keeps concentrating on
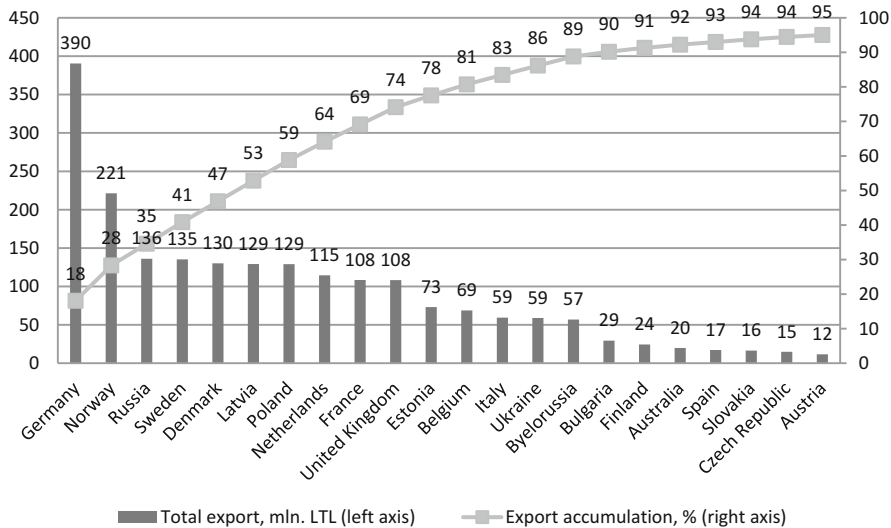
Fig. 8 Export markets for Lithuanian wood and paper products in 2011 (95 % of all exports)
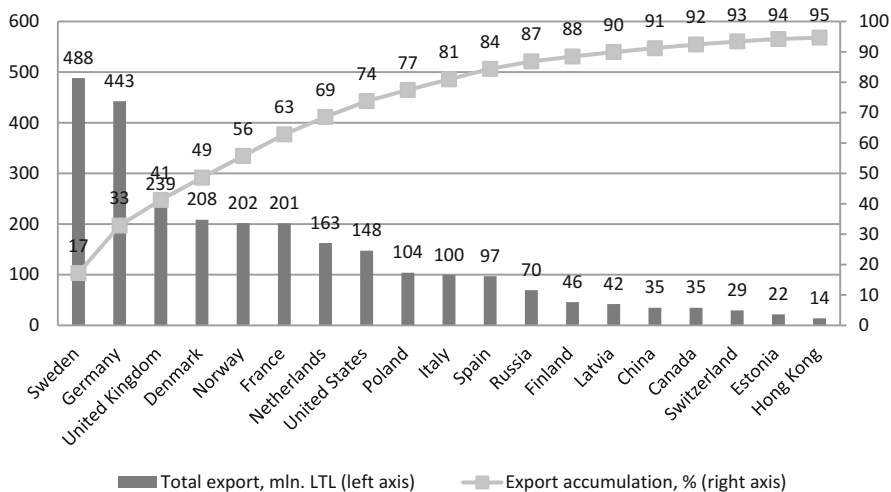
Fig. 9 Export markets for Lithuanian furniture products (95 % of all exports)

the main export markets. If export diversification increases throughout the analyzed period, it indicates that exports to less significant importers are growing faster and the export structure in terms of countries is becoming more equal, whereas if the tendency is the opposite—exports to the main markets grow faster than to less significant markets—export concentration in terms of countries increases.

Changes in HHI in terms of countries between 2008 and 2011 in separate low-tech sectors (except food) are presented in Fig. 10.
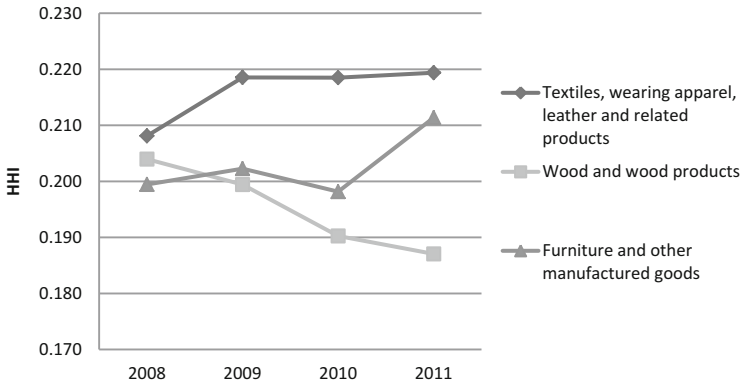
Fig. 10 Changes in HHI in terms of countries between 2008 and 2011 in different low-tech sectors

From information in Fig. 10, it can be seen that the highest export concentration in terms of countries throughout the period analyzed was in Lithuanian textile products. Their diversification decreased during the crisis period in 2009 and maintains a rather stable level of moderate concentration. If we consider Lithuanian furniture products, then we can see that their export diversification in terms of countries is lower than that of textile products, although also considered as moderate. However, the change of HHI is not proportional and an unfortunate event for this sector was observed—rapid decline of export diversification in terms of countries in 2011. It suggests that exports of Lithuanian furniture products tend to concentrate on the main markets (i.e., Sweden), and unfortunate fluctuations of demand in these markets can have a negative impact on this Lithuanian industry sector. According to the value of HHI, diversification of wood and paper product exports in terms of countries is also moderate; however, HHI values are significantly lower than those of textile and furniture industry products throughout the analyzed period. Also, export diversification of Lithuanian wood and paper products in terms of countries has a tendency to grow and if this tendency persists, then soon this export will be defined as un-concentrated export.

3.3 Export Tendencies of the Traditional Technology Industry (Except Food Products)

Export dynamics of the traditional technology industry (except food products) are presented in Table 2. Table 2 contains separate export volumes of product groups in 2-digit level according to CPA classification for 2008–2011. It can be seen that export volumes have been decreasing since 2008 in all product groups and in 2009 were at their lowest during the entire period analyzed. It is definitely related to the global financial crisis, during which all countries experienced huge shocks in

demand. The biggest decline is observed in wood and wood products, except furniture. Production in this group decreased by 25 % in 2009 compared to 2008. During the same period, textile exports declined by more than 23 %, clothing—more than 20 %, paper and paper products—more than 13 %. Furniture exports, which account for the largest share of low-tech sector (except food) products, decreased by 6.7 % in the respective year. Exports of other groups (such as leather and leather products and other unsorted products), that account for a relatively small part of the traditional technology industry (except food product groups), also declined, except printing and recording services, where export increased by almost 95 %, though export of these products is insignificant, as in 2009 their value was just LTL 5120. However, after 2009 the situation stabilized and rapid export growth can be observed almost in all product groups. Out of the four most important product groups that we analyzed (wood and related products, furniture, textile, and clothing) the highest export growth can be observed in the group of wood and wood products except furniture, where exports increased by 35.9 % in 2010 and by 16.3 % in 2011. Furniture industry also showed a huge recovery—their exports grew by 18.9 % and by 19.7 % in 2010 and 2011, respectively. Exports of textile goods increased 15.6 % in 2010 and 12.9 % in 2011. Exports of clothing products increased 15.4 % in 2010 and 9.7 % in 2011. Even more impressive export growth during 2010–2011 can be observed in groups of other products [leather and leather products (86.3 and 28.9 % respectively), paper and paper products (45.4 and 23.9 % respectively), printing and recording services (222 and 97 % respectively) and other and unsorted production (30.2 and 30.3 % respectively)]; however, their impact on the total volume of industry's exports is not significant.

General export dynamics of low-tech sector products (except food products) in their main markets is shown in Table 3. Ten largest importers of this industry's production were selected for the analysis (see Fig. 6), such as Germany, Sweden, United Kingdom, Norway, Denmark, France, Netherlands, Poland, Italy, and Russia. In Table 3, it can be seen that in 2009 Lithuanian exports declined to almost all main export markets. The most significant decline of this industry sector was observed in exports to Russia, where the exports decreased by a third (33.3 %) in monetary terms compared to the previous year. The lowest decline of our analyzed production was observed in exports to Germany (8.7 %) and Denmark (13.7 %). Exports to other countries suffered declined by 19–23 %. Only in two countries, the global economic crisis had no effect on the exports of low-tech sector (except foods' group) production of Lithuanian origin. Exports to both Italy and the Netherlands increased in 2009. The growth was 11.9 and 4.2 %, respectively. It suggests that export volumes to these countries are affected by factors other than changing internal demand.

From 2009, the analyzed industries experienced growth in exports to all major markets, and already in 2011, the volumes of 2008 were reached and exceeded (except for Poland, where in 2010 exports grew by 17.9 % and in 2011 slowed down to 5.7 %). The highest growth in 2010 and 2011 was to Norway (32.9 and 31.4 %, respectively) and Russia (27.1 and 31.2 %, respectively). In the case of Russia, export volumes are fluctuating highly in this market: during a downturn, exports

Table 2 Export dynamics of low-tech sector products of Lithuanian origin (except food products) between 2008 and 2011

	2008	2009	2010	2011
13 Textiles	839,623	642,918	743,223	839,147
14 Wearing apparel	1,272,651	1,013,623	1,170,332	1,284,345
15 Leather and related products	70,285	63,663	118,632	152,924
16 Wood and wood products, except furniture	1,358,033	1,010,022	1,372,181	1,595,657
17 Paper and paper products	361,980	314,155	456,805	566,334
18 Printing and recording services	3	5	16	32
31 Furniture	2,043,128	1,906,999	2,268,378	2,714,969
329 Manufactured goods n.e.c.	101,093	70,258	91,510	119,255

Table 3 Export of low-tech sector production (except foods' group) of Lithuanian origin to the main export markets of this industry sector

	2008	2009	2010	2011
Germany	933,298	851,682	1,024,468	1,265,130
Sweden	667,840	540,580	667,690	854,682
Norway	467,123	356,335	473,473	622,093
Denmark	571,591	493,216	548,668	591,332
Netherlands	220,376	229,726	285,082	329,166
United Kingdom	590,999	475,165	581,001	644,121
France	387,210	301,168	366,461	466,221
Poland	303,900	239,904	283,023	296,387
Italy	187,990	210,374	250,376	275,843
Russia	234,975	156,629	199,149	261,249

decline relatively much, whereas during better times one can see a significant positive impact.

4 Conclusions

This research analyzed the structure and the path of exports in the traditional technology industry in Lithuania and determined export tendencies. Analysis of averages for 2008–2011 revealed that the low-tech sector products consist mainly of food products, beverages, and tobacco products. The second largest share is occupied by production of furniture as well as production not listed anywhere else, with textile, clothing, and outerwear product groups not far behind. The lowest export share amongst the analyzed products is constituted by wood and paper products group. In the following analysis, after separating exports of food products, as this sector is explicitly analyzed in other studies, it was determined that the most exported products were "other furniture" and seats and parts thereof and parts of

furniture groups. Exports of these products in 2011 constituted more than a third of all low-tech sector exports (except foods' group).

Herfindahl–Hirschman index revealed a moderate level of export concentration of Lithuanian low-tech sector in terms of exported goods. Therefore, in order for this Lithuanian industry sector to be able to resist unfavorable external shocks, it is necessary to further diversify exported production. As regards separate sectors, the largest export diversification in terms of goods can be seen in wood and paper production, moderate—textile production, and exports of furniture production can be considered highly concentrated. The change of HHI during 2008–2011 suggests that export concentration in terms of goods is stable in all analyzed sectors. A marginal tendency of declining HHI can be observed in wood and paper industry, which suggests that exports of less important goods in this sector are growing, and thus the whole export structure is becoming more equal. Such tendency is not observed in textile and furniture production exports.

Analysis of exports of low-tech sector (except food) product groups in terms of countries revealed that Germany is the biggest importer of production from this industry. Other key export markets for this production are Sweden, United Kingdom, Denmark, Norway, France, and other countries, i.e., mainly economically developed countries which do not suffer from significant internal demand shocks. This factor can have a positive impact on the prospects of exports of low-tech sector (except foods' group) production of Lithuanian origin.

Herfindahl–Hirschman index suggests a moderate level of export concentration in Lithuanian low-tech sector (except food products) in terms of foreign markets. The highest export diversification in terms of countries can be seen in wood and paper production exports; moreover, it has a tendency to grow further. It is a positive sign for this sector. The lowest export diversification in terms of countries can be seen in textile production, just slightly higher in furniture production. However, an increase in export concentration in terms of countries in Lithuanian furniture industry in 2011 suggests that exports of products from this industry group tend to be concentrated around the main export markets. Therefore, an expansion of export markets is mandatory to avoid future demand fluctuations in the main export markets. Even though exports to European Union countries provide more stability, these markets are highly related to each other and demand fluctuations in one country can affect internal demand in the other countries. Therefore, it is necessary to diversify export markets and further focus on global markets: Asia, Africa, and North and South America.

Analyses of low-tech sector (except food products) export volumes during the analyzed period revealed tendencies of this industry. Export volumes in 2009 decreased significantly to all main export markets as a result of the global financial crisis; however, already from the next year there was a significant recovery and growth of the exports. It is believed that the growth of the exports was significantly impacted by growing external demand and better competitiveness of the goods exported, triggered by lower variable costs per unit of production. The ability of Lithuanian businessmen to maintain their markets is also noticed.

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The Impact of Environmental Taxes on Competitive Performance of Pollution-Intensive Industries Among Transition Economies: Evidence from Panel Analysis

Sabina Silajdzic and Eldin Mehic

Abstract The persistent differences in environment-related taxes across countries may be considered as a source of competitive (dis)advantage depending on countries' commitments to sustainable development and environmental protection. In this study, an attempt is made to overcome at least two deficiencies associated with previous literature concerning the influence of environmental stringency on trade flows among transition economies, the measurement of environmental stringency that rarely accounts for the direct impact of taxing pollutant emissions, and the common use of cross-section analysis encompassing transition economies. Although, economists and policy makers generally agree that prices should incorporate the full costs of environmental degradation and that market-based instruments present an effective environmental policy measures, the introduction and the use of these measures has remained limited. Previous literature has not studied the impact of environment-related taxes on relative export performance of transition economies' heavy pollutant industries in a dynamic and an integrated framework that allows for more validated assessment of costs/benefits of environmental regulation. This research attempts to fill-in this gap in the literature. The results of panel analysis in this chapter seem to render support to the hypothesis of the least regulated transition economies, i.e., CEE EU member states tend to specialize in pollution-intensive industries and tend to benefit from differences in compliance with environmental regulation among EU countries.

Keywords Exports • Pollution-intensive industries • Environmental regulation

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1 Introduction

The importance of environmental policy and regulation is well substantiated in the traditional literature examining the relationship between economic growth and the environment. Nowadays, the imperative of environmental policy is becoming more pronounced in the context of sustainable development, the concept that attempts to link environment, economy, and the society while calling for the convergence between those three pillars of sustainable development. Although, the concept of sustainable development (SD) has been widely recognized and accepted as the new development paradigm, the implementation has proven difficult. Especially, balancing the goals of economic efficiency and environmental protection remains critical issue. This is not surprising since increasing economic efficiency is often associated with environmental degradation and natural resource depletion. In particular, the question on how to integrate economic and environmental policy and make progress in both dimensions reinforcing the convergence between the two pillars remains an open question.

Governments' inability to systematically analyze cost and benefits of environmental protection has often resulted in environmental policy being considered as a trade-off of every negotiation. Although economists and policy makers generally agree that prices should incorporate the full costs of environmental degradation and that the introduction of market-based instruments like environmental taxes or trading-permit systems present an effective tool in protecting and safeguarding the environment, countries remain reluctant on imposing these measures. For illustration, according to recent OECD estimates, revenues collected from environmental taxes are an estimate just at around 2.2 % of GDP on average. This is to say that environmental taxes, although generally considered as effective policy measures, are overwhelmingly perceived to come at the cost to a country's competitiveness. In view of this, it is not surprising then that the differences in the use and implementation of market-based instruments, and above all, environmental taxes have generated a lot of indecisiveness and trade-offs in environmental policy design among countries. Put differently, there is a "fear" that countries with lax environmental stringency potentially enjoy a sort of a comparative advantage, a view that may postpone the implementation of effective policy tools among countries, thus adversely affecting the environment in the long run.

The purpose of this chapter is to examine the impact of stringent environmental regulation on competitive position of pollution-intensive industries in selected transition countries, i.e., Central and Eastern European (CEE) countries. Importantly, we use an extended gravity framework to capture the differences in environmental policy across the ten CEE countries using CEE bilateral trade flows with EU-15 in the 2000–2013 period. The contributions of this chapter are at least twofold. Precisely, we go beyond recent literature, by incorporating data on wide-ranging environmental taxes, the crucial variable used to describe the environmental stringency in our analysis. Essentially, the effect of environmental taxes on industry competitiveness has not been previously studied (to the best of our

knowledge) in a transition economy context. Given that taxes are considered effective policy measure, it seem important to shed some light on its likely effect on country's competitive position, and especially in the context of CEE countries as new-EU member states. Second, we analyze the influence of stringent environmental policy while relaying on more disaggregated data, i.e., bilateral trade flows, and by accounting for the likely different impact of environmental policy across sectors and time. We follow previous research and we examine the influence of environmental policy on pollution-intensive industries: primary iron and steel, non-ferrous metals, industrial chemicals, pulp and paper, and nonmetallic mineral products. According to conventional approach in the literature, these industries are classified to have both high levels of abatement expenditures per unit of output, as well as identified to rank high on actual emission intensity (see Hettige et al. 1992).

To this end, we use panel regression analysis and develop an extended gravity model in which we control for other important factors of industrial competitiveness including FDI and related knowledge spillovers, labor costs, and domestic investments. Essentially, this chapter draws important conclusions for policy and addresses the issue of environmental policy inconsistencies, e.g., differences in compliance with environmental protection across EU countries. This chapter is structured as follows. In following section, we provide a brief review of the theoretical hypothesis and review the previous literature. Section 3 elaborates on the conceptual framework of the analysis, referring to the context of investigation and the definition of environmental stringency in this study. Section 4 presents the model to be estimated and the methodology used in this analysis. Section 5 provides discussion of results and draws important conclusions and implications for policy.

2   Literature Review and Hypothesis

The differences in compliance with environmental protection both internationally and across EU member states are inevitably linked to theoretical misconceptions and the inconclusive empirical evidence on the matter. With regard to existing theoretical misconceptions, first we emphasize that according to the traditional literature, although environmental regulation is necessary, it can only come at the cost to economic performance. The basic premise of neoclassical environmental economics suggests that regulation can only act as constrain on firms. This premise is derived from the neoclassical theory of the firm built around a profit-maximizing behavior and related assumptions (perfect information, perfect competition, exogenous technology). Accordingly, a firm's decision to innovate is assumed to be made by applying profit-maximizing criteria to perfectly known set of innovations. Therefore, profit-maximizing cleaner technology will be adopted by profit-maximizing firm without requiring regulatory stimulus. Therefore, environmental regulation is unproductive from business perspective and can only result in diversion of capital away from productive investments and hence limit the choice of technologies available. Within this theoretical framework, regulation may hardly be

perceived as an incentive to innovate, and the convergence between economic and environmental goals inherent in the concept of sustainable development seems hardly imaginable, if possible.

In view of the perceived dichotomy between environmental protection and economic growth along the lines of the traditional literature, it is not surprising than that we face differences in compliance with environmental protection across countries, including differences in environmental taxes imposed on firms. It can be postulated that environmental regulation has been considered as rival policy. If environmental regulation acts as constrain on firms, it is a source of competitive disadvantage provided countries use more stringent environmental policy and vice versa. More precisely, the persistent differences in environment-related taxes imposed on industries across countries may be considered as a source of competitive (dis)advantage depending on individual country commitment to sustainable development and environmental protection.

Many scholars and notably evolutionary economists have challenged the neoclassical argument while proposing that ER has the potential to reconcile the dichotomy between environmental protection and economic growth, while rising the awareness on risks such policies convey in relation to key features of industry response including innovation, learning, and experience. Firms differ in environmental strategies they adopt and more importantly their ability to meet environmental regulation. Worthwhile mentioning, the traditional paradigm has been challenged by Porter (1991) and Porter and van der Linde (1995). The authors have advanced the theoretical argument to support the positive relationship between environmental regulation and economic/competitive performance. Precisely, they suggest that environmental standards can trigger innovation, improving competitiveness and leading to both social and private gains. Accordingly, pollution or inefficient energy consumption may be perceived as waste of resources (e.g., raw materials not fully used, lost energy), such that properly defined environmental policy can in fact "trigger" innovation and lead to increases in productivity that are expected to offset for the costs of compliance with the regulation. Essentially, Porter Hypothesis (PH) seems incompatible with profit-maximizing behavior of the firm, implying that firms do not always make optimal choices as their choices are constrained by imperfect information, organizational and capability imperfections, or simply by market failures. Therefore, regulation may be expected to properly reflect on resource inefficiencies and/or scarcities, and essentially may signal that investments in cleaner technology and environmental protection by firms may be valuable, such that it motivates innovation efforts by firms and increases performance proficiency and competitiveness.

Intrinsic in this approach, however, is the importance to address key features of industry response related to necessary firms' structures in place to ensure continuous improvement in environmental performance, which are likely to differ across firms and industries. The impact of ER is above all determined by the firms' internal capabilities and the environment in which it operates. In this empirical analysis, we employ the evolutionary economics approach in that we attempt to account for the differences in technological proficiency across countries to question the relevance

of Porter hypothesis (PH). Accordingly, we assume that ER can lead to both costs and benefits to firms depending on the organizational capabilities of firms and industries, the uncertain nature of innovation, and the importance of firm learning (the importance of capturing dynamics of the processes—i.e., time effects).

All in all, pursuing effective environmental policies that would lead to "win win" solution continues to be the subject to doubts and disagreements. The theoretical disagreements are further complicated by inconclusive empirical evidence on the matter. Main insights to results and conclusions from past research reveal mixed results. As far as microeconomic evidence is concerned, the controversies on the matter are by and large inherent in technological specificities and complexities and innovation capabilities of individual firms and industries; see for instance (Franco and Marin 2014; Crespi et al. 2015; Nakamura 2011). Referring to macroeconomic evidence, the inconclusiveness on the effects of environmental regulation are likewise apparent. While Tobey (1990), Harris et al. (2002), and Arouri et al. (2012) found no support for the negative impact of environmental stringency on trade flows (the impact is found to be insignificant in these studies) including heavy industrial pollutants, van Beers and van der Bergh (1997) and Jug and Mirza (2005) studies render support to the hypothesis that environmental stringency exert negative influence on competitiveness of heavy polluting industries; this hypothesis has partly been supported by van Beers and van den Bergh (2000) study suggesting significantly negative impact of environmental stringency on export performance of mining and non-ferrous metal industries. Essentially, some studies have found that the impact of environmental stringency differs across countries. The observed differences seem to be principally related to the differences in the levels of technological development pointing to the relevance of technological and innovative capabilities of firms and industries necessary to comply with more stringent regulation and to potentially offset for costs of compliance through innovation or increases in productivity. For instance, a study by Mc Laughlin and Coffey (2009) has found a negative impact of increases in environmental stringency for low-income EU countries, while the positive effect has been suggested for high income EU countries. All in all, empirical studies reveal extremely mixed results and inconclusive evidence, which partly have to do with the choice of the model to be estimated and the assumptions employed, and essential by the profound differences in the ways the environmental stringency is measured in these studies, which makes these studies hardly comparable, if possible (for details, see Table 1 below).

In an attempt to examine implications of different theoretical approaches and related differences in the assumptions on the potential impact of environmental regulation on industry competitiveness, in this study we focus on disaggregated data that is bilateral trade flows between the exporting CEE countries and the importing EU-15 countries and account for the important dynamic effect of regulation on aggregated exports of the CEEC's pollution-intensive industries while observing the data for the 2000–2013 period. The next section provides more details on the conceptual framework of this empirical analysis while addressing weaknesses of the previous literature.

Table 1 Previous empirical research on the impact of environmental regulation on trade flows

Author(s)	Period under investigation	Model and estimation method	Environmental stringency variable	Result(s)
Tobey (1990)	Late 1960s and early 1970s	Heckscher–Ohlin–Vanek model cross section	Survey data rating environmental stringency	No significant impact of stringent environmental regulations on trade patterns of five most pollution-intensive industries
van Beers and van den Bergh (1997)	1992	Gravity model cross section	Energy intensities and recycling rates	Significant negative effect of strict environmental policies on total trade flows and insignificant effect on "dirty" trade flows
van Beers and van den Bergh (2000)	1999	Gravity model cross section	Adopted from Tobey (1990)	No significant effect for dirty trade flows with the exception of mining and nonferrous metals sector; relatively positive effect for total trade flows and pulp and paper
Harris et al. (2002)	1990–1996	Gravity model (panel analysis and time effects)	Six indicators based on relative energy consumption and supply	With specific effects taking into consideration: – An insignificant effect of stringent environmental regulations Without specific effects: – No effect (total trade flows) – Positive effect ('dirty' trade flows)
Jug and Mirza (2005)	1996–1999	Gravity model (panel analysis and time effects)	Abatement costs	Negative effects of strict environmental regulations on exports
Mc Laughlin and Coffey (2009)	2000–2005	Gravity model cross section	Survey data rating environmental stringency	Effects on an increase in stringency of environmental regulations (in general): – Positive on exports of high-income EU members – Negative on exports of low-income EU members
Arouri et al. (2012)	Malaysia 1971–2012	Panel and time fixed effects	CO_2 emissions (proxied by gross domestic product and energy consumption)	Positive and insignificant

3   Conceptual Framework: How Do We Measure Environmental Stringency?

We depart from previous literature in that we use new data and indicators of environmental stringency and apply it to the context of transition economies. Importantly, CEE are assumed to be at the lower level of technological development and sophistication compared to other more advanced European economies, i.e., EU15, hence less capable of complying with more stringent environmental regulation. This is why we use extended gravity framework in which we examine the impact of environmental stringency while accounting for important differences in those, presumably technological and innovative capabilities across CEE countries. To this end, we incorporate data on FDI and related knowledge spillovers and Gross Fixed Capital Formation (GFCF). Further, given this context of investigation, and the fact that CEE have less rigid environmental regulation compared with more developed EU countries, we assume that relatively lax environmental policy in these countries, present a comparative advantage that may positively affect trade flows of pollution-intensive industries. This is to say that least regulated countries may tend to specialize in polluting industries, with limited government motivation to provide right incentives to users of technology to innovate and preserve the environment.

In this analysis, we define polluting industries in accordance with the Quiroga et al. (2007) which use a more direct approach to classify "dirty industries." Accordingly, heavy pollutants are identified as industries which rank high on actual emissions intensity, and by this criterion five conventional sectors emerge as heavy air and water pollutants, namely primary iron and steel, nonferrous metals, industrial chemicals, pulp and paper, and nonmetallic mineral products. High ranking industries are classified by using the 3-digit Standard Industrial Classification (SIC) level computed by the World Bank (see Table 2 for details).

Essentially, in this analysis, we use environmental taxes (ET) to depict on environmental stringency. Precisely, by the way we measure environmental stringency, we account for broad-based taxes including energy-, pollution-, transport- and resource use-related taxes. Notably, taxing pollution, the use of natural resources, and energy consumption is considered the essential market-based instrument to internalize the costs of environmental degradation. By the way we measure environmental stringency in this analysis, we attempt to depict on individual country commitment to preserving the environment, namely the environmental health and ecosystem vitality, environmental protection, and resource management. The growing empirical evidence reveals that environmental taxes or trading-permit systems present an effective tool in protecting and safeguarding the environment. In spite of this, most countries, regardless of their level of development, remain reluctant on imposing these policy measures.

Although, economists and policy makers generally agree that prices should incorporate the full costs of environmental degradation and that market-based instruments present effective environmental policy measures, the introduction and

Table 2 Pollution-intensive industries included in the study (SITC Rev. 3)

Sector	Description
Primary iron and steel	Pig iron, spiegeleisen, sponge iron, iron or steel granules, and powders and ferro-alloys, etc. (671); Ingots and other primary forms of iron or steel; semi-finished products of iron or steel (672); Flat-rolled products of iron or non-alloy steel, not clad, plated, or coated (673); Flat-rolled products of iron or non-alloy steel, clad, plated, or coated (674); Flat-rolled products of alloy steel (675); Iron and steel bars, rods, angles, shapes, and sections (including sheet pilling) (676); Rail or railway track construction material of iron and steel (677); Wire of iron or steel (678); Tubes, pipes, and hollow profiles, and tube or pipe fittings of iron or steel (679)
Nonferrous metals	Silver, platinum, and other metals of the platinum group (681); Copper (682); Nickel (683); Aluminum (684); Lead (685); Zinc (686); Tin (687); and Miscellaneous nonferrous base metals employed in metallurgy and cermets (689)
Industrial chemical	Organic chemical (51); Inorganic chemical (52); Fertilizers (56); and Chemical materials and products, n.e.s. (59)
Pulp and paper	Pulp and waste paper (25); Paper and paperboard (641); and Paper and paperboard, cut to size or shape, and articles of paper or paperboard (642)
Non-metallic mineral manufactures	Lime, cement, and fabricated construction materials (except glass and clay materials) (661); Clay construction materials and refractory construction materials (662); Mineral manufactures (663); Glass (664); Glassware (665); Pottery (666); Pearls and precious or semi-precious stones, unworked or worked (667)

Source: Quiroga et al. (2007)

the use of these measures have remained limited. The reason is that these measures, though effective in modifying the behavior of economic agents, are generally perceived as additional cost to and constraint on firms along the lines of neoclassical environmental economics. That is the reason why their use has remained limited across EU countries and especially across CEE countries. The relatively small share of revenues comes from taxes on industrial pollutants, i.e., 2.4 of GDP (with notable exception of Slovenia 4 %) and given the wide-ranging exemptions applied even to some of the heaviest pollutants. Here, it is worthwhile noticing that environmental stringency may be considered as slowly moving variable in the period under consideration 2000–2013, with relatively small within group variation suggesting limited government efforts at effectively preserving the environment (see Table 2 descriptive statistics).

In sections to follow, we employ econometric techniques to investigate whether or not environmental taxes exert a negative influence on competitiveness of pollution-intensive industries. By examining the impact of stringent environmental regulation on bilateral trade flows composed of only pollution-intensive industries, we attempt to account for the important differences across sectors, and the likely different effect of regulation among sectors, as suggested by previous literature.

4 Empirical Analysis

4.1 The Model

Our analysis employs bilateral trade data on pollution-intensive industries from ten transition countries and EU-15 countries. Each observation point in our panel dataset reveals export flows in polluting industries from country i (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) to country j (EU-15 members[1]) over the 2000–2013 period. In this analysis, a gravity model is developed to empirically analyze the relationship between environmental regulations and trade flows. The use of this model with a huge number of observations implies more robust results than the other models since this model processes data between pairs of countries. We include a set of control variables in the models to be estimated to account for specific export country characteristics. Accordingly, we specify the following model to be estimated:

$$\ln EX_{ijt} = \quad \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{it} + \beta_3 DIS_{ij} + \beta_4 ENTAX_{it} + \beta_5 LC_{it} \atop + \beta_6 FDImanVA_{it} + \beta_7 DI_{it} + + time_t + u_{ijt} \quad (1)$$

where

ln is natural logarithm;

EX_{ijt} denotes the exports of pollution-intensive industries from country i to country j in period t;

GDP_{it} and GDP_{jt} denotes gross domestic product of the exporting (i) and importing countries (j) in the period t;

DIS_{ij} denotes log distance between capital cities of the country i and country j;

$ENTAX_{it}$ denotes environmental stringency measures in countries i in period t;

LC_{it} denotes unit labor cost of the country i in the period t;

$FDImanVA_{it}$ denotes FDI stock in manufacturing sector expressed as a share in total gross value added in manufacturing (%) of the country i in the period t;

DI_{it} denotes domestic investment of the country i in the period t;

$Time_t$ denotes time dummy variables and is incorporated to capture time-specific effects.

u_{ijt} is an error term.

It should be noted that we distinguish between variables which relate only to either export or import country (denoted i and j variables, respectively) and those

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[1]The EU-15 comprised the following 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom. Since data for Belgium and Luxembourg are distributed together since 1999, they are included in the estimates together.

which concern the level of the bilateral relationship between countries (i.e., variables denoted *ij*).

In this research, we use exports of pollution-intensive industries as our dependent variable, which is the natural log of export flows from CEE-10 transition countries to EU-15 countries in EUR. As there appears to be no definitive criteria yet adopted to define pollution intensive, we follow Quiroga et al. (2007) classification of pollution-intensive industries in our analysis. The industries are classified according to the Standard International Trade Classification (SITC) revision 3. A description of the industries considered in the estimations is given in Table 2.

The principal variable of interest in this analysis is environmental stringency, which describes the strictness of environmental regulations in export country and as discussed earlier is assumed to be a better proxy for environmental stringency compared to environmental inputs indicators or GDP per capita commonly used in previous studies. Hence, we note that environmental taxes a part from better reflecting on individual countries efforts to preserve the environment are also considered to allow for more reliable comparison cross countries. According to Rubashkina (2014), there are several problems related to measurement of environmental policy effort of a country or a sector. First, sophisticated environmental policy design makes an evaluation of overall policy effort problematic. The diversity of policy instruments applied in different countries and change of instruments composition over time hamper comparability across countries and over time. Second, there is a limited availability of data that allow constructing time-variant indicator of environmental regulation. Furthermore, as stringency of environmental regulation is a multidimensional notion, a general incompleteness of all available stringency indicators is related to inability to capture some important aspects of environmental regulation such as sophistication of regulatory structure, strictness of enforcement, quality of environmental institutions and of available environmental information, and subsidization of natural resources. Unfortunately, the data on these aspects of regulation are generally unavailable. For the environmental stringency variable, we use total environmental tax revenues as a percentage of GDP. We opted for the environmental tax data provided by EUROSTAT because they are directly related to the production processes and the associated costs incurred by firms to abate pollution but also use of energy, natural resources, and transport-related emissions.

Further, we incorporate a set of control variables. In our model, we include information on gross domestic product of the exporting (*i*) and importing countries (*j*), distance (DIS), labor cost (LC), FDI stock in manufacturing (FDImanVA), and domestic investments (DI), which proved to be significant in a number of previous empirical studies on trade. The country market size is approximated by the country GDP and reflects the economic power of the country. The source for this data is EUROSTAT. Distance in this chapter that pertains to geographic distance serves as a proxy for all possible transportation, public infrastructure, and operating costs such as placing personnel abroad, language and cultural differences, and communication costs. The distance represents the geographical distance between the

capital cities of exporting and importing country in km. The source for this data is CEPII database.

Further, in our model we include the costs of the input factor. Globalization and its associated increase in international competition have led to the view that exports have become more sensitive to costs and hence competitiveness is often measured in terms of unit labor costs (Decramer et al. 2014). Additionally, the focus on unit labor costs as a measure for competitiveness is based on the idea that increases in unit labor costs are passed on in the form of higher export prices. Labor cost is measured as gross wages and salaries in manufacturing sector. The source of data for this variable is EUROSTAT.

Additional variable capturing differences in technological proficiency that has been included in the model is domestic investments (DI). Precisely, Gross fixed capital formation (as % GDP) is used as a proxy for investments in a new equipment and technology. The source of data for this variable is EUROSTAT.

Also, we take into account the role of foreign direct investment (FDI) in a host country's export performance. There is a widely shared view that FDI promotes exports of host countries by augmenting domestic capital for exports, helping transfer of technology, facilitating innovation, e.g., new products for exports, as well as promoting access to new foreign markets. In this analysis, FDI is measured as the share of FDI in the manufacturing value added. With regard to the latter assertion, we postulate that the higher the share of FDI in manufacturing value added, the higher the technological competences of local firms and industries depicting on potentially greater absorptive capabilities and increasing export and other aspects of firm performance. The source of data for this variable is WIIW. Tables 2 and 3 present the descriptive statistics of variables and the correlation matrix among variables.

Following previous research, we include time dummies to control for the time-specific effect and do not include country-specific effects (Egger 2000; Helpman et al. 2008) in view of the uncertain. The problem is that effect of country dummies in an gravity setting accounting for bilateral trade flows is at least uncertain if not dubious, since it does not capture the exporter-specific and importer-specific time-variant effects. There is no consistent treatment of the multilateral resistances when panel data are involved, while the use of country-pair fixed effects and year dummies has been followed by some studies Micco et al. (2003), Egger (2000), and Helpman et al. (2008). Notwithstanding this, here it is important to note that country fixed effect if used on bilateral trade flows may potentially interrupt the individual effects of independent variables used in this analysis and importantly of the principal variable of interest here, defined as environmental taxes, which is perceived as a "slowly moving variable." What is important in panel analysis is to account for the within group variation of the variables, rather than across group variation, in the period under observation, i.e., 2000–2013, to capture the time dynamics, that is, changes in variables across time; hence, time dummies are incorporated in the model to be estimated empirically. Descriptive statistics and correlation matrix are presented in Tables 3 and 4.

Table 3 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EXPORT	2100	1.33e + 08	3.56e + 08	48	5.20e + 09
GDP_i	1806	52,152	42,301	6170	163,579
GDP_j	2100	774,115	760,282	92,491	2,809,480
DIS	2100	1416	687	56	3317
ENTAX	2100	2.46	0.49	1.63	4.08
LC	2002	1416	687	56	3317
FDImanVA	1822	0.67	0.26	0.26	1.93
DI	1806	25.20	4.41	16.9	38.4

Table 4 Correlation matrix

	EXPORT	GDP_i	GDP_j	DIS	ENTAX	LC	FDImanVA	DI
EXPORT	1.00							
GDP_i	0.47	1.000						
GDP_j	0.51	0.049	1.000					
DIS	−0.41	−0.08	−0.03	1.00				
ENTAX	0.02	−0.06	−0.01	−0.01	1.00			
LC	0.13	0.28	0.11	−0.01	−0.18	1.00		
FDImanVA	0.21	0.34	0.03	−0.03	0.06	0.24	1.00	
DI	−0.010	−0.05	−0.01	−0.07	−0.28	0.01	−0.16	1.00

4.2 Method of Investigation

In this study, we use panel-corrected standard errors (PCSE) as estimation technique. In our panel data set, we observed potential problems of both autocorrelation and heteroscedasticity (the tests reject the null hypothesis of no first order serial correlation and heteroscedasticity). In view of this, we follow Beck and Katz's (1995) recommended procedure, i.e., PCSE which corrects for the first-order autoregression, and imposes a common rho for all cross-sections to correct for the heterosecedasticity. PCSE seems appropriate to be used in case of not very large time dimension and unbalanced panel, as is the case of our panel data. Table 4 presents the results of econometric analysis. Specifically, Table 5 reports OLS panel data estimates with PCSE panel-corrected standard errors.

5 Results

The results of econometric analysis reveal significant effect of all variables included in the model in line with the a priori expectations, with the notable exception of labor cost variable. The results of our analysis render support to the hypothesis that environmental regulation does not come at the cost to

Table 5 Results (OLS with PCSE)

	OLS with PCSE
GDP_i	1.123***
	(0.056)
GDP_j	1.155***
	(0.036)
DIS	−1.742***
	(0.111)
ENTAX	0.175***
	(0.068)
LC	−0.004
	(0.003)
FDImanVA	0.332***
	(0.110)
DI	0.016*
	(0.009)
R-squared	0.97
Wald chi2 Prob $> F$	0.000
No. of observations	1624

Notes: Standard errors are given in brackets (PCSE); all regressions include a constant and time dummies (not reported in the table). *denotes statistical significance at the level of 10 %; **denotes statistical significance at the level of 5 %;***denotes statistical significance at the level of 1 %

competitiveness of industries classified as heavy industrial pollutants in a transition economy context. The results imply that the most regulated transition economies, i.e., those with higher environmental taxes as share of GDP tend to specialize in pollution-intensive industries possibly pointing to the similarities in compliance with environmental regulation among EU countries. The results reveal a strong positive and significant impact (significant at 1 %) of the environmental taxes on exports of pollution-intensive industries among CEEC. Furthermore, we find the significant and positive impact of FDI and related knowledge spillovers on export performance of "dirty" industries. This effect seem to be complementary to that of domestic investments—a variable found to exert an exogenous positive impact on polluting industries exports. The obtained significant effect of these variables reveals the importance of technological capabilities, that is investments in new equipment and technology, positive exogenous effect of FDI, as well as the importance of "absorptive capacity" of local firms and industries necessary to internalize the knowledge spillovers associated with FDI in more productive sectors of the economy.

6 Conclusion and Policy Implications

The results of econometric analysis seem to discard the prevalent policy dilemma that persistent differences in environment-related taxes across countries may be considered as a source of competitive (dis)advantage depending on countries' commitments to sustainable development and environmental protection. Hence, in view of the results obtained in this study, environmental policy should be freed from its rival context, and there is a need to comply with environmental stringency across EU countries insisting on more harmonized regulatory framework to preserve the environment, seemingly at no cost to economic efficiency, on the contrary. Governments need to ensure that policy priorities need to underpin sustainable development that potentially may be adequately affected by providing support to basic research and innovation. Provision of right incentives, e.g., environmental taxes accompanied by effective innovation and technology policy, may foster cleaner technologies and sustainable use of energy and resources, while minimizing the risk of relying on suboptimal technologies, and hence promoting competitiveness. The problem is, however, related to differences in institutional capacity to foster innovation and promote sustainable development across EU member states, a policy issue that deserves closer attention by policy makers at the EU level.

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Modeling of the Natural Resources' Intensive Use Regions' Innovative Development: Problems of Circumpolar Area Innovative System Formation

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Abstract The ideas of regional innovative development and the role of innovations in promoting economic growth are discussed. This study examines the differentiation and unevenness of regional development as well as a significant imbalance of regional innovation systems in Russia. The regions have been clustered in two directions "the research potential" and "the innovative performance," which has allowed not only to estimate the stage of innovative development, but also to qualitatively identify existing imbalances in them. The cluster analysis of the Arctic regions has emphasized strong and weak sides and has carried out the typology of regions into some group for stimulation of innovative development and eliminating the narrow places and ensures continuity of the innovation cycle.

Keywords Circumpolar area • Innovative potential • Innovative performance • Innovations

1 Introduction

Innovations are currently recognized as an important strategic direction of regional development (Pogodaeva et al. 2015). Shifting in emphasis of innovative development on regional level is a step towards overcoming the historical specialization of regions (in most cases—natural resources' intensive) which does not promote sustainable regional development and does not allow to increase the regional competitiveness (Kozyrev 2007). The development of a region on the basis of innovation is the key factor of its competitiveness (Furman et al. 2002).

However, it is obvious that in the modern economic circumstances of the Russian economy, the thesis of the transition to an innovation economy sounds extremely futuristic in Russia. Instead of it we should discuss a resource-innovative

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development. Arctic projects have a chance to become a locomotive of such process. The development of significant hydrocarbon reserves in the circumpolar area will enhance the process of innovation development both in the Arctic and the Russian economy as a whole. In terms of sanctions concerning a ban on export to Russia of technologies used for the development of hardly removable resources, Russian oil and gas companies have to develop technologies on their own or to seek new partners, probably in Asia. Obviously, these "challenges" require the activation of innovative processes in the Arctic regions, reorienting them to resource-innovative development.

The ideas of regional innovative development, as well as the role of innovations in promoting economic growth, have been extended by Clarysse and Muldur (1999), De Bruijn and Lagendijk (2005), Hollanders (2006), Florida (2007), Navarro et al. (2008), Wintjes and Hollanders (2010), Capello and Lenzi (2013), Gusev (2009), Avilova et al. (2013), and Gokhberg (2014). Almost all the views are characterized by a broad understanding of innovations and recognition of the diversity of factors influencing them. Such an approach causes the impossibility to use one or several, though sufficiently reliable and valid, indicators to assess the level of innovative development. All studies are based on the inclusion of rather large number of indicators into the analysis, including indirect indicators reflecting the accumulated scientific potential, the educational level, as well as the sector structure. In order to compensate the restrictions of each indicator, economists have used complex evaluation systems, including large number of indicators. This generates some problems of correct selection of these indicators and their balancing within a united system.

Considering the experience of innovation process research in the Russian regions, it can be noted that investigations in this direction have recently emerged, due to the lack of reliable statistics. Taking into account foreign and national studies, the Ministry of Economic Development of the Russian Federation and the Association of Innovative Regions of Russia have developed "Rating innovative regions of Russia for the purposes of monitoring and control" (AIRR 2015). Within that rating, regions are divided into groups by comparing their level of innovative development with the regional average measured by the complex index. The project of Higher School of Economics headed by Gokhberg (2014) is also worth noting. The study is based on a system of indicators characterizing socio-economic conditions and level of innovative activity, scientific and technological potential, and quality of regional innovation policy. The majority of studies attempts to reflect the qualitative characteristics of the level of region's innovative development using quantitative indicators based on available statistical information, as well as normalization of raw data series for the purposes of their subsequent aggregation into the innovation index.

The analysis of different innovative development evaluations in Russia has showed that the western methodology underlies the majority of indexes. According to this approach, the estimation of resources of innovative activity (inputs) combines with its results (outputs). Despite a significant amount of studies, we can conclude that the indexes of innovative development of the Russian regions, despite

on the differences in the techniques, purpose, and scope of application, are closely interrelated. At the same time, linear models mainly describe the relationship between these indexes. Anyway, the process of forming composite indexes has unfinished, the new methods are developing, and the old are improving.

The advantage of using complex indicators of innovation development consists in ease of their interpretation and possibility of reducing a large array of data. However, integrated indicators have to be used with caution; they should complement other ways of presenting information. This is especially significant for Russia, where the national monitoring system of innovative development is still shaping, and the system is characterized by a low reliability of the statistics and the lack of many indicators in the regional context. It is necessary to assess the structure of the regional innovation system and build a model of development in order to stimulate the interregional cooperation and the ability of regional communities to perceive innovations.

The high degree of differentiation and unevenness of regional development as well as a significant imbalance of regional innovation systems should be noted. The main innovative potential of Russia is concentrated in a limited number of subjects, which are large regional centers with a developed system of higher education and advanced research base. The problem of the majority of Russian regions is the underdevelopment of most components of the innovation sphere. The simulation of the innovative development requires an estimation of the regional innovative system in whole and its components in particular relative to other subjects of Russia. This allows identifying strengths and weaknesses, as well as priorities for interregional network interaction in the innovative sphere. For this purpose in the chapter, the cluster analysis of the Russian regions has been carried out. All regions have been clustered in two directions "the research potential" and "the innovative performance," which has allowed not only to estimate the stage of innovative development but also to qualitatively identify existing imbalances in them. Then, the positions of Arctic regions have been underlined.

At present, the purpose of innovation development of the Arctic region is not to characterize the innovative behavior, or the presence of innovation policy, but to reveal the internal contradictions and the system "distortions." The cluster analysis of the Arctic regions has emphasized the "strong" and "weak" sides and has carried out the typology of regions into some group for proposal practical recommendations for stimulation of innovative development and eliminating the "narrow" places and ensures continuity of the innovation cycle.

2 Methodology

The cluster analysis represents a set of classification methods of the multivariate observations described by a set of input variables. The cluster analysis methods are applied in a situation where each object of research possesses a set of similar, but disparate characteristics. The self-organizing Kohonen maps or networks (SOM) are one of the effective means of clustering which algorithm of construction

represents one of options of a clustering of multidimensional vectors (Medvedev and Potemkin 2002). The SOM technology represents a set of the analytical procedures and algorithms allowing to transform the traditional description of a set of the objects set in multidimensional space ($n > 3$) into the two-dimensional map. As the algorithm of SOM operates in two modes—vector quantization (training) and mapping, it is possible to find the main applications of this algorithm. This technique can be used to search and analyze similarity in the data. In a general view, the algorithm of learning in the self-organizing map consists of consecutive correction of the vectors representing neurons as follows (Murtagh 1996):

1. Take an input vector x randomly from the set of input vectors.
2. Determine the "winner" neuron $c = i$ such that $\min_i \|x(t) - w_i(t)\|$, is true.
3. For all neurons i:

$$w_i^{(1+t)} = w_i^{(t)} + \alpha^{(t)} \left(x - w_i^{(t)} \right)$$

   where: $\alpha^{(t)}$ is a small fraction used for controlling convergence.
4. Increment t, return to the stage 1, unless a stopping condition is reached.

Additionally, Balakrishnan et al. (1994) state that the Kohonen learning algorithm does not deterministically converge, hence as long as the learning rate (α) is positive the weights will be updated leading to weight oscillation. Thus, there is no guarantee that when learning is terminated the weight vectors represent the true centroid of the cluster. One way to get around this is to gradually decrease the value of α to zero as the learning progresses to freeze the centroids. The advantage of SOM is an uncontrollability of learning that allows us to specify only the values of the input variables and the ability to visualize. The main reason for using the SOM for the analysis of the innovative development of regions is that this method does not require any a priori assumptions about the distribution of data. Self-organizing Kohonen maps as a set of analytical procedures and algorithms transform the traditional description of a set of objects in a multidimensional ($n > 3$) space features into a flat database of a two-dimensional map.

3 Results and Discussion

Clustering of the Russian regions in terms of innovation development was carried out by two steps using analytical platform Deductor Academic 5.2. The first step of clustering is the separation of the regions into the groups, according to the criteria of "innovative potential," since the unevenness of regional development, in most cases, is determined by the specificity of each region, characterized by historical specialization, special geographical location, and potential for innovation. The potential for innovation can be defined as the ability to create and implement innovations, a willingness to accept innovations for a subsequent effect. In today's

economy, the value of the innovative capacity and the efficiency of its use determine the potential growth of the regional innovation system. For clustering of regions in terms of innovation potential, we propose a set of indicators presented in Table 1.

Table 1 Indicators of Russian regions' innovative potential

Group	Indicator	Designation
Educational potential	Number of students at educational organizations of higher education per 10,000 economically active population	Var1
	Employed in the economy completed tertiary (higher) education (%)	Var2
The level of development of the information society	Share of organizations that have a website in the total number of organizations (%)	Var3
	Share of organizations using broadband Internet access in the total number of organizations (%)	Var4
	Share of households with Internet access from home PC in the total number of households (%)	Var5
Funding for R&D	Gross domestic expenditures on research and development as a percentage of GRP (%)	Var6
	Share of the higher education sector in gross domestic expenditures on research and development (%)	Var7
Personnel	Expenditures of organizations on trainings related with innovations as a percentage of GRP (%)	Var8
	The number of researchers per 10,000 economically active population	Var9
	Share of researchers with PhD degrees in the total number of researchers (%)	Var10
	Share of researchers under the age of 39 in the total number of researchers (%)	Var11
Expenditures on technological innovations	Intensity of expenditures on technological innovations (%)	Var12
	Share of organizations that have participated in the implementation of joint projects on research and development in the number of organizations implementing technological innovations (%)	Var13
	Expenditures of organizations on the acquisition of machinery, equipment that are related to the technological innovations as a percentage of GRP (%)	Var14
	Special expenditures on environmental innovations as a percentage of gross domestic expenditures on R&D (%)	Var15
	Expenditures of organizations on the acquisition of new technologies as a percentage of GRP (%)	Var16

Note: Indicators of innovative development were divided into the indicators of innovative capacity and indicators of innovation performance based on the methodology of the HSE and the Association of Innovative Regions of Russia (2014)
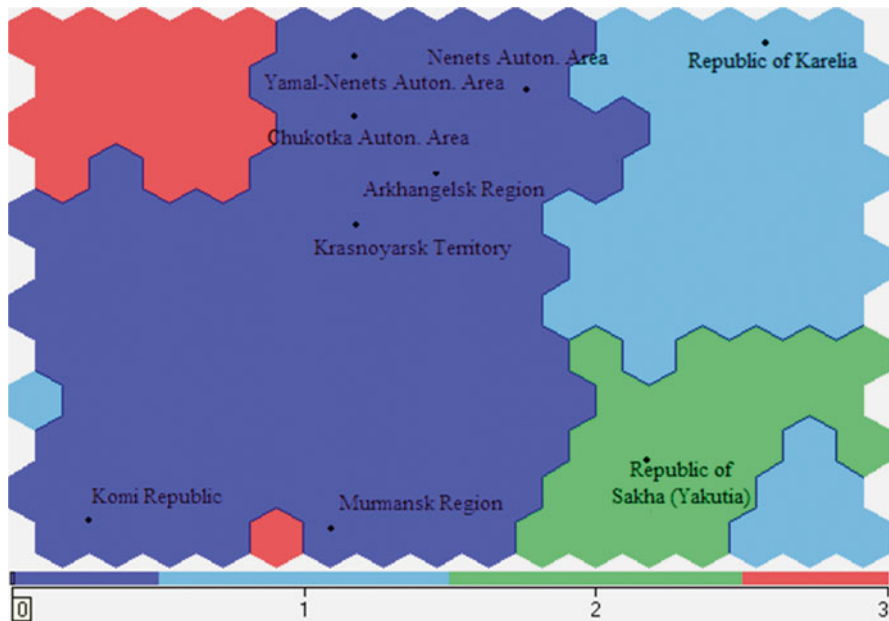
Fig. 1 Clustering of the Russian regions by the level of innovative potential. *Note*: 0—Dark Blue Cluster, 1—Blue Cluster, 2—Green Cluster, 3—Red Cluster

The database for the indicators has been formed according to the data of Russian Federation Federal State Statistics Office (2015).

Clustering according to the criteria of "innovative potential," based on the indicators presented in Table 1 for the year of 2013, allowed us to divide the regions into the four clusters (Fig. 1).

Figure 1 presents the Kohonen maps obtained by clustering regions in terms of innovative capacity. We see a fairly clear division into four segments. Let us use the decision tree of rules for classifying regions on these four segments. The same characteristics are the input indicators for the decision tree, and the output is the number of clusters. The result is shown in Fig. 2.

In the application of self-organizing maps, multidimensional space of the input factors has been presented in two-dimensional form which is quite convenient for the analysis. The regions were classified into four groups, for each of the types it is possible to determine the specific characteristics, based on the coloring of indicators. "Red Cluster" includes regions with a high level of innovative potential, covering eight regions (9.6 %). It should be noted that such regions as Novosibirsk Region and Tomsk Region in the process of clustering have been separated from the bulk of the regions with a high level of innovative capacity. Figure 3 shows the comparative analysis of the four clusters based on the centroid values of the input variables.
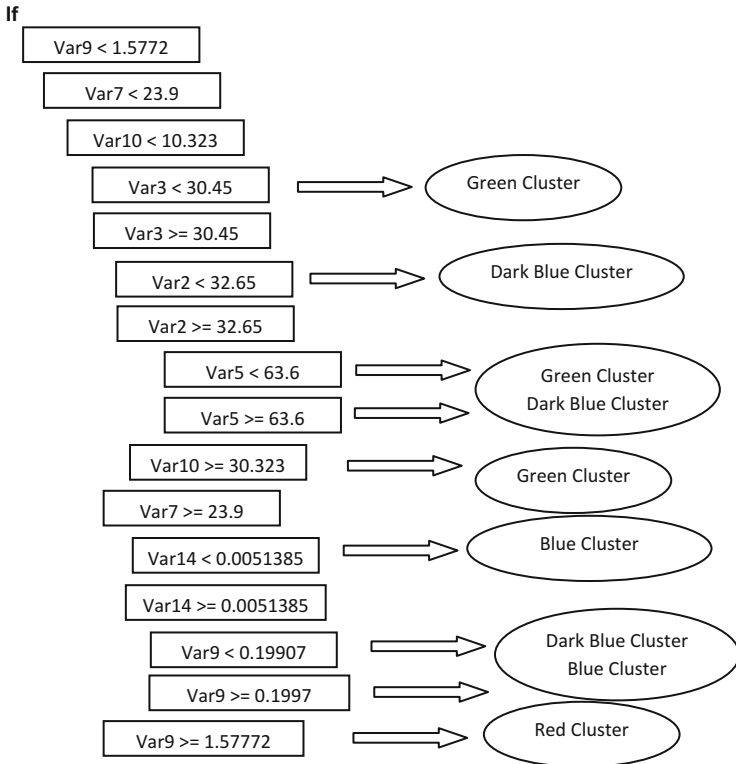
Fig. 2 The decision tree of rules that classify the regional clusters on the level of innovative potential

Based on Fig. 3, the "red cluster" consists of the leaders by the level of innovative potential. "Red cluster" is most lagging behind others in terms of: (a) share of researchers with PhD degrees in the total number of researchers, (b) Number of students at educational organizations of higher education per 10,000 economically active population, and (c) share of the higher education sector in gross domestic expenditures on research and development. Regions that are included in this cluster have a sufficiently developed innovative potential and capacity to increase its use. Regions of cluster with high potential for innovation can serve as a testing ground for the most effective investments of public resources to the development of innovative capacity and other methods of state support of innovative activity.

"Blue Cluster" is a medium-sized group consisted of regions with an average level of innovative potential, covering 20 regions (24.1 %). It should be noted that regions: Lipetsk region, the Republic of Mari El, and Khabarovsk Territory have been separated from the bulk of the regions with the average level of innovative potential during the clustering.
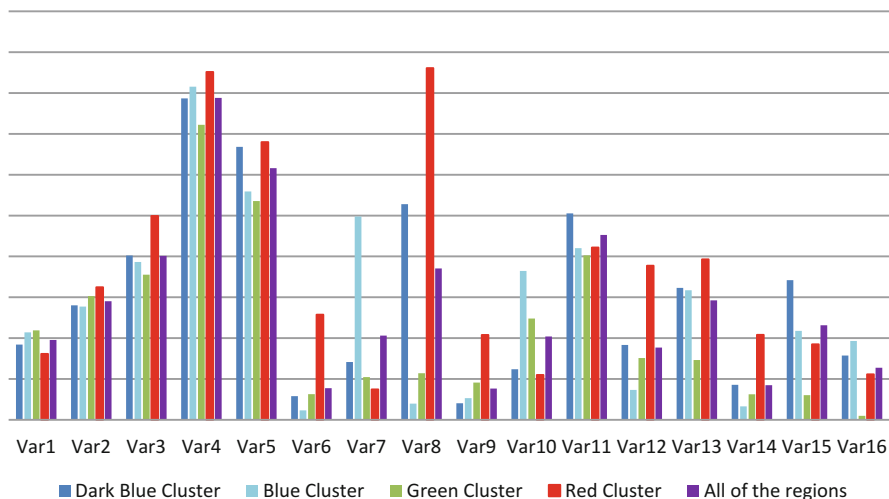
Fig. 3 Centroid values of the input variables of innovative capacity by clusters

The data in Fig. 3 illustrates that the "blue cluster" is most lagging behind others in terms of gross domestic expenditures on research and development as a percentage of GRP according to the level of innovative potential. A cluster with the middle-innovative potential in terms of share of the higher education sector in gross domestic expenditures on research and development, expenditures of organizations on trainings related with innovations as a percentage of GRP, and expenditures of organizations on the acquisition of new technologies as a percentage of GRP is leading. Republic of Karelia among all of the Arctic regions has been included in this cluster (Fig. 4).

Based on the profile of the innovative potential of the Republic, we can find a number of indicators with the highest values. These indicators are: (a) share of organizations that have a website in the total number of organizations (51 %); (b) share of organizations using broadband Internet access in the total number of organizations (92.3 %); (c) share of the higher education sector in gross domestic expenditures on research and development (28.2 %); (d) share of researchers with PhD degrees in the total number of researchers (34.2 persons); (e) share of organizations that have participated in the implementation of joint projects on research and development in the number of organizations implementing technological innovations (50 %).

Thus, the implementation of the innovative capacity of the regions included in the "Blue Cluster" requires much higher financial resources, and can be implemented in the longer terms compared with the regions included in the "Red cluster," and also requires the development of specific measures of state support of innovation activities. Particular attention in this group is required by the regions where the potential for innovation and economic growth is being formed by the industries, producing competitive products for domestic consumption and export.
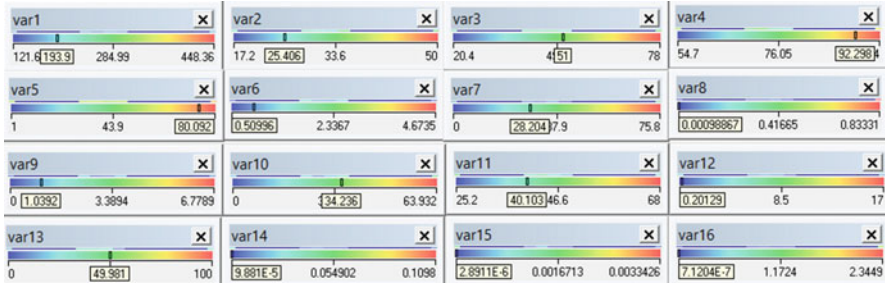
Fig. 4 The profile of the Republic of Karelia innovative capacity

"Dark Blue Cluster" includes 47 regions with low potential for innovation (56.7 %). In comparison with other clusters, this cluster is the most numerous. As you can see, "Dark Blue Cluster" by the level of innovative potential is most lagging behind others in terms of: (a) employed in the economy completed tertiary (higher) education; (b) the number of researchers per 10,000 economically active population; (c) share of researchers with PhD degrees in the total number of researchers. Cluster with low level of innovative potential in terms of: (a) share of researchers under the age of 39 in the total number of researchers, (b) expenditures of organizations on the acquisition of machinery, equipment that are related to the technological innovations as a percentage of GRP, and (c) special expenditures on environmental innovations as a percentage of gross domestic expenditures on R&D is leading. This cluster includes such Arctic regions as: Arkhangelsk Region, Murmansk Region, Krasnoyarsk Territory, Chukotka Autonomous Area, Komi Republic, Nenets Autonomous Area, and Yamal-Nenets Autonomous Area. Thus, the share of the Arctic regions belonging to regions with low potential for innovations reaches 78 %.

Yamal-Nenets Autonomous Area is the greatest interest for us, as the region is the largest gas producing region in the world: Autonomous Area takes the first place among the Russian regions on production of natural gas (82 % of Russia's total production) and gas condensate (72 % of Russia's production volume). Yamal-Nenets Autonomous Area also is the place of oil production; the region takes the third place among the Russian regions on production of oil (4.6 % of Russia's total production). Profile of the innovative capacity of Yamal-Nenets Autonomous Area is shown in Fig. 5.

As it can be seen in Fig. 5, most of the indicators of Yamal-Nenets Autonomous Area's innovative potential are at the lowest level, which is typical for the regions belonging to the cluster with low potential for innovation. These are: (a) gross domestic expenditures on research and development as a percentage of GRP (0.006 %); (b) share of the higher education sector in gross domestic expenditures on research and development (0.003 %); (c) expenditures of organizations on trainings related with innovations as a percentage of GRP (0.0005 %); (d) the number of researchers per 10,000 economically active population (0.05 persons);
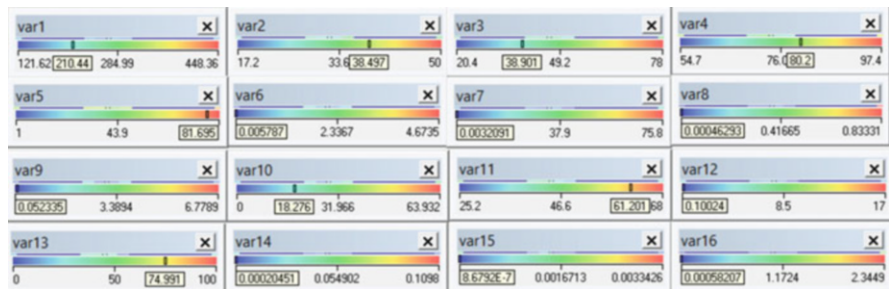
Fig. 5 The profile of the Yamal-Nenets Autonomous Area innovative capacity

(e) intensity of expenditures on technological innovations (0.1 %); (f) expenditures of organizations on the acquisition of machinery, equipment that are related to the technological innovations as a percentage of GRP (0.0002 %); (g) special expenditures on environmental innovations as a percentage of gross domestic expenditures on R&D (0.0000009 %); (h) expenditures of organizations on the acquisition of new technologies as a percentage of GRP (0.0006 %). The values of only three indicators are at the level of a region with high potential for innovation: share of households with Internet access from home PC in the total number of households; share of researchers under the age of 39 in the total number of researchers; and share of organizations that have participated in the implementation of joint projects on research and development in the number of organizations implementing technological innovations.

It can be concluded that the "Blue Cluster" brings together the most backward regions of Russia, with a small industrial and scientific base, and virtually with no resources to innovation development, so nowadays the implementation of innovative strategies for economic growth is practically hopeless in these regions and there is a need for cooperation of regions, included in this group, with the regions with high potential for innovation.

"Green cluster" includes eight regions with a poor level of innovative potential (9.6 %), mainly related to the republics of the North Caucasus Federal District, as well as the Republic of Sakha (Yakutia), which is the Arctic region with a predominantly mining specialization (Fig. 6).

Based on the profile of the innovative potential of the Republic, as well as based on the comparison with the profile of the innovation potential of Republic of Karelia and Yamal-Nenets Autonomous Area, we can conclude: a number of indicators have the highest value. These are: the number of students of educational institutions of higher education per 10,000 economically active population (267 persons); the number of researchers per 10,000 economically active population (1.45 persons); intensity of expenditures on technological innovations (1.3 %); expenditures of organizations on the acquisition of machinery, equipment that are related to the technological innovations as a percentage of GRP (0.004 %). All other
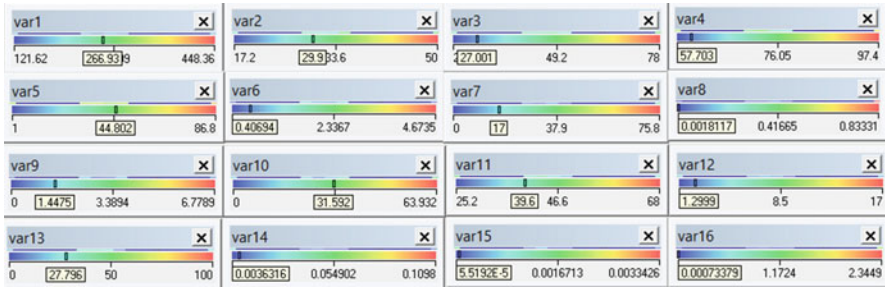
Fig. 6 The profile of the Republic of Sakha (Yakutia) innovative potential

indicators of innovative potential of Republic of Sakha (Yakutia) "lose" to the values of the other Arctic regions' indicators.

According to Fig. 3, the "Green cluster" is below the level of "Blue" and "Dark blue" clusters by twelve indicators. In terms of: (a) number of students at educational organizations of higher education per 10,000 economically active population and (b) share of researchers with PhD degrees in the total number of researchers "green cluster" has the highest values among the remaining clusters. The second stage was conducted clustering of Russian regions on the parameter of "innovation performance." Indicators used for clustering are presented in Table 2. All regions were divided into three clusters (Figs. 7 and 8). Comparative analysis of the three clusters centroid values of the input variables is shown in Fig. 9.

"Blue Cluster" is regions with high innovative performance; it includes 21 regions (25.3 %). These regions according to the most of indicators, reflecting the innovative performance, are higher than the regions that belong to "Red" and "Dark Blue Cluster." In terms of: (a) the balance of export and import of technology in relation to the GRP and (b) share of innovative goods, works, and services in the total exports of goods, works, and services by industrial organizations, "Blue Cluster" has the lowest value among the remaining clusters.

"Red Cluster" is regions with an average level of efficiency of innovative activity; it involves 29 regions (34.9 %). The cluster also includes four Arctic regions: Yamal-Nenets Autonomous Area (YaNAO), the Arkhangelsk region, Republic of Karelia, Krasnoyarsk Territory. It should be noticed that the Ulyanovsk region has been separated from the group of the regions with medium levels of innovative performance in the process of clustering. "Red Cluster" is most lagging behind others in terms of: (a) the share of organizations implementing technological innovations in the total number of organizations and (b) the share of small businesses, implementing technological innovation in the total number of small enterprises (Fig. 9). This cluster is leading in terms of the share of innovative goods, works, and services that are new to the market in the total volume of shipped goods, works, and services by industrial organizations. "Red Cluster" exceeds the values of "Blue Cluster" in six indicators (Fig. 9).

Consider the profile of "innovative performance" of YaNAO (Fig. 10).

Table 2 Indicators of the Russian regions' innovative development for the group of "innovation performance"

Indicator	Designation
Share of organizations implementing technological innovations in the total number of organizations (%)	Var17
Share of small businesses, implementing technological innovations in the total number of small enterprises (%)	Var18
Share of innovative goods, works, and services in the total volume of shipped goods, works, and services (%)	Var19
Number of used advanced manufacturing technologies per 100,000 economically active population	Var20
Balance of export and import of technologies in relation to GRP, US doll.	Var21
Coefficient of inventive activity	Var22
Share of innovative goods, works, and services in the total exports of goods, works, and services by industrial organizations	Var23
Share of innovative goods, works, and services that are new to the market in the total volume of shipped goods, works, and services by industrial organizations (%)	Var24
Number of developed advanced manufacturing technologies per 100,000 economically active population	Var25
Number of developed advanced manufacturing technologies that are new for Russia in the total number of developed advanced manufacturing technologies	Var26

Note: Indicators of innovative development were divided into the indicators of innovative capacity and indicators of innovation performance based on the methodology of the HSE and the Association of Innovative Regions of Russia

As it can be seen in Fig. 10, the five indicators of the region are at the lowest level: (a) the share of small businesses, implementing technological innovation in the total number of small enterprises; (b) the share of innovative goods, works, and services in the total volume of shipped goods, works, and services; (c) coefficient of inventive activity; (d) the share of innovative goods, works, and services in the total exports of goods, works, and services by industrial organizations; (e) the share of innovative goods, works, and services that are new to the market in the total volume of shipped goods, works, and services by industrial organizations. The values of only two indicators: (a) the number of used advanced manufacturing technologies per 100,000 EAP and (b) the number of developed advanced manufacturing technologies that are new for Russia in the total number of developed advanced manufacturing technologies.

"Dark Blue Cluster" is regions with low productivity of innovation activity, and it contains 33 objects (39.8 %). In comparison with other clusters, it is the most numerous. Among the Arctic regions, there are Murmansk Region, Chukotka Autonomous Area, Komi Republic, Nenets Autonomous Area, Republic of Sakha (Yakutia). This cluster is most lagging behind others in six indicators. Cluster with low level of innovative performance has high value of the following indicators: (a) the share of innovative goods, works, and services in the total exports of goods,
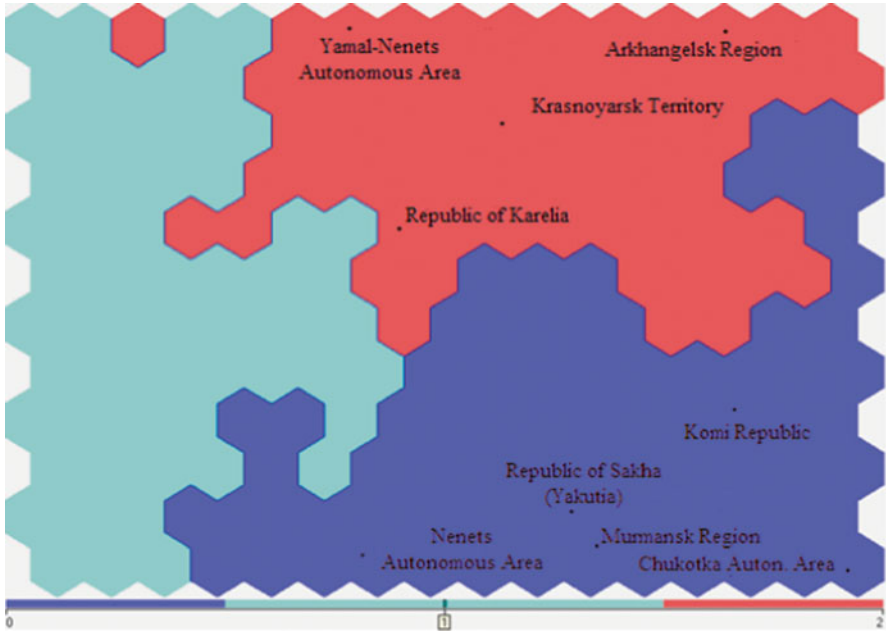
Fig. 7 The Russian regions clustering by the level of innovative performance. *Note*: 0—Dark Blue Cluster, 1—Blue Cluster, 2—Red Cluster
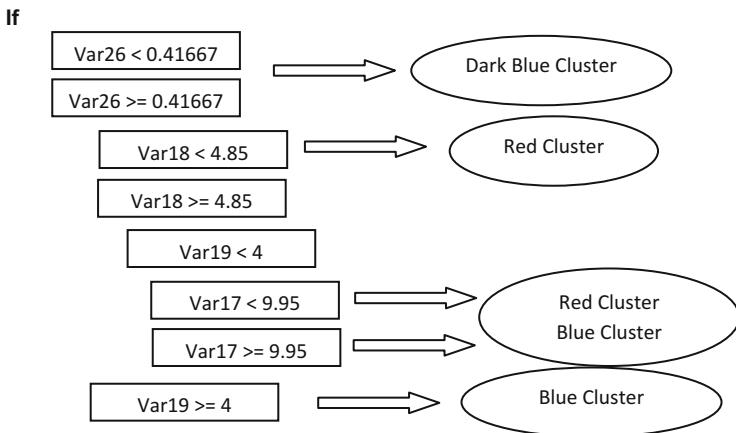
Fig. 8 The decision tree of rules that classify the regional clusters on the level of innovative performance

works, and services by industrial organizations and (b) the balance of exports and imports in relation to GRP.
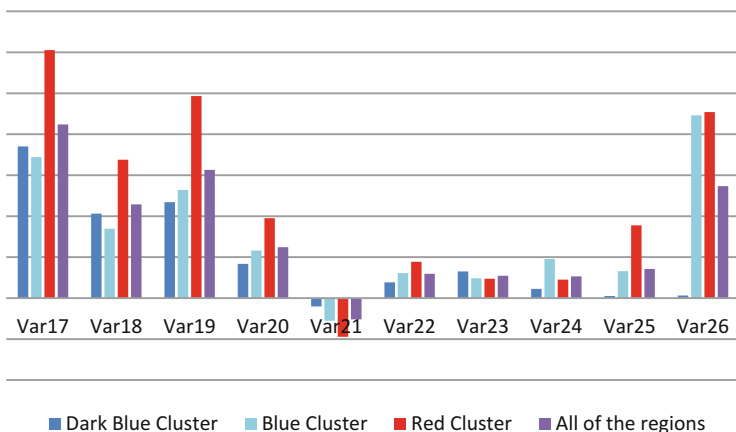
Fig. 9 Centroid values of the input variables of innovative performance by clusters
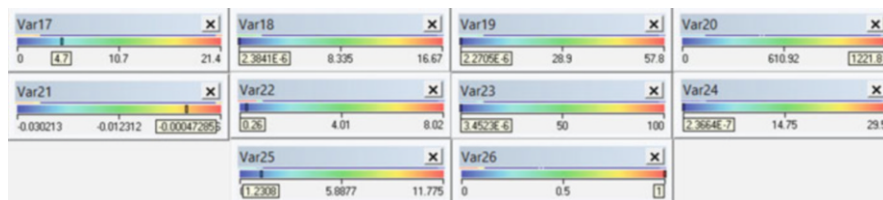
Fig. 10 The profile of the Yamal-Nenets Autonomous Area innovative performance

4 Conclusion

To analyze the degree of differentiation of the position of regions in terms of innovative development, we have constructed the matrix "Innovative potential—innovative performance" (Table 3). This matrix allows to compare the level of development of the regions through dedicated groups and to hold a typology of Russian regions, including Arctic Zone. The results confirm a significant degree of differentiation and imbalances of innovative development of Russian regions. Analysis of the Arctic regions positions shows that the majority of regions (Republic of Komi and t Nenets Autonomous Area, Murmansk Region, Chukotka Autonomous Area) have entered the group of "low level of innovative potential—low innovative performance".

The group of "low level of innovative potential—average innovative performance" includes Arkhangelsk region, Yamal-Nenets Autonomous Area, and the Krasnoyarsk Territory. Consequently, regions of this group have to stimulate the development of science and education, as well as increasing participation in the innovative interregional networking. The policy of innovative development of these areas must include measures to stimulate innovation activities of enterprises,

Table 3 The matrix of regional clusters in the level of innovation capacity and innovation performance

	Regions with the lowest productivity of innovative activity	Regions with an average productivity of innovative activity	Regions with the high productivity of innovative activity
Regions with "zero" potential for innovation	Republic of Kalmykia Republic of Ingushetia Republic of Buryatia Republic of Tuva Republic of Sakha (Yakutia) Amur Region	Karachayevo-Circassian Republic Chechen Republic	
Regions with low potential for innovation	Kursk Region Smolensk Region Tambov Region Komi Republic Nenets Autonomous Area Murmansk Region Krasnodar Territory Astrakhan Region Volgograd Region Kirov Region Kurgan Region Altai Territory Primorye Territory Sakhalin Region Chukotka Autonomous Area	Vladimir Region Arkhangelsk Region Bryansk Region Tver Region Vologda Region Kaliningrad Region Leningrad Region Rostov Region Republic of Bashkortostan Tyumen Region Khanty-Mansi Autonomous Area—Yugra Yamal-Nenets Autonomous Area Krasnoyarsk Territory Irkutsk Region Kemerovo Region Omsk Region Samara Region Saratov Region	Voronezh Region Ryazan Region Tula Region Yaroslavl Region Novgorod Region Republic of Tatarstan Udmurtian Republic Chuvash Republic Perm Territory Penza Region Sverdlovsk Region Chelyabinsk Region Kamchatka Territory Magadan Region
Regions with average potential for innovation	Kostroma Region Lipetsk Region Orel Region Republic of Adygeya Republic of North Ossetia—Alania Stavropol Territory Republic of Mari El Orenburg Region Republic of Altai Republic of Khakassia Trans-Baikal Territory Jewish Autonomous Region	Belgorod Region Ivanovo Region Republic of Karelia Pskov Region Republic of Daghestan Kabardino-Balkarian Republic Khabarovsk Territory	Republic of Mordovia
Regions with high potential for innovation		Moscow Region Ulyanovsk Region	Kaluga Region Moscow St. Petersburg Nizhny Novgorod Region Novosibirsk Region Tomsk Region

development of innovation infrastructure, as well as the formation of an appropriate institutional environment.

Republic of Sakha takes the worst position in the typology, referred to a group of "zero innovative potential—low innovative performance." Republic of Karelia takes the top positions among the Arctic regions—"average level of innovative potential—average performance of innovation." The region has a relatively balanced development of two components, which makes it possible to develop the innovation sector more effectively. The revealed features of Arctic regions' innovative development require, firstly, to stimulate the interregional integration processes in the sphere of innovation, secondly, to create a more efficient environment for the development of relations between science and industry, reconstruction and development of the innovation chain. The basis for the development of interregional cooperation could be the Arctic shelf deposits projects.

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Challenges and Possible Consequences of Transatlantic Trade and Investment Partnership

Hande Kurtul and Erkut Akkartal

Abstract In recent years, the European Union (EU) and the USA change their trade policy, and also they began negotiations for signing the most comprehensive free trade agreement. Its negotiations began in the second half of 2013 and is called Transatlantic Trade and Investment Partnership (TTIP), whose key points are transparency, coherence, and nondiscriminatory. With these types of qualifications, EU and US administration believes that this partnership will boost economic power, and not only the EU and the USA but also all countries in the world will benefit from the outputs of the agreement. On the other hand, although their intensions are widely on the same direction, sometimes controversial platforms occur, because both parties do not want to change their implementations at some topics such as conformity assessments, genetically modified products, and hormone-treated meat. Accordingly, the objective of this paper is to identify mainly the key challenges of the TTIP with qualitative and quantitative data. Descriptive analysis of the data will be displayed. The agreement has two main bodies as horizontal side which means regulatory cooperation and sectorial side. In this paper, regulatory cooperation and its context are considered as essential subjects. Sectors have more details and it is hard to explain all situations in sectors. After focusing on the reasons of the existence of the TTIP, the need will be explained. Then the main elements, such as market access, regulatory coherence, and improved cooperation, are mentioned. As a conclusion, mostly recommendations and expectations take part because of the fact that negotiations are going on.

Keywords Transatlantic Trade and Investment Partnership • Transparency • Coherence

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1 Introduction

In the globalizing world, change is inevitable because of altering conditions, provisions, and actors in due course. Many situations such as wars, financial or political crises, and free trade agreements, declaring independences or economic developments, affect the actors and main power and can convert balance of power on some era. In recent years, free trade agreements (FTAs) are mainly effective to change global balance because the world's biggest and economically strongest countries make agreements with transition economies, and so developing countries' rise and balance alter. The roots of the trade come from the ancient times. At the beginning, trade is made with ships, especially steam ships, and it was taking too much time, but over time, with the improvement of technology and Internet, trade started to make virtual environments in short times.

Since 2013, a situation like this is in the news all over the world. Two main actors of the scene, European Union (EU) and the USA, intend to sign the most comprehensive and transparent free trade agreement which is called Transatlantic Trade and Investment Partnership (TTIP). This is exactly a huge initiative because parties of agreement are world leaders having half of the world's GDP, 30 % of global trade and also more than \$3.7 billion investments in each other's area. With these data, we can be sure that if the TTIP comes into force, international area begins a new era. For example, boosting to 120 billion euros for the EU is expected with the TTIP. Figure 1 shows the US and EU's world GDP and global trade rates which they share.

There are many reasons for needing an agreement on global platform. First of all, financial crisis and rising of emerging markets are most effective reasons for TTIP. Then, diminishing of the US international trade rates triggers a quest for strengthening the economy. For the EU's side, their enterprises cannot reach to US market easily, and they are faced with redundant procedure. Because of significance of US market, EU demands to be part of such an agreement, too. Additionally, the USA is exactly an important trade partner for the EU, and they do not settle with this
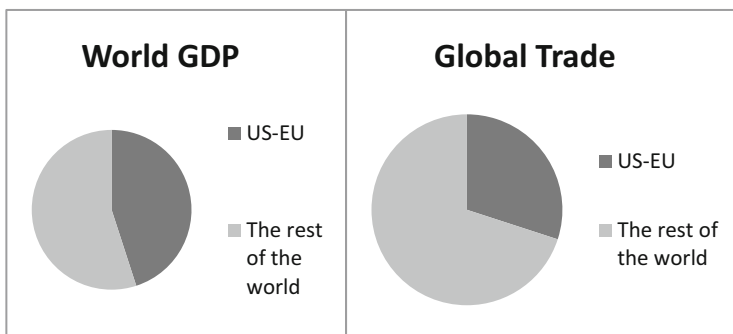
Fig. 1 US and EU sharing rate of world GDP and global trade. *Source*: Akhtar and Jones (2014a)
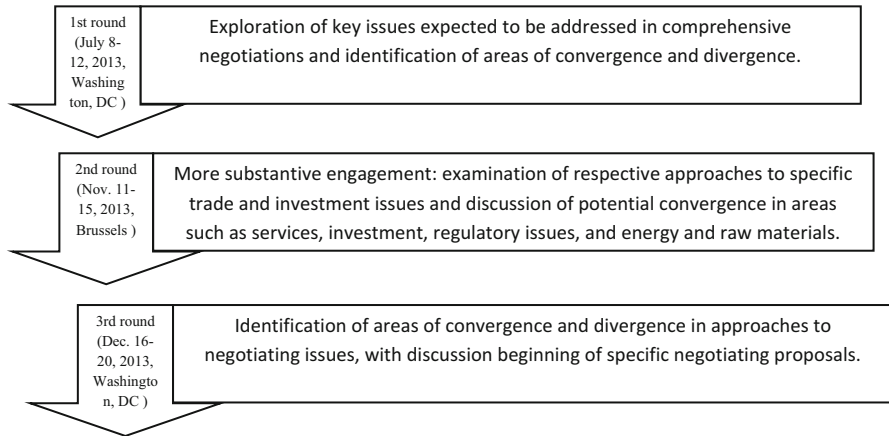
Fig. 2 Negotiation timetable. *Source*: Akhtar and Jones (2014b)

position; they want to extend it. Lastly, with this type of agreement, benefits are not only for the parties but also for all countries to utilize.

As an opinion and a suggestion, TTIP is mentioned in the final report of High Level Working Group (HLWG) on Jobs and Investment (Akhtar and Jones 2014a). In this report, it is said that it is a necessity to consider an agreement such as TTIP, and with such an agreement, many benefits can be gained in various options. After accepting HLWG's findings, US and EU leaders announced to begin negotiations for TTIP in February 2013. In July 2013, negotiations begin and the first three meeting dates are determined. The administration proposes to conclude it at latest in 2016, because negotiations which started in the second half of 2013 are expected to break in 2 years. In Fig. 2, we can see the third negotiations with their date, location, and scope.

Before giving information about the context of TTIP, we want to mention a little bit about this topic in the literature. First of all, there are not many different materials and only some thesis related to TTIP because of the fact that this is a new subject and also negotiations are continuing. The papers that we have obtained are mainly about distinctive information and mostly recommendations and expectations. Surveys are a part of some studies. The most beneficial articles are report from European Commissions for why they include what are discussed in the negotiations.

Barker and Workmann (2013) talk about why it is needed to sign an agreement like TTIP and its possibilities with a survey. They believe that TTIP will raise EU's economy and also strengthen US economy. Schott and Cimino (2013) mention possible arrangements and conclusions. Authors say that it is a necessity that regulatory issues should be part in TTIP for creating a comprehensive agreement. Lester and Barbee (2013) evaluated that negotiators have to focus on benefits of the TTIP than conflicts and also they should be sensitive about demands of investors and consumer for getting successful cooperation. Akhtar and Jones (2014b) mention general information about TTIP and also its qualifications, and they think that

if the agreement concludes as planned, the policy goal of the USA substantially will be put into practice. Akhtar and Jones (2014b) mention also about general information and quantitative data. Vastine et al. (2015) stated that debating about negative points than positives, political engagement and strategic purposes should be the main part of TTIP negotiations for achieving success. From the European Commission side, TTIP regulation is mainly about its progress. All rounds' final reports from the European Commission include what is negotiated in meetings and what are the parties' offers.

2 Former Situations

EU has more advantages about accessing US market, achieving more consumers, and facilitating to invest in US market, and also the USA will get more benefits such as achieving his policy goals, reaching more consumers, and accessing almost all over the world, if the TTIP concludes as planned. Parties want to achieve these types of aims because of the fact that before the TTIP, especially the EU is faced with some obstacle to connect with the US consumers or markets. For example, before the TTIP, in the USA, there is conservation and guarantee for the investors, although the USA is a member of OECD and also its legal system is good. In addition, firms from the EU have to struggle with some difficulties when they try to invest in the USA. So, EU investors cannot connect with the US market. On the other hand, under current situations, products which are completely the same are sold in the USA and the EU with different brands or names. This triggers some problem such as changing sales.

　　With the TTIP, changes will be almost on the quantity of trades. Certain topics are mostly constant for parties which mean both of them do not want to alter their positions. But with successful conclusion of the TTIP, trade volume and amounts will boost not only for parties but also all over the world.

3 Challenging Provisions

TTIP has mainly three purposes. These are market access, regulatory coherence and cooperation, and improved cooperation (Akhtar and Jones 2014b). The fundamental objectives of TTIP are to facilitate trade and investments and enlarge implementation field of procedure and standards. Briefly, they want to provide rules which are available all over the world and also common standards. The EU and the USA mostly have the same provisions or standards, but at some points, they differ. For solving these small controversies, TTIP is configured mostly about regulations. In relation to this, TTIP includes two main parts: regulatory side and sectorial side. We will focus on regulatory side in this paper because it is more important for us and we will also provide more details on sectorial side.
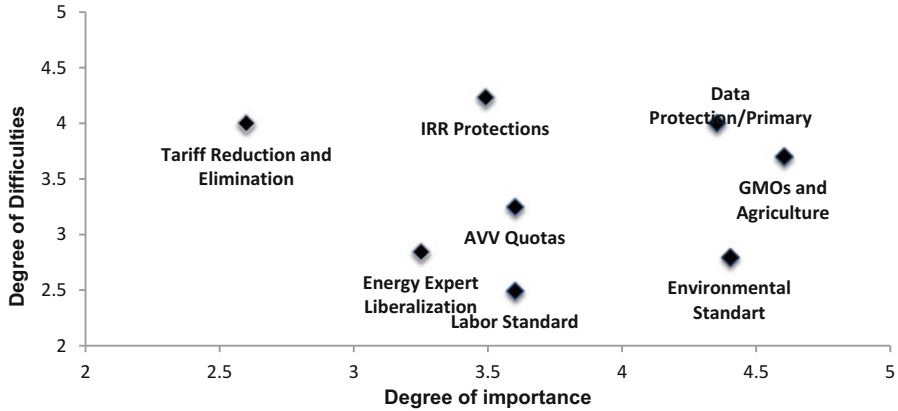
Fig. 3 Degree of importance and difficulties of challenging topics of TTIP. *Source*: Barker and Workmann (2013)

In relation to sectorial side, we can say that some sectors may come forward and will cause more discussions. For example, textile plays an important role of why China is a rising power all over the world, and with TTIP, the USA and the EU try to generate a solution to break the competitiveness of China.

Besides, we can say that the USA and the EU have the same aims in whatever they do. So, both sides try to protect people's health conditions and investor's/ worker's benefits. All discussions go in a way in which they try to increase their position and save their purposes. We can show the challenging points and its importance and difficulties in Fig. 3 which is drawn with data from a survey (2013).

The USA and the EU have mostly procedures and rules on the same direction. In other words, they do not separate from each other in relation to implementations on trade. But although they generally progress in the same directions, at some topics they conflict, and this causes deep discussions. In this part, challenging provisions of TTIP negotiations can be tried to explain.

First of all, the extent of reducing trade barriers and tariffs has less impressions and significance in TTIP negotiations, because generally tariffs are really low between US and EU trade. But also some products such as imported sensitive products like textile, fish and fish products, dairy products, sugar, confectionery, etc. trigger discussions. But still, both parties do not face redundant and highest tariffs in trade with each other, and thus this situation is a simple problem.

The most controversial side of negotiations is genetically modified organisms (GMOs). GMOs are used in the USA and also they are exported to some parts of the world. For the US administration, this should not be a problem because this is an acceptable condition in the current situations and they have exact rules about it. But EU's sides are exactly against them; that is why GMOs are indisputably unacceptable. EU's administration defends that GMOs are not allowed to be sold or produced in the EU countries and also their position about it will not change. According to GMOs, there is a circumstance which is hard to be solved.

The brands or names of products cause also a controversial platform. Some products such as cheese are sold in both parts but with various names. Maybe this may seem not a problem, but for competition, it precipitates unfair competition and reduces sales. In addition, one product should be sold at the same price everywhere. Products should be sold with the same prices to obtain equality.

The other one is related to investments. EU firms are faced with some obstacles when they try to connect with the US market. These are mainly about some procedures or unnecessary arrangements which are implanted for EU investors or producers. The most demanded regulatory of EU's side is making new settings about this topic.

About technical barriers to trade (TBT), most controversial part is assessments and certifications. This means that the USA and the EU have provisions to get some products on the same directions, but their implementations are different. Because of this reason, sellers have to test their products twice, as EU provisions for producing and as USA provisions for selling. Thus, these testing systems increase prices, and also competitiveness of EU's products in the US market declines. For solving the problem, parties work on the testing and assessment system which is available and acceptable for both sides. Negotiations are progressing in a way that it can generate positive results.

In comparison with regulatory issues, data sharing is another significant topic. In relation to this, both parties are indecisive, but they are in the same direction. At that point, private and government policies step in.

4   Transparency, Comprehensiveness, and Regulatory Cooperation

Transparency, comprehensiveness, and regulatory cooperation are really important matters in TTIP negotiations. In the regulatory side, we can see four reasons for regulatory cooperation:

- More job opportunity and growth
- More choices for consumers
- Stronger regulations and better enforcement
- Greater influence on international sight

All of these can be achieved by facilitating trade and investments. So, reducing trade barriers, removing technical trade barriers, and constituting and agreeing on the same standard and also certification system should be made.

Regulatory cooperation is much more significant than other qualifications, because regulatory cooperation includes all of the aims, and also with cooperation, any problem can be solved. Regulatory cooperation builds bridge between two sides related to similar levels of protection and development. Some of the levels that this structure compensates are improved transparency, greater predictability,

internationally compatible regulations, evolving capacity, increased consumer access, and enhanced small–medium enterprises to connect with new markets. On the other hand, regulatory cooperation includes some rules referred to by World Trade Organization (WTO). It means that, in TTIP, all the arrangements are not new or not used in other trade agreements. Generally, they utilize from WTO's rules, and with this they propose to address all over the world. Other parts of regulatory issues are sanitary and phytosanitary (SPS). SPS should be arranged so as not to damage people's health and compromise health conditions (Hilary 2014).

The other important part of regulatory cooperation is transparency. For blocking redundant procedures and unnecessary differences, great transparency and collaboration are encouraged. In this context, general platform is tried to create. But here, there are some differences among sectors. This distinction is the fundamental benefit of this cooperation. On the other hand, transparency means that all rules, implementations, and procedures are known for both sides, and this prevents deceptions.

Comprehensiveness is the main aim of TTIP. At the first sight, it can be seen as an agreement between only two parties, TTIP is designed for a global concept. In negotiations, discussions progress to parties' profits and demands. If the agreement is signed as planned, not only the EU and the USA benefit from it, but also all countries can have advantages from the TTIP.

5   Expected Consequences of the Partnership

Possible effects of this type of agreements are a little bit hard to assess, since they are complex and challenging because of lack of data and theoretical and practical information. TTIP is an ongoing process; thus we make only expectations about consequences. In relation to expected consequences of TTIP, the first line belongs exactly to trade volume and quantities. When we see US and EU export quantities for the last 10 years, TTIP negotiations also help us to make some inferences about trade volume in the future. If TTIP concludes as planned, it is estimated that EU export would boost to $28 billion or approximately 7 % and also US exports would boost to $23 billion or 8 % within a few years. It is shown in Table 1 that in the last 5 years, export's data is increasing. Additionally, the data in the table is in million $, but we expect exports will boost to billion $.

Additionally, according to some scenarios, if the restrictiveness of actionable nontariff measures reduces to 50 %, it is assessed that annual exports of the EU would boost by 2 % and USA 6 % in 2018. If the TTIP concludes as planned, small and medium enterprises from the EU can easily enter into the USA's markets because obstacles will disappear.

As committed surveys in 2013, 88 % of people who attend this survey believe that the USA and the EU will be able to come to an agreement. Only 12 % of them do not believe to achieve an agreement (Barker and Workmann 2013). This survey presents to us three possible scenarios about TTIP conclusions. In relation to these

Table 1 Quantities of US and EU exports

Years	USA's export	EU's export	Balance
2005	185,165.9	309,628.0	−124,462.1
2006	211,886.9	330,481.7	−118,594.8
2007	244,165.9	354,409.3	−110,243.4
2008	271,810.1	367,617.4	−95,807.4
2009	220,599.3	281,800.8	−61,201.5
2010	239,591.0	319,263.8	−79,672.9
2011	269,068.7	368,463.9	−99,395.2
2012	265,375.6	381,753.2	−116,377.7
2013	262,150.6	387,591.3	−125,440.7
2014	276,698.4	417,836.7	−141,138.3
2015-January	22,265.7	31,588.8	−9323.1
2016	284,698.4	424,836.7	−140.138,3
2020	23 billion	28 billion	−5 billion

scenarios, the first one which is called the ambitious but achievable scenario states that even if they cannot agree on all topics, they can compromise at a comprehensive point as putting away redundant and unimportant differences. The second one is called the Doha scenario, and it claims that TTIP cannot be concluded because parties surmount on trivial details. And the last one is the transatlantic market place scenario, which is a reasonable one because it states that for the global and comprehensive agreement, TTIP should be signed.

6 Conclusions

In this connection, it is assessed that trade balance or trade volume will be in favor of European Union because of the fact that estimation about trade quantities in the near future shows that EU's export volume will increase. Additionally, obstacles of the EU's producers and investors would disappear, and thus EU side has got more benefits than US side. But on the other hand, some debates cannot be solved such as GMO. In the current situations, some topics as GMO are so controversial because parties do not want to swerve their positions, and thus they cannot achieve a common solution.

Far East is a significant region for global trade, and also this region has an important influence related to TTIP for the EU and the USA. China, one of the Far East countries, is influential, being a powerful and competitive country. For the US side, TTIP constitutes a safety area for the USA, because the USA wants to guarantee the competition against China. TTIP augments USA's power to compete and keep up. According to EU's side, the situation is the same as the USA's view. Like the USA, the EU is aware of the China's position on the global trade and wants to strengthen its competitive capacity with China and other Far East countries. If

TTIP concludes as planned, the EU and the USA can achieve their aims which include outpacing China and sharing and administering world trade.

On the other side, coalition of two main powers or actors as the USA and the EU triggers changing parity between US dollar–euro and other currencies. According to the process of the TTIP, dollar and euro would strengthen against other currencies because of the fact that world trade is mainly kept control by the EU and the USA if partnership ends up as planned.

To sum up, briefly some possible consequences of this partnership are as follows:

- Boosting EU's economy
- Strengthening USA's economy
- Creating a global available trade perspective
- Generating test and certification system which is valid worldwide
- Increasing or removing tariff and nontariff barriers
- Removing investment obstacles
- Opening US and EU's markets for each other's investments and trade

As a result, TTIP is a partnership which is continuing and has not yet concluded. Its consequences are not exact, but in this report, we mention about just possibilities of agreement's conclusions. Although there are different views and comments related to TTIP's benefits and disadvantages, generally people think that it will be beneficial if it concludes as planned.

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The Impact of Economic Globalization on the Labor Market of an Open Small Economy

Irena Pekarskiene, Daiva Laskiene, Asta Saboniene, and Rozita Susniene

Abstract The globalization of national economies and markets is a noticeably prominent tendency in recent decades, and the expansion of activities of multinational enterprises (MNEs) is one of the most prominent features of the global economy. The expanding economic globalization process was induced by a complex interaction of growing international trade and foreign direct investment flows, the diffusion of new technologies, evolving corporate strategies toward a more global focus, and labor force movements. The features of the labor market are being modified by the impact of globalization. Economic globalization has both a positive and negative impact on the labor market of a small open economy. The people of small open economies participate in the economic globalization process in two ways: many local employees work for the affiliates of MNEs and acquire new qualifications and experience, while others move to more developed countries looking for a better salary and better conditions of life. The expansion of activities of MNEs not only has a great impact on the qualifications and structure of local human resources but also alters the labor market demand in a small open country, especially in one with a high concentration of activity and low level of competitiveness.

Keywords Economic globalization • Impact of globalization • Labor market • Labor mobility • Activities of multinational enterprises • Small open economy

1 Introduction

In recent decades, all spheres of life have been encompassed by the process of globalization. Globalization is the most powerful impetus of contemporary life and the predominant feature of the twenty-first century. This process is very unique and has no other alternative or equivalent for comparison. Globalization manifests in all spheres of life—economic, social, political, military, cultural, religious, environmental, etc. All manifestations of globalization have a diverse and inevitable

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impact on a country's economy. Obviously, the economic dimension of globalization has a tremendous effect on a country's economic development; however, the economy is, although indirectly, but significantly affected by other dimensions of globalization, especially social globalization and political globalization.

Brakman et al. (2006), Held (1999), Radović Marković (2008), Najam et al. (2007), and Steger (2005) analyzed the peculiarities of the globalization process and different manifestations of globalization. Freeman (2006), Lucas (2005), Özden et al. (2011), and Wickramasekara (2008) investigate the impact of globalization on economic development of the country or the tendencies of global economy. Arribas et al. (2009), Dreher (2007), Juščius (2004), and Pekarskiene and Susniene (2011) research the quantitative assessment of globalization and try to assess the level of globalization and its different dimensions. Asmussen et al. (2007), Gersbach (2002), Ietto-Gillies (2003), Kobrin (1991), and Sullivan (1994) assessed the level of globalization and its impact on economic development at the industry or firm level.

Globalization is defined in a variety of ways, but there is no one acceptable interpretation. As globalization is a multidimensional process, the definition of globalization depends largely on the approach of the author and the field or object of research. An individual researcher's political ideology, geographic location, social status, cultural background, and ethnic and religious affiliation provide the background that determines how globalization is interpreted.

According to Held (1999), globalization is a widening, deepening, and speeding-up of interconnectedness in all aspects of contemporary social life from the cultural to the criminal, the financial to the spiritual. Al-Rodhan and Stoudmann (2006) present a holistic interpretation of globalization as a process that encompasses the causes, course, and consequences of transnational and transcultural integration of human and nonhuman activities. Steger (2005) proposes that globalization should be confined to a set of complex, sometimes contradictory, social processes that are changing our current social condition based on the modern system of independent nation states. Steger (2005) generalizes most scholars' definition of globalization as a multidimensional set of social processes that create, multiply, stretch, and intensify worldwide social interdependencies and exchanges while at the same time fostering in people a growing awareness of deepening connections between the local and the distant. Juščius (2004) emphasizes the complexity of the globalization process as a complex phenomenon of social development, encompassing not only economic but also political, technological, cultural, military, ecological and other aspects, and the need for a complex assessment of the scope and scale of globalization.

This paper focuses on the economic dimension of globalization and defines economic globalization as global interconnectedness of economic activities through international trade, capital flows, dissemination of technology, activities of multinational enterprises, and migration of people. The main features of the recent spread of economic globalization are the formation of integrated markets on the regional and global level, the dissemination of information due to the development of information technologies, technology diffusion on a global level, intense

development of multinational firms, and decreasing barriers for movement of goods, services, capital, and people.

International trade, foreign direct investment (FDI), dissemination of information and communication technologies, and activities of MNEs are considered to be the most important driving forces of globalization and the main broad channels which enable the spread of economic globalization processes across the countries with different levels of development. Although according to Freeman (2006), the extent of the flow of people part of the globalization process does not reach the scale of capital mobility or foreign trade, Lucas (2005), Özden et al. (2011), and Wickramasekara (2008) consider labor force movements as one of the main driving forces of globalization.

The purpose of this paper is to analyze the features of a labor market of small open countries in the context of economic globalization. The analysis of the impact of economic globalization on the labor market is based on the selected main drivers of economic globalization, which are directly linked with the changes in the labor markets in different countries. The labor market is mostly interconnected with and affected by two drivers of economic globalization: international labor migration and activities of MNEs. The analysis of the impact of globalization on a small country's labor market is specific. According to the results of the measurement of globalization at a country level (Dreher 2007), small countries, as a rule, are more globalized. Integration into the global economy is the only way for rapid development of a small country, and thus the labor market is inevitably affected by international labor migration and activities of MNEs.

2 Global Labor Mobility

The discussion of the impact of globalization on the labor market includes two aspects of the international labor movement. The first one refers to a macro level, considering the tendencies of international migrant flows, and the second refers to a micro level, highlighting the role of MNEs in labor force mobility.

The labor force movement and migration of people should not be misinterpreted to be identical flows. Migration flows consist of different groups of people segmented by age, gender, education, or working status. Regardless of the differentiation, international migration of people has an impact on the supply and structure of the labor market as well as on the level of unemployment of both home and host economies, and migrating people could be treated as a potential labor force. As it is seen in the migration data, people of working age (15–64 years old) constitute almost 80 % of worldwide migrant flows and the share tends to increase (United Nations DESA-Population Division 2013). In this context, international migration flows may be considered as a proper reflection of the tendencies of the labor force movement, and the labor force movement should be considered as the most significant aspect of international migration.

Labor migration at the macro level is stimulated by different driving factors, from economic and political to cultural and religious. Considering the economic factor, international labor mobility is inspired mostly by demographic imbalances between developed and developing countries and large differences in wages. The demographic imbalances tend to encourage the movements of workers from economies where they are in surplus to those where they are most in need (Dumont and Lemaître 2005). A high level of unemployment forces unemployed people to relocate into the countries with a greater demand in the labor market. Large differences in wages inspire workers to go abroad in search for higher wages and better working conditions. Apart from economic factors, there are many other reasons for people to change their country of residence, and the decision to migrate could be encouraged by political (persecution, unstable political situation), religious, cultural, or personal reasons (family conjunction, studying, self-realization, environment, health, etc.).

The international migration data is not differentiated by these abovementioned factors of migration, and different factors are not clearly outlined in the migration data. Therefore, there is no clear distinction of the exact share of the impact of the economic dimension of globalization on the movement of the labor force. However, there are some trends in the direction of migration flows, which are closely related to an economic aspect.

Traditionally, the international labor flows are moving in direction from less developed to more developed countries. The USA, Canada, Australia, and New Zealand are considered as the most prominent so-called *settlement* or *destination* countries of international labor migration. And traditionally, the source or home countries of labor migration were from developing regions of Africa, Asia (except Japan), Latin America, and the Caribbean. Thus workers from developing countries make a global flow of the labor force and the basement for formation of the global labor market. According to Bjelić (2013), workers in developing countries participate in globalization of labor markets in two ways: one way is to work for a foreign-controlled affiliate in the home country and the other way is to relocate to a more developed country. Many workers from developing countries do not wait for foreign capital to enter their home country but relocate to developed countries.

The scale of one direction migration from less developed toward more developed countries could be illustrated by labor migration flows in the twentieth century. In 1960–1985, labor flows from developing to developed countries tripled (Marchiori et al. 2013), and a total number of foreign-born residents grew from 92 million in 1960 up to 165 million in 2000 (Özden et al. 2011). Up to the last decade of the twentieth century, growing rates of immigrant flows were higher in more developed regions in comparison to less developed regions,[1] as shown in Fig. 1.

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[1]According to United Nations DESA-Population Division (2013), *more developed regions* comprise Europe, Northern America, Australia/New Zealand, and Japan, and *less developed regions* comprise all regions of Africa, Asia (except Japan), Latin America, and the Caribbean plus Melanesia, Micronesia, and Polynesia.
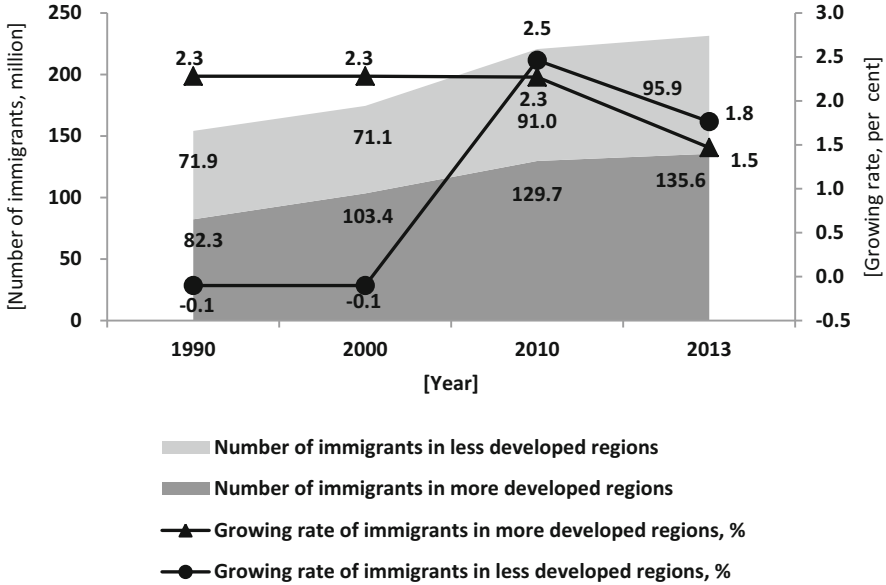
Fig. 1 The number of immigrants and growing rates of immigrant flows in more and less developed regions in 1990–2013. *Source*: Compiled by the authors on the data of United Nations DESA-Population Division (2013)

In the last decade of the twentieth century, the main source of international labor flows was post-Soviet and Eastern European countries. After the fall of the *iron curtain*, there was a dramatic increase in international labor flows toward more developed countries. Warming of the political climate and people seeking for better life generated massive international labor movements from post-Soviet to more developed Western countries. In this period, the increase of international labor movements was encouraged by both economic and political factors.

A prominent rise in migration flows takes place during all periods of regional or global economic crises, as can be seen in the migration data (UNCTAD 2012). Due to the fact that economic globalization enhances interconnectedness between economies, it also accelerates the speed of transferring the consequences of financial and economic crises. Therefore, the decision of labor force to migrate is becoming determined not only by the level of economic or social development of the home country but also by economic and social processes and changes at a global level. Thus economic globalization affects the labor migration flows, and the impact of economic globalization generally manifests in a growing number of immigrant workers.

Accelerating speed of economic globalization enhanced new tendencies in the labor force movements. The prominent feature of the first decade of the twenty-first century was changing the directions of international labor movements. Although developed countries remained as the main destination of the labor migration, the number of migrants to developing countries increased. From year 1990, the total

Table 1 A share of immigrants in total population of more developed and less developed regions in 1990–2013, per cent

Region year	1990	2000	2010	2013
More developed regions	7.2	8.7	10.5	10.8
Less developed regions	1.7	1.4	1.6	1.6

Source: Compiled by the authors on the data of United Nations DESA-Population Division (2013)

number of immigrants in the world steadily increased and exceeded 231 million in 2013. Starting from the first decade of the twenty-first century, growing rates of immigrant flows from less developed regions exceeded the growing rates of more developed regions (see Fig. 1). Even more, by the source of origin, instead of one traditional direction from developing countries to developed regions, migration flows were more or less equally divided in three directions: the migrant movements from developing to developed countries have only a share of 33 % of total migrant flows in 2005, whereas flows from developing to other developing countries and from developed to developed regions constituted 32 and 28 % accordingly (Wickramasekara 2008). Thus not only economic globalization fosters the international labor migration, but also countries with different levels of development are interlinked with connections of bilateral international labor flows, and the process of economic globalization is accelerated in all directions.

Growing labor migration flows inevitably make an impact on the structure of the labor market both of home and host economies in two aspects: a share of immigrants in the labor market and mobility of highly skilled workers. The share of immigrants increases in the labor markets of developed economies. As it is seen from Table 1, in 1990–2013, immigrants had a share in average of 1.6 % of total population in less developed countries, whereas in more developed regions, the share of immigrants rapidly increased. In fact, every tenth worker in the labor market of developed economies is a foreign-born.

Another predominant feature of labor migration in recent decades is an increasing international movement of highly skilled labor force. Since the end of the 1990s, international mobility of highly qualified workers[2] receives increasing attention. Many authors discuss the problems of *brain drain* (Batalova and Lowell 2007; Marchiori et al. 2013), management of highly skilled labor force, immigration policies (Collings 2014; Daugėlienė 2007; Ewers 2007), and international mobility of highly skilled workers inside the multinational company (Peiperl et al. 2014; Stahl and Cerdin 2004; Welch and Worm 2006).

So-called brain drain was stimulated by the formation of global value and supply chains, increasing information flows, intensified transactions of goods and services, and global activities of MNEs. As in Peiperl et al. (2014), it is almost inevitable that skilled labor will become increasingly global in scope. Although skilled

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[2]As there is no unquestionable definition of *highly qualified* or *highly skilled* labor force, highly qualified workers here are defined based on educational qualifications, i.e., tertiary education.

professionals constitute a small segment of the internationally mobile labor force, they are key engines of the global knowledge economy (Ewers 2007) and sometimes are referred to as the best and the brightest (Batalova and Lowell 2007). In response to demands of modern corporations, a new category of skilled labor force known as *knowledge workers* emerged and entered the global labor market (Daugėlienė 2007). Skilled human capital is an integral part of the global MNEs' activities in knowledge creation and diffusion, innovation, and high-quality service (Peiperl et al. 2014).

As the mobility of skilled labor force is often related with brain drain and the loss of economic potential of the country, as stated by Dumont and Lemaître (2005), many developed countries have been attempting to attract qualified human resources from abroad, which their increasingly knowledge-intensive economies need in order to sustain economic growth. The programs and means to attract the highly skilled labor force from abroad enhance the labor supply in developed countries and encourage the movements of highly qualified workers at a larger scale. This leads to the structural changes in the labor markets of host economies.

The share of the highly skilled labor force in a total number of immigrants is increasing. As it is seen from the data of OECD (2014), in many OECD countries, immigrants with a tertiary education have a greater percentage of total immigrant workers (30.9 %), in comparison with local highly skilled workers (26.9 %). On the other hand, low-skilled or unskilled workers have a greater percentage of immigrants as well. This means that highly skilled or unskilled workers are the mostly motivated groups of labor workers which tend to migrate. Economic globalization encourages highly skilled workers to relocate and to participate in a global labor market, whereas the movements of unskilled labor force are encouraged by aspirations of the people for better life. These expectations are implemented due to the fact that most of the countries are becoming more and more open and more globalized despite of the level of economic development of the country.

3 Activities of Multinational Enterprises and the Labor Market

Another aspect of international labor migration is related to the activities of MNEs. MNEs are considered to be the main actors and drivers of economic globalization process by Buckley (2009), Ietto-Gillies (2003), Young and Hood (2000), and Rugman (2012). The strategies and activities of MNEs determine both the scale of the process of globalization and its impact on economic development.

The main characteristic of a multinational corporation, as stated in Ietto-Gillies (2003), is its ability to plan, organize, and control business activities across the countries. This ability to act at an international level is a specific feature of MNE and differentiates it from the other companies, which are not capable to spread their value chain globally. The activities of MNEs are based on the segmentation of

manufacturing process, an increasing division of production into separate stages carried out in different locations (Sideri 1997), and separate value chains located in many countries. This process is fastened by decreasing costs of transportation and development of communication networks. According to Rugman (2012), large MNEs serve like a flagship in regional business networks, and many other small- and medium-sized enterprises have roles as network partners. MNEs are able to coordinate their international activities by a big variety of forms like direct investment, mergers and acquisitions, licensing, subcontracting or market relationship, etc. According to Buckley (2009), precise use of location and ownership strategies by MNEs is the very essence of increasing globalization and induces the emergence of the *global factory*. The field of MNEs' activities includes not only local firms, their affiliates abroad, customers, and national or regional governments but also the labor force both in home and in host economies. Hence, the functioning of the global factory creates a global demand of labor, which emerges in locations where MNEs' subsidiaries are established.

MNEs achieve advantages and reduce their costs by locating the labor-intensive stages of production in countries with lower wages. According to Buckley (2009), the managers of MNEs are increasingly able to segment their activities and to seek the optimal location for increasingly specialized slivers of activity. Global differentiation and optimization of manufacturing in this way not always coincide with the interests of the home country, because, according to Bjelić (2013), transferring of the production chains overseas leads to reducing of production facilities and deindustrialization of the home economy. Thus jobs are transferred and labor demand diminishes and is transferred from home to host economies where affiliates are located.

The opposite effects take place in the labor markets of host economies. Newly established foreign-controlled affiliates create new jobs, hire local workers, and increase the level of employment in the host labor market. Generally, MNEs establish their subsidiaries in the countries where there is an ample labor force supply and low wage. Differences in wages across the countries enable MNEs to optimize production costs. MNEs are able to optimize labor costs and do not have to invest in professional training of employees, if local labor supply meets the MNEs' labor demand for workers with specific qualifications.

Traditionally, MNEs are large organizations, and their impact on the labor market depends on the size of the host economy and the level of globalization of the host country. The activities of large MNEs have a tremendous impact on the labor market of a small open economy, in particular with a high concentration of activity and low level of competitiveness.

The increasing numbers of MNEs and their subsidiaries as well as the number of workers employed in foreign affiliates of MNEs reflect the expansion of the scope of economic globalization and significant impact of globalization on labor markets of host economies. As seen from Fig. 2, the number of workers employed in foreign affiliates of MNEs increased dramatically from 1990 and reached the peak of more than 80 million in 2007. Although the number of employees in foreign affiliates
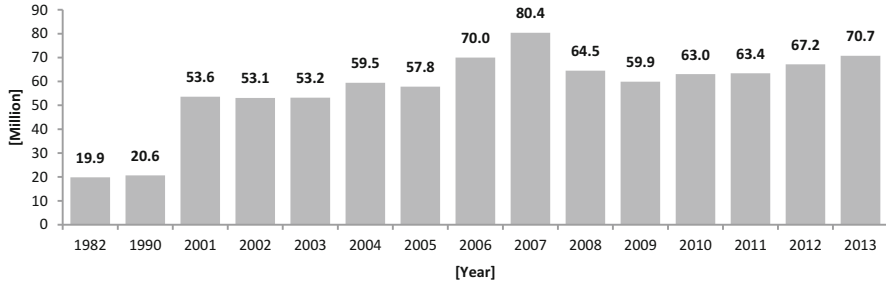
Fig. 2 Employment by foreign affiliates in 1982–2013, million. *Source*: Compiled by the authors on the data of UNCTAD (2012, 2013, 2014)

fluctuated and decreased during economic crises, it reached the level of 2006 and exceeded 70 million in 2013.

An impact of foreign MNEs on the labor market of a small open economy depends on the share of workers employed in the foreign-controlled affiliates. The more is the share, the greater is an impact of the global activities of MNEs. Dependence of local labor force on one or a few large companies enhances the risks and instability in the labor market. The labor demand and employment may decrease, if MNEs change their strategies and close or relocate the affiliates to the other countries. Zilinske (2010) points to the fact that during the global financial crisis in 2007–2008, some large MNEs (US car producers in particular), who were broadly settled in European Union, closed their European factories paying little attention to huge negative economic and social distortions that were left behind them.

In spite of losing jobs and increasing unemployment after foreign affiliates are relocated, local workers being removed from the job (managers and particularly high technology workers) have acquired higher qualification, knowledge, and experience. The survey of Sofka et al. (2014) proves that ex-employees of foreign-controlled affiliates have better opportunity in the labor market. They are more eligible for the local firms or other foreign affiliates and can expect for better wages, unless they have acquired very specific knowledge and experience that cannot be applied in a new job.

Despite the discussed direct impact of the activities of foreign affiliates of MNEs on the labor market, there are also indirect effects on the labor demand of the host economy. According to Buckley (2009), MNEs are like differentiated networks, and they choose location and ownership policies so as to maximize profits, but this does not necessarily involve internalizing their activities. Indeed, they have set a trend by outsourcing or offshoring their activities. In discussion of offshore outsourcing and its productivity effects, Olsen (2006) points to a distinction between MNEs' outsourcing and offshoring activities based on two variables: the ownership of the company's facilities and the location of the provider (subcontractor). Whereas outsourcing refers to the relocation of jobs and processes to external providers regardless of the provider's location, offshoring refers to the relocation of

jobs and processes to any foreign country without distinguishing whether the provider is external or affiliated with the firm. Outsourcing may therefore include job relocations both within and between countries, whereas offshoring refers only to international relocations. Therefore, namely, the MNEs' offshore outsourcing of labor has an impact on the transfer of the labor demand, when jobs are relocated to an external and internationally located provider.

Another advantage is labor offshore outsourcing in R&D activities of MNEs. According to Rugman (2012), large MNEs have an advantage not only in creation and development of new technologies (some small innovative enterprises are very outstanding in R&D activities) but particularly in adopting new technologies in a mass production. Transferring of R&D to affiliates abroad reduces costs, provides the ability to use scale economy, and enables to outsource local R&D resources for adaptation of MNE products for the local market (Hu 2004) or to apply new innovative ideas of local R&D partners in creating new global products (Phene and Almeida 2003). This means that offshore outsourcing of R&D exploit the resources of local R&D firms or individual researches and opens the ways for highly qualified labor force to participate in the global labor market.

Another aspect of labor mobility is labor force movement inside the MNE. MNEs relocate their highly skilled workers and especially their managerial staff from parent companies to subsidiaries abroad. Experienced managers and new technology specialists are being relocated to manage directly and organize the activities of the subsidiaries, to transfer new technologies and know-how, and to share experiences with the local workers. This process is inspired by managerial, organizational, and technological differences in more developed and less developed countries.

Peiperl et al. (2014) identify two main forms of cross-border mobility of highly skilled workers. First is the mobility of organizational expatriates, who are sent on international assignments by their companies for coordination, control, training, and knowledge-transfer purposes. The expatriate assignments are usually motivated by job and career development considerations. The second form is the mobility of self-initiated expatriates, who move abroad of their own initiative, driven by an array of personal motivations such as the desire for adventure and exploration, life change, and benefit to the family. The study supports the suggestion that career self-determination, rather than long-term organizational careers, is the main factor of repatriation of the highly skilled workers. And the survey suggests that individuals experience more global development by leaving their current employer than by staying with them. Therefore, the direction of mobility of highly skilled workers usually takes place between developed countries. The repatriates tend not only to relocate to the other country but to change the company as well. This leads to a decrease of the highly skilled workers staying in a firm and enables them to acquire global qualifications and global mobility. Therefore, MNEs face the challenges of developing and maintaining talents and a competitive position in a global labor market.

4 Lithuanian Labor Market and Economic Globalization

4.1 Method

Lithuania meets all the criteria of a small open country. Although Lithuania has a long history of international trade, the country is dependent on the larger trade partners which have a greater competitive power in a global market. As the country is a member of EU, its small economy is open for capital flows and free movement of labor force in European region.

The level of globalization of Lithuania is measured in the KOF globalization index (Dreher 2007), and the position of Lithuania is quite high in the context of 208 countries of the world. The indicators of globalization of Lithuania confirm the conclusion of the compilers of the index that small countries, as a rule, are more globalized. The high level of globalization in Lithuania is determined by economic and social indicators of globalization (Pekarskiene and Susniene 2011). Lithuanian labor market is therefore of a high level of globalization and is inevitably affected by the processes and changes brought by economic globalization.

The analysis of the impact of economic globalization on the labor market of Lithuania was carried out by analyzing two drivers of economic globalization mostly affecting the labor market: international labor migration and activities of multinational companies. The study was carried out by analyzing statistic data provided by Statistics Lithuania (2013).

Data on migration, and in particular on labor migration, is often characterized by a lack of quality and comparability, as it is pointed by Dumont and Lemaître (2005) and Özden et al. (2011). A definition of *migrant* is interpreted in a few distinct ways in different countries according to the duration of stay and concerning the place of birth and nationality or citizenship. In Statistics Lithuania (2013), persons are counted as emigrants if they relocate to the other country for permanent residence or for the duration not less than 12 months. And persons of foreign nationality are considered as immigrants if they are admitted to the country and granted the right of residence for permanent stay or for the duration not less than 12 months. The statistic data of the number of migrants and the rates of migration was accessible for the period of 2001–2014. The ratio of the number of immigrant workers and the total number of workers was calculated for evaluation of the share of immigrant labor force attributable to employment level in Lithuanian labor market.

As well as labor migration, the analysis of activities of MNEs faces the problem of data accessibility and compatibility. Efforts to collect the data concerning the activities of MNEs are relatively recent and are available for a limited period of time. There is a lack of information available about the activities of MNEs' affiliates abroad. Therefore, data is mostly accessible only on the activities of local parent companies and foreign-controlled affiliates. The statistic data of the number of local enterprises and foreign-controlled enterprises (FCEs) was accessible for the period of 2005–2012, and employment data was accessible for the period of 2001–2014. The ratio of the number of workers employed in foreign-controlled

affiliates and the total number of workers was calculated for the analysis of the share of an employment attributable to foreign-controlled affiliates.

4.2   Results

The analysis of Lithuanian international labor movements is based on the people migration data. As people of working age (15–64 years old) constitute in average of 85 % of Lithuanian migrant flows in 2001–2014 (Statistics Lithuania 2013), international migration flows may be considered as a proper reflection of the tendencies of the labor force movement.

Lithuanian labor market can be characterized by one direction flows of international labor movements. As it is seen in Fig. 3, there is an imbalance between immigrant and emigrant flows in 2001–2014. Before joining the European Union (EU), the average of emigrant flows of Lithuania was 23,600 emigrants per year in 2001–2003. After Lithuania joined the EU in 2004, the number of emigrants increased dramatically and reached 57,900 in 2005.

Another wave of emigration made a shock to Lithuanian labor market in 2010, when the number of emigrants peaked to 83,200. The unstable situation in the labor market was triggered by the impact of the global financial crisis in 2007–2009 and rising level of unemployment in Lithuania. The unemployment rate, after gradually decreasing until 2006, remained stable in 2006–2008 and then steeply rose and reached the peak of 15.9 % in 2010. The consequences of economic recession and increasing level of unemployment encouraged local workers to relocate to other countries, and Lithuanian market lost a great share of its labor force.

Whereas the number of emigrants fluctuated in different periods, the number of immigrants rose steadily, with an exception of the period of economic crisis in 2008–2010. Decreasing emigration rates and growing immigration rates caused a gradual decline of unemployment in 2010–2014. Because of growing immigrant
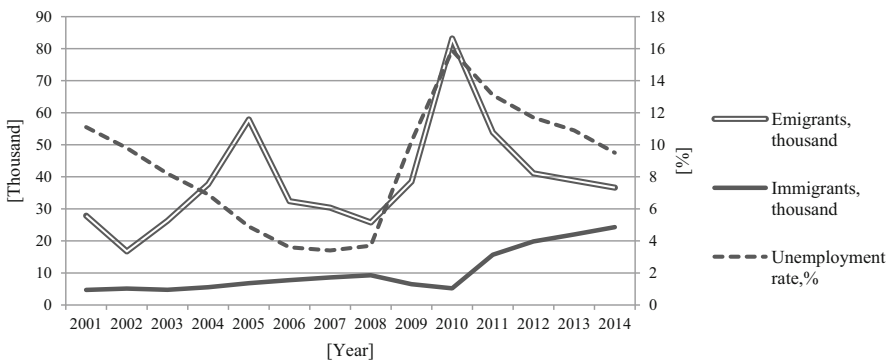
Fig. 3 Migration flows and unemployment rate in Lithuania, in 2001–2014. *Source*: Compiled by the authors on the data of Statistics Lithuania (2013)

flows, the supply of Lithuanian labor market increased. However, the share of immigrants in Lithuanian labor market remains insignificant (see Table 2) and has in average a share of 0.3 % in the number of total employees in 2001–2013.

The imbalance between immigrant and emigrant flows is predestined by a big gap in immigration and emigration policy in Lithuania and EU. Opening Lithuanian borders for free movement of people in EU region had a tremendous impact on increase of emigration flows. However, many rules and restrictions for immigrants to enter Lithuanian and EU create the high barriers for the labor force flows from developing countries.

Lithuanian labor market was affected not only by labor force emigration but by the activities of MNEs as well. Although Lithuanian entrepreneurs make efforts to enter into the global market, obviously, the activities of foreign MNEs in Lithuania are of greater significance.

The total number of enterprises increased dramatically in Lithuania after joining the EU. It doubled from 59,100 firms (except financial sector) in year 2004 up to 123,830 firms in year 2005 (Statistics Lithuania 2013). New enterprises were established to start the cooperation with other EU country members. New links and new possibilities appeared for Lithuanian entrepreneurs to enter into new markets and expand their business. In 2004–2005, Lithuanian economy made a big step into the global market and global economy. Liberalization of capital flows from Western European countries and other regions caused the rapid growth of FCEs in Lithuania. As can be seen in Table 2, the number of national enterprises gradually increased in 2006–2008 until the consequences of the global financial crisis manifested in 2009, and more than 20 % of national enterprises were forced to close.

Whereas the number of FCEs though fluctuated during the economic downturn, it still grew during 2005–2012. FCEs employed the local labor force and the share of employment in FCEs steadily increased. Though the share of FCEs in the total number of enterprises is insignificant and has on average 1.9 % in 2005–2012, the share of the number of workers employed in FCEs is of greater importance and has reached 14.1 % in 2012.

The numbers illustrate the fact that MNEs are mostly large companies and the number of employees in average is higher in comparison with local enterprises. In addition, FCEs had a higher rate of growing number of employees during 2005–2012 and did not suffer from the decreasing supply in the labor market as local firms did. The ratio of the number of workers employed in FCEs and the total number of workers shows the share of an employment attributable to foreign-controlled affiliates and the impact of FCEs on the level of globalization of Lithuanian labor market.

Labor emigration and activities of FCEs have a different impact on Lithuanian labor market. As it is seen from Fig. 4, the tendencies of the growth of the number of employees in FCEs, the number of emigrants, and unemployment rate differ.

In 2005–2008, the number of emigrants decreased, and unemployment rate slightly fell in 2005–2007. In 2008, the unemployment rate rose steeply until 2010, and the indicator of the number of emigrants followed. Both indicators

Table 2 Selected indicators of local- and foreign-controlled enterprises in Lithuania, in 2005–2012

	2005	2006	2007	2008	2009	2010	2011	2012
Total number of enterprises	123,830	146,037	160,167	162,425	128,970	131,851	148,471	167,119
Number of FCEs	2226	2355	2428	2682	2765	2807	3199	3213
Share of FCEs (%)	1.8	1.6	1.5	1.7	2.1	2.1	2.2	1.9
Total number of employees	917,000	976,300	1,029,300	1,031,000	870,900	825,600	859,600	896,200
Number of employees in FCEs	101,500	116,200	121,900	126,900	117,500	113,300	121,300	126,500
Share of employees in FCEs (%)	11.1	11.9	11.8	12.3	13.5	13.7	14.1	14.1
Average of number of employees of local enterprises	7	7	6	6	7	6	6	5
Average of number of employees in FCEs	46	49	50	47	42	40	38	39
Number of immigrant employees	1600	3000	5700	7800	2200	1800	3300	4600
The share of immigrant employees in total number of employees (%)	0.2	0.3	0.6	0.8	0.3	0.2	0.4	0.5

Source: Compiled by the authors on the data of Statistics Lithuania (2013)
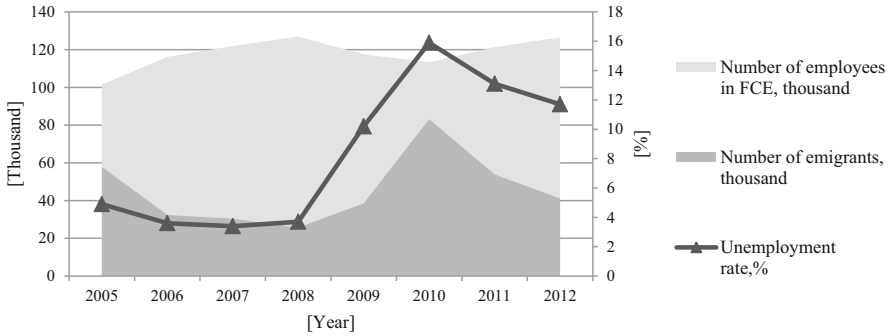
Fig. 4 Employment in FCE, number of emigrants, and unemployment rate in Lithuania, in 2005–2012. *Source:* Compiled by the authors on the data of Statistics Lithuania (2013)

reached their peak in 2010 and then gradually decreased. On the contrary, the number of employees in FCE had the opposite trends of growth. The number of employees in FCE steadily increased in 2005–2008, then slightly declined until 2010, and rose again after.

The trends of the indicators reflect the impact of emigration flows and activities of FCE on Lithuanian labor market. Whereas growing emigration flows affect the supply of labor force in a negative way, the increasing number of workers employed in FCE has a positive impact on the labor market and employment.

5   Conclusions

Labor market is mostly interconnected with and affected by two drivers of economic globalization: international labor migration and activities of multinational companies. The interrelations of labor force movement and economic globalization should be analyzed both at a macro level, in the context of international migration, and at a micro level, considering the activities of MNEs, since both international labor flows are interconnected.

Economic globalization enhances interconnectedness between economies, and it also accelerates the speed of transferring the consequences of financial and economic crises. Therefore, the decision of labor force to migrate is becoming determined not only by the level of economic or social development of the home country but also by economic and social processes and changes at the global level. Thus, economic globalization affects the labor migration flows, and the impact of economic globalization generally manifests in a growing number of immigrant workers.

Traditionally, the international labor flows are moving in the direction from less developed to more developed countries; however, recently the directions of

international labor movements are changing, and the number of migrants to developing countries is increasing.

Growing labor migration flows inevitably make an impact on the structure of labor market in two aspects, a growing share of immigrants and mobility of highly skilled workers. As the share of highly skilled labor force in total number of immigrants is increasing, many developed countries are attempting to attract qualified human resources from abroad.

The activities of MNEs at an international level have a great impact on the demand of the labor market both in home and in host economies. Labor demand tends to decrease in a home economy, when parent firms relocate a part of their activities or some parts of a value chain overseas. Relocating MNEs' activities overseas and establishing subsidiaries abroad transfer labor demand from home to host economies. Labor force movement inside the MNE leads to a decrease of the highly skilled workers staying in a firm and enables them to acquire global qualifications and global mobility.

Traditionally, MNEs are large organizations, and their impact on the labor market depends on the size of the host economy and the level of globalization of the host country. The activities of large MNEs have a tremendous impact on the labor market of a small open economy, in particular with a high concentration of activity and low level of competitiveness. An impact of foreign MNEs on the labor market of a small open economy depends on the share of workers employed in the foreign-controlled affiliates. The more the share, the greater the impact of global activities of MNEs. Dependence of local labor force on one or a few large companies enhances the risks and instability in the labor market.

As a rule, small open economies are more globalized in comparison with large countries, and the labor market of a small open country is inevitably affected by the processes and changes in the global market. Lithuanian labor market can be characterized by a high level of globalization and one direction flows of international labor movements. The unstable situation in Lithuanian labor market was triggered by the impact of the global financial crisis and rising level of unemployment. Whereas the share of immigrants in Lithuanian labor market is insignificant, the emigrant flows have a tremendous impact on the supply of labor market and growing unemployment rate.

Though Lithuanian entrepreneurs make efforts to enter into the regional and global markets, the activities of foreign MNEs in Lithuania are of greater significance. A steadily growing share of employment in foreign-controlled enterprises reflects the share of an employment attributable to foreign-controlled affiliates and positive impact of FCEs on the level of globalization of Lithuanian labor market.

The trends of the indicators reflect the opposite impact of emigration flows and activities of FCEs on Lithuanian labor market. Whereas growing emigration flows affect the supply of labor force in a negative way, the increasing number of workers employed in FCEs has a positive impact on the labor market and employment.

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Model of Region's Food Security in Russia

Daria Bents and Elena Silova

Abstract The food security on national and regional levels has a great significance in the modern world. In Russia unstable geopolitical situation together with the sanctions, imposed by the EU and USA, makes the question of intensive agrarian sector development more important than ever. Therefore the research covers the topical issues. The challenges connected with import substitution as well as new opportunities opening before agro-industrial enterprises make us analyze questions of food security more deeply. The main objective of our research is to estimate the level of regional food security, to identify the factors providing food security, to create the model of food security, and to develop recommendations for agrarian policy improvement. In the article we consider the conditions and state of agro-industrial complex in Chelyabinsk Region. Discovered features and main tendencies in this sector define key problems, including imperfection of the contractual relations, high entrance barriers, and technological lag. The existing agrarian policy in Russia demonstrates low level of effectiveness. It must be directed to improve the contractual relations in the sector as the main condition of regional food security achievement, which demands to reduce a chain of contractors "farmers—manufacturers—merchandisers—consumers" by effective regulation of all agents' relationship.

Keywords Food security • Contractual relations • Agricultural sector

1 Introduction

The food security at national and regional level is a very important part of economic and social stability, a source and key factor of sustainable development of country and its regions. Recent geopolitical events around Ukraine show the necessity of ensuring food security and independence. Import substitution, and first of all, in agrarian sector, becomes the priority for Russia in the conditions of progressive

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western sanctions and global economic challenges. It should be noted that nowadays sustainable agro-industrial development is essential for any national economy. Experts say that by 2020, the population of the planet will grow up to nine billion. However, the resource base will never be sufficient. Population growth will not go in accordance with resource growth. Even today by some assessments, about 700,000 people undereat.

As for the present time, the end of the XX century was marked by unprecedented growth of the planet population, especially in developing countries that caused numerous energy crises and environmental problems. Conway and Barbier (1990) define food security as the guaranteed access for all inhabitants to food products enough for healthy and active life at any time. And, according to some researchers, the major factor limiting this access is inaccessibility of energy; especially it concerns developing countries. They see the solution in the state policy directed to support agro-industrial complex, fight against poverty, and regulate birth rate.

Despite a variety of author's approaches, we can state that generally food security is considered as an ability to provide access for the population to the qualitative and safe food in sufficient quantity. It is important to understand that food security is determined not only by the state and the level of agro-industrial sector development, but also by a number of objective socioeconomic factors: macroeconomic dynamics, the level of solvent demand, income gap between strata of society, etc. Thus, the concept of food security has a complex character.

The main purpose of this work is modeling of regional food security. The objectives of the research are the following: (1) revealing the features and tendencies of modern development in agro-industrial sector of Chelyabinsk Region; (2) creation of a technique for the food security assessment; (3) identification of the institutional problems connected, with functioning of various subjects in the sphere of agriculture; and (4) modeling of the contractual relations in the agrarian sector.

2 The Development of Agriculture in Chelyabinsk Region

We will consider features of agro-industrial complex development in Chelyabinsk Region. The agrarian sector plays rather an important role in the economy of Chelyabinsk Region, occupying about 6–8 % of regional product as we can see from Fig. 1.

The level of agricultural production increased by 105.3 % in the first quarter of 2015 in comparison with the first quarter 2014 in fixed prices. In recent years the region was included into the list of 20 leaders of agricultural production in Russia. The key products are grain, milk, meat, and bird. Since 2008 Chelyabinsk Region is considered as the agrarian-industrial region. According to the results of 2014, the region took the 14th place, with the total production of 88.4 billion rubles (that made 104.0 % in comparison with 2013). In the region 1.14 billion tons of grains were grown, average productivity is 0.98 tons/ha, 798,500 tons of potatoes were
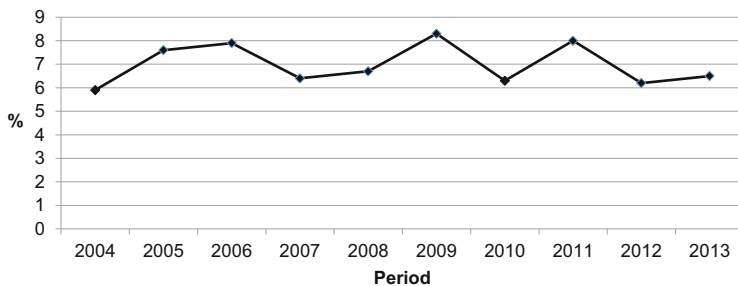
Fig. 1 Share of agriculture in gross value added (GVA) of Chelyabinsk Region, %. *Source*: Territorial authority of Federal service of statistics on Chelyabinsk Region (chelstat.gks.ru)
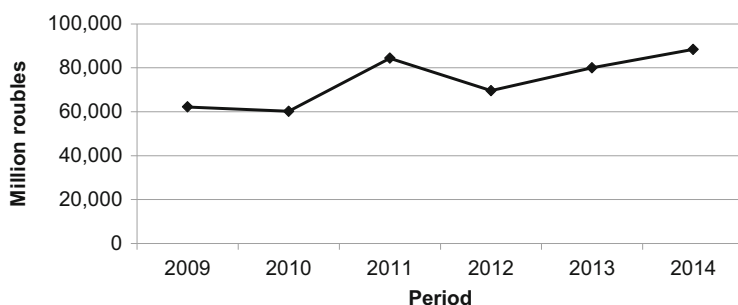
Fig. 2 Dynamics of output in agriculture in 2009–2014, million rubles. *Source*: Territorial authority of Federal service of statistics on Chelyabinsk Region (chelstat.gks.ru)

grown, 258,100 tons of vegetables were grown, and the livestock of pigs and birds increased. From 2009 to 2014, we can observe steady growth of production in agriculture of Chelyabinsk region (see Fig. 2).

Let's take a look at the structure of production in agro-industrial complex of the region. The main part is occupied by the production of grain, potatoes, and vegetables (data is represented in Fig. 3).

As we see from Fig. 3, there is no steady tendency to growth in the production of these types of cultures, and the main reason for it, in our opinion, is risky weather conditions for agriculture production in the region. A bit different situation can be observed in the sphere of animal husbandry as we can see from Fig. 4.

For the considered period, it is possible to note steady increase in cultivation of pigs (growth made was 146 % or 160,000 tons) and birds (growth made was 164 % or over 10,000,000 heads). However, this positive tendency is followed by gradual decrease in the number of cattle and, thereafter, production of milk (decrease made was 27 % or about 111,000 heads). In general, it is possible to speak about a certain reorientation of livestock complexes to cultivation of pigs and birds. In the region production of eggs (from 1.36 billion pieces in 2009 to 1.47 billion pieces in 2014), as well as production of meat and fowl, increases by 8 % (growth made 166 % and 164 %, respectively). It is possible to say that the increase of regional production
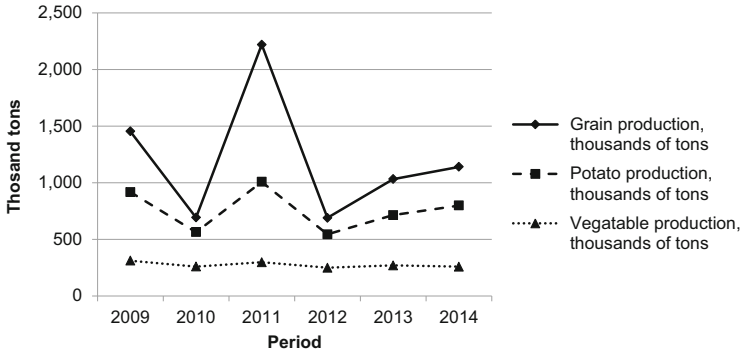
Fig. 3 Production of grain, potatoes, and vegetables in Chelyabinsk Region in 2009–2014, thousand tons. *Source*: Territorial authority of Federal service of statistics on Chelyabinsk Region (chelstat.gks.ru)
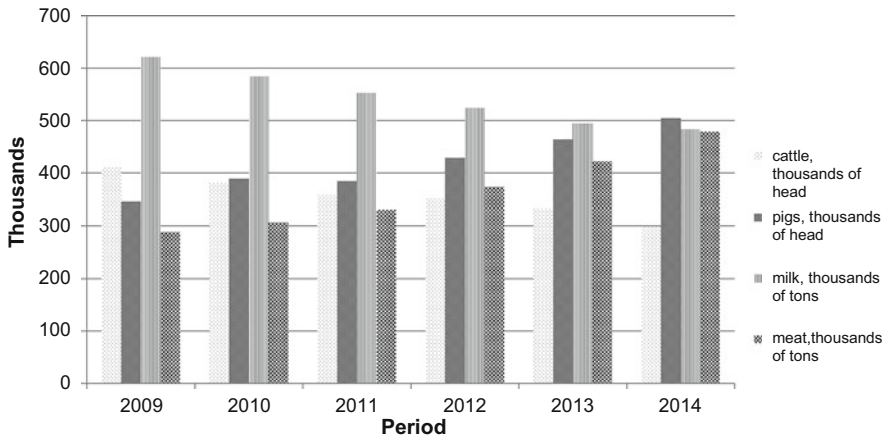
Fig. 4 Production of livestock production in Chelyabinsk Region in 2009–2014, thousand tons. *Source*: Territorial authority of Federal service of statistics on Chelyabinsk Region (chelstat.gks.ru)

indicators in general, certainly, influences positively on regional food security. It is confirmed as well by export indicators.

In Fig. 5 the share of foodstuff export from the region in 2013–2014 is shown; as we can see, this share is rather small and makes about 3 %; thus, the biggest part of production is consumed by the region. The biggest part of export (85–90 %) goes to the CIS countries. The agrarian sector of the region is not actively involved in foreign trade. Certain fears are caused by the situation connected with internal consumption.

However, besides operational indicators, in our opinion, price availability of food is a very important aspect of food security. It means not only physical existence of food. This issue does not look so positive.
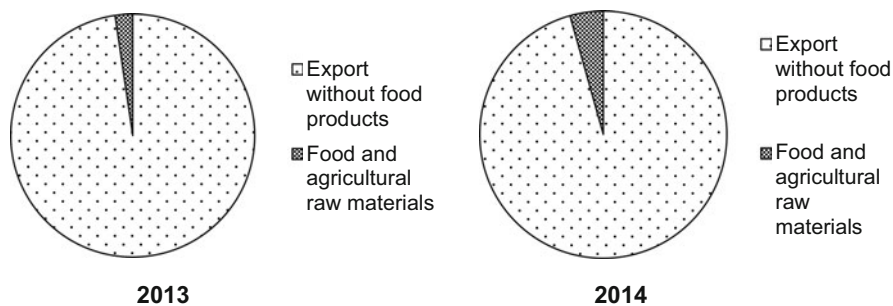
Fig. 5 Share of export of food and agricultural raw materials
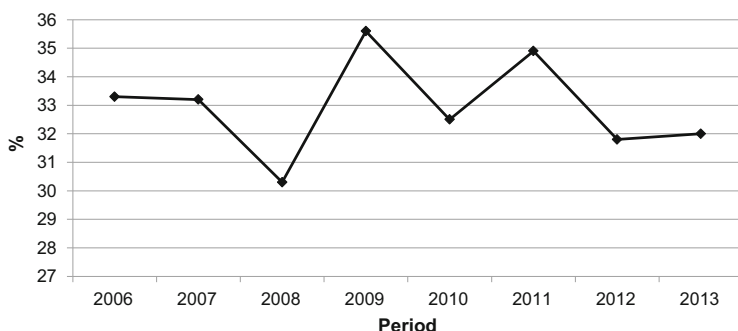
Fig. 6 Dynamics of share of expenses on food in structure of expenses on final consumption in 2006–2013, %. *Sources*: Territorial authority of Federal service of statistics on Chelyabinsk Region (chelstat.gks.ru) and Agriculture Ministry of Chelyabinsk Region (www.chelagro.ru/socio-economic/indicators-development/)

Figure 6 shows share of consumers' expenses on food in the general structure of expenses on final consumption.

We see that expenses on food occupy more than 30 %, reaching in some years nearly 36 % of overall expenses. While experts consider 10 % as optimum share (in such countries as the USA, Switzerland, and Great Britain), 36 % is an enormous number. It is considered that the level of expenses from 10 to 20 % of total expenses is normal (France, Spain, Italy, and Portugal). Level over 20 % characterizes low availability of food for the population. The level exceeding 30 % is called critical; it means that the population has serious problems with buying food. In crisis 2009 and 2011, the share of costs of food exceeded 35 % that means decrease of food availability in Chelyabinsk Region. Price growth for consumer goods is also important (see Fig. 7).

As we can see from the data, above annual price growth of consumer goods equals 8–10 %. As for the real income, during the separate periods, their decrease (2009 and 2011 crisis years) is observed. The increase of income anyway is less than the increase in actual prices, which points at aggravation of food stuff
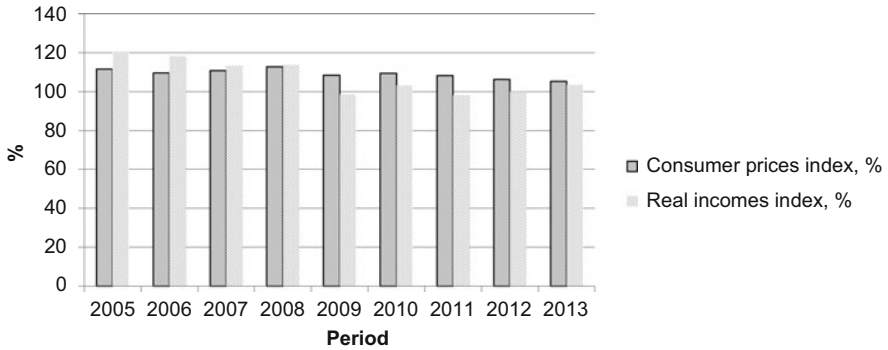
Fig. 7 Dynamics of consumer prices and the real incomes in Chelyabinsk Region in 2005–2013
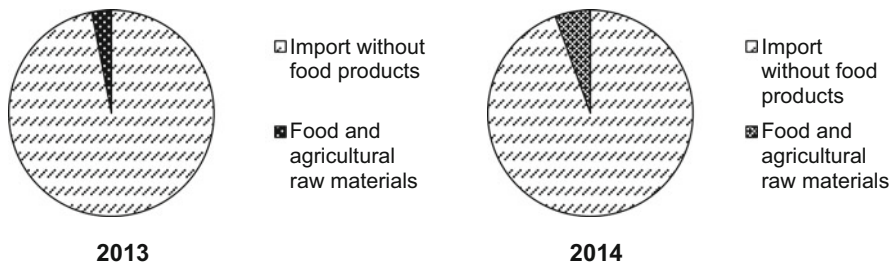
Fig. 8 Share of food and agricultural raw materials in structure of import

inaccessibility for the population. Thus, statistics show that average income per capita only by 3.1 times exceeds the size of a living wage which in 2013 made 7089 rubles. The population with the income lower than a size of a living wage in the region made 382,100 people, or 11.1 % of region's population. It is that part of the population which suffers most from price inaccessibility of food. The majority population is pensioners as the average size of the granted pension made 9897.1 rubles in 2013 that exceeds the size of a living wage for only 40 %.

Along with price availability of food, one of food security indicators is the import share in food consumption. In the Food Security Doctrine (2010), admissible shares of import for various product categories are defined. In 2013 import of food of overall regional import indicators made about 3 %, in 2014—5.7 %, having increased considerably; thus the most part of import goes from the countries of the CIS (see Fig. 8).

In national structure of food products, about 30 % of imports are products which don't grow in Russia (coffee, tea, cocoa, nuts, and also some types of fruit— bananas, citrus fruit, and apricots). Approximately 16 % of import is meat, which provides a possible niche for import substitution, considering the number of investment projects in the livestock sphere. About 6.7 % is the share of fish, sea products, and tomatoes; also essential share—about 6.5 %—is milk and dairy

Table 1 Consumption of the main food productions, kg per capita

Product	Norm	2006	2007	2008	2009	2010	2011	2012	2013
Bread and bread products	105	96.5	95.9	94.0	87.7	89.7	88.9	86.6	84.3
Potato	100	58.5	59.2	59.7	57.0	55.7	54.3	54.5	48.7
Vegetables and melons	150	73.6	78.5	82.1	98.0	94.9	102.1	116.9	104.9
Fruits and berries	95	60.7	69.3	71.7	74.8	79.8	88.3	92.8	90.0
Meat and meat products	75	66.3	69.5	74.5	70.5	77.0	78.1	80.5	83.4
Fish and sea food	22	16.8	18.5	20.5	21.1	22.8	24.1	24.4	23.7
Milk and dairy products	305	231.1	246.2	241.2	236.5	257.8	249.8	248.3	252.0
Sugar and confectionery product	26	35.5	37.9	31.7	29.9	31.5	31.1	32.1	30.2
Egg (peaces)	250	210	179	173	174	193	187	187	184
Vegetable oil		10.5	9.7	9.4	9.9	9.8	9.2	8.9	8.8

Source: Territorial authority of Federal service of statistics on Chelyabinsk Region (chelstat.gks.ru)

products that also represent good opportunities for the strengthening of own production (Lebedev 2013).

The structure of consumption is also an important part of food security, especially compliance of consumed production level to rational norms of food consumption. We will consider the structure of consumption of the population of Chelyabinsk Region from 2006 for 2013 (Table 1).

Table 1 shows that by almost all types of products, discrepancy to rational norms is observed: (1) vegetables, under consumption more than 30 %; (2) milk and dairy products, 17 %; (3) eggs, 26 %; (4) fruit, 5 %; (5) potatoes, more than 50 %; and (6) bread and grain products, 20 %. Only meat and fish are in accordance with the standards. Certainly, it is possible to note that in general consumption structure of the region, we can't find the recommended standards of a balanced diet; it means that separate categories of the population undereat and receive less of necessary food. Besides also one more negative tendency, the decrease in consumption of some food, for example, of vegetable oil, sugar and confectionery, bread, and potatoes, is visible. However, consumption of more expensive products, vegetables and fruit, fish, meat, milk, and dairy products, gradually increases that can be treated as a positive tendency in general.

One more important aspect of ensuring food security in the region is the investment policy in agro-industrial complex. In 2013 investments into fixed capital of agriculture made 291.92 billion rubles, or 3.1 % of the total amount of investments into fixed capital, and in the comparable prices, there was a decrease of more than 3 % in comparison with the previous year. The major part of investment projects is connected with animal husbandry. As for financial sources of investments, generally private sources, the share of the government support is insignificant (Fig. 9).
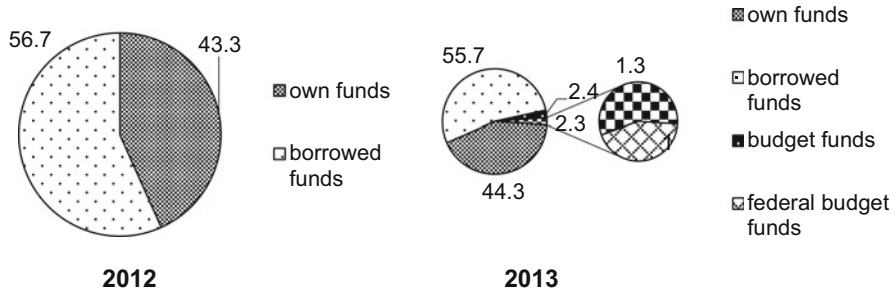
Fig. 9 Structure of financing sources of investments into fixed capital. *Source*: Territorial authority of Federal service of statistics on Chelyabinsk Region (chelstat.gks.ru)

It is clear that without growth of investment, there is no opportunity to strengthen food security. And in this sense, the highly developed countries' experience is shown by the considerable volume of the state investments in agro-industrial complex. For us such subsectors as production of mineral fertilizers (where we have huge reserves for import substitution as the share of import makes up to 40 %), production of agricultural machinery, selection of seeds, etc. are important. Thus, regional agro-industrial complex is developed, but there are certain problems in ensuring food security connected first of all with the increase of prices for the food.

3   Modeling Food Security at Regional Level

Thus, summing up the result of all aforesaid, we will allocate criteria, elements, and indicators of food security (Table 2).

Today agro-industrial complex has serious problems and obstacles for further development:

1. A lack of the necessary state support comparable to the developed countries and weak mechanisms of subsidizing;
2. The backwardness of the trade and marketing, overworking, and warehouse infrastructure;
3. Low indicators of productivity and high power consumption of agricultural production;
4. Difficult climatic conditions;
5. The imperfection of the institutional environment and the contractual relations in branch;
6. A lack of qualified personnel, outflow of country people to the cities, and problems of social security of villagers.

Let's touch upon institutional structure of the agrofood market (see Fig. 10). The base of suppliers extends significantly; besides large agroholdings, the considerable

Table 2 Criteria, elements, and indicators of food security

Elements of food security	Indicators of food security	Formula
Criteria of food security—availability and safety of food to the population and also the level of self-reliance of the region		
Price availability	Compliance of increase in prices for foodstuff and real income of the population Size of a living wage Share of expenses on food	$\frac{I \text{ incomes}}{I \text{ prices}} \geq 1$
Safety of consumption	Compliance of consumption to rational norms on the main food Quality of food	$\frac{C \text{ actual}}{C \text{ normal}} \approx 1$
Import dependence	Import share in consumption Is defined by food categories	$\frac{I}{C} \leq 80 \%$
Investment policy	Share of investments in fixed assets Sources of investments	
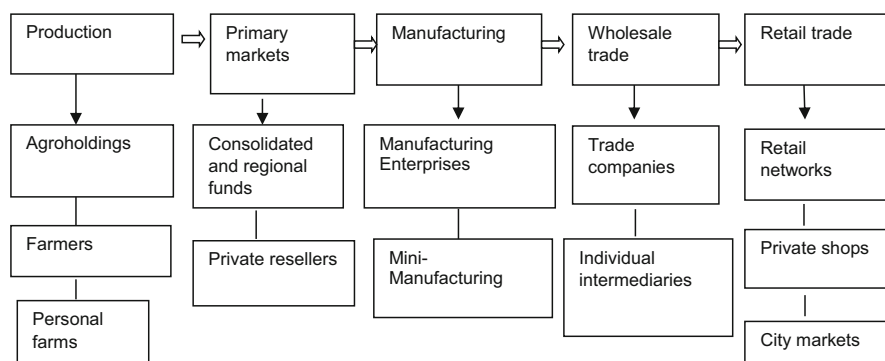
Fig. 10 Institutional subjects of agro-industrial complex

share of production and delivery of food is occupied by farms; partially also personal subsidiary farms are engaged in the production. After cancelation of a management system of distribution, the institute of resellers develops intensively, and intermediaries are rather diverse: from the national large trading companies to the individual collectors working with several producers. Essential diversification of sales channels is shown in modern institutional structure of agro-industrial complex: use of own retail networks, direct deliveries, sale of production at specialized fairs, exhibitions, and deliveries to caterings.

Despite the variety of participants in agro-industrial sector, there are still a lot of unresolved important institutional problems in this sphere. First of all, insufficient development of market mechanisms and institutes should be noted, low quality of the institutional environment. Silova (2009) suggests considering quality of the institutional environment as its ability to satisfy institutional needs of economic subjects based on minimization of their transactional expenses and the increase of

their activity efficiency. In the institutional environment of agro-industrial complex, a number of institutes either are absent or do not carry out the functions. For example, the institute of agro-insurance is not developed at all; sales channels are not developed (there are no wholesale bases and the markets, the trade exchanges, marketing cooperatives); there are no guarantees of performance of contractual obligations, including state.

The second problem—backwardness of credit and financial infrastructure—access for agricultural producers to credit resources is complicated; there are no specialized credit organizations for agricultural producers. One more problem is connected with information—often access to information on the prices, quality, and the range of the offered products is difficult to find and demands considerable expenses. At last, one of the key problems is insufficiency and an inefficiency of the public policy of agricultural producer support. First of all, it should be noted that practically all countries provide financial support for agriculture sectors. So, for example, in the USA the size of grants in agriculture at the time of the entry into the WTO made $50 billion in the EU, 90 billion (Shiltsova and Reutskaya 2013) that averages for the EU $730/ha; in the USA, 94; in Canada, 62; and in Russia, about $10/ha. In Russia the cumulative size of subsidies to agriculture never exceeded $4 billion; therefore the average efficiency of hectare of an arable land in Russia and its bioclimatic potential is less many times than in the European countries.

The problem of contractual relations' imperfection in sector is an important institutional aspect of ensuring regional food safety. Earlier we mentioned plurality of subjects in the sector and that their interaction often has inefficient character. We will pay special attention a problem of contractual relations imperfection in the sector and its influence on ensuring food security closely. A lot of scientists explore this problem. O. Williamson (1979) was one of the first scientists who study contract relations as an important economic institute. For example, Hart and Moore (1988) paid attention to such aspect of contract imperfection as information asymmetries. Hodgson (1988) studied different factors besides rationality which influence on contracts. Jensen and Meckling (1998) researched such problem of contract relations as opportunism. There is still no effective management model of the contractual relations of agro-industrial complex. In this regard, there is redistribution problem connected with resources and incomes in the sector. According to territorial authority of Federal State Statistics Service, selling prices of agricultural producers are several times less than the consumer prices. As a result the last units of the production chain, such as transport, processing, and sales, gain the majority of income. At the same time, the main burden of expenses lays down on producers, who thus have no sufficient resources for development, and consumers, whose food expenses share as mentioned before is extremely high.

Benz (2010) considers the contractual relations as a special form of economic relations between, at least, two subjects concerning an exchange of the property rights on the basis of economic institutes system. Efficiency of contractual relations is the ability to satisfy economic interests of interacting subjects on the basis of property rights and income redistribution (Benz et al. 2014). Thus, the profit (rate of

Developed institutional environment

| Credit policy | Grants | Investments | Insurance | Logistic centers |

| Tax policy | Education | Information policy | Leasing |

Subjects of food security

| Producer | → | Manufacture | → | Merchandiser | → | Consumer |

Contractual relations efficiency criteria is profit rate of each subject (income or utility)

Regional food security (elements)

| Physicalavailability of food | Price availability of food | Share of import | Investments |

Fig. 11 Model of region's food security

return) received by each subject of the contractual relations can be a criteria of contractual relations efficiency.

Figure 11 demonstrates the model of food security as a result of interaction between subjects. It also shows how different factors including institutional have impact on these subjects.

We consider developed institutions and effective relations as most important factors of regional food security. In Chelyabinsk Region price unavailability of food is one of the biggest problems. And it is a result of imperfective contractual relations, which means that producers do not have an opportunity for growth and development, but food prices have. To cut Gordian knot, government regulation needs to be implemented.

4 Conclusion

In the article represented, the main tendencies in regional agro-industrial sector are researched and criteria of food security were given. Food security is a significant part of national economic security. Criteria of food security are considered as an availability and safety of food to the population and also the level of self-reliance of the region. In general we can note that food security level in Chelyabinsk Region is high, the production outcomes increase, and the region produces enough food for

consumption, but the structure of consumption is not absolutely rational. Share of food import is not significant. From the other side, there are some problems in regional agriculture complex, for example, imperfect institutional environment and noneffective contact relation between subjects. It causes a row of serious problems which results in high price growth and low level of agrarian industry development. The agrarian sector needs a new public policy, including creation, development, and stricter regulation of new effective institute. And that topic is discussed in the next research. In our model of regional food security, the main elements are subjects of contract relations: producer, manufacture, merchandiser, and consumer. These subjects are working in certain institutional environment including tax and credit policy, grants, investments, education system, and so on. The key reason of contractual relations imperfection in Russian agrarian is low competition among landowners. In view of the import embargo on the food from abroad, Russian agro-industrial companies and the merchandisers understand essential decrease in the competition today. Therefore, the absence of stimuli to expand quantities of production and to raise quality level reduces all economic efficiency. The absence of access for companies to the cheap credits for expansion of its production plays a negative role for all agrarian sector.

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Human Development and Quality of Institutions in Highly Developed Countries

Adam P. Balcerzak and Michał Bernard Pietrzak

Abstract The article concentrates on the problem of influence of quality of institutional system in the context of utilizing the potential of knowledge-based economy (KBE) on the human development in highly developed countries. In order to measure the quality of institutional system, a synthetic measure based on multivariate analysis techniques was proposed. To obtain the institutional measure, TOPSIS method was applied. To quantify the institutional factors, the data from Fraser Institute was used. As diagnostic variables of quality of institutions, 29 variables qualified to four aspects of national institutional systems were used: (a) formal regulations influencing entrepreneurship, (b) effectiveness of juridical system in keeping low level of transaction costs and supporting effectiveness of market mechanism, (c) competitive pressure and effectiveness of labor markets, and (d) financial market institutions as a stimulator of development of enterprises with high growth potential. The Human Development Index (HDI) proposed within United Nations Development Programme was used for measuring the quality of life. The estimation of relation between institutions and the human development was made with econometric dynamic panel model. The estimation was made for 24 European Union countries for the years 2004–2010. The econometric analysis shows the positive influence of quality of institutions on the human development in the context of knowledge-based economy in developed countries.

Keywords Institutional economics • Quality of institutions • Human Development Index • TOPSIS • Panel analysis

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1 Introduction

The last decades are considered as a period of fundamental technological and social changes in developed countries. The sociologists often discuss the process of formation of information society (Castells and Himanen 2002). The economists tend to analyze the consequences of the development of knowledge-based economy (Balcerzak 2009a). This process of transformation is the source of great potential that can lead to serious improvement of quality of life. However, its utilization depends on the fulfillment of many factors, which have institutional nature (North 1994; Balcerzak and Rogalska 2010). Thus, the question concerning the characteristics of national institutional systems and their influence on the country's abilities to utilize the potential of the knowledge-based economy is nowadays a hot topic for policymaking in developed economies. In this context the aim of the article is to evaluate the influence of quality of institutional system in the context of the knowledge-based economy on the human development in highly developed countries.

In order to achieve the defined aim of the research in the first part of the article, the authors proposed a measure allowing to operationalize the multivariate concept of quality of institutions in the context of the country's ability to exploit the potential of knowledge-based economy. The definition of quality of institutions is based on the transaction cost theory framework. It is assumed that the institutional system is considered as effective when it contributes to the low level of transaction costs (Williamson 1985). In the second part of the paper, the Human Development Index was used for assessing the level of quality of life. In the last part of the article, the econometric analysis with dynamic panel model for 24 European Union countries for the years 2004–2010 was carried out. The research is a continuation of previous empirical efforts of the authors (Balcerzak and Pietrzak 2014, 2015a, b; Balcerzak 2013, 2015).

2 Quality of Institutions in the Knowledge-Based Economy and the Proposal for Its Measurement

The concept of the knowledge-based economy (KBE) has gained great importance since the early 1990s of the twentieth century in response to the significant changes in structural characteristics of highly developed economies. The distinguishing factor of KBE is an indication on the new main determinants of economic growth in case of developed economies in comparison with the once typical for industrial economy. In contrast to the past decades, where the processes of growth were mostly determined by economies of scale with constant returns and the ability to invest in physical capital, in case of developed countries in the twenty-first century, these factors at best can be considered as a necessary condition for maintaining

growth. The availability of traditional factors of production is not any more a sufficient condition for keeping high growth rate (OECD 1996).

A research carried out in OECD countries has shown that the use of knowledge capital becomes the key development factor in technologically advanced economies (Guloglu and Tekin 2012). The research proved that effective utilization of the knowledge capital largely depends on the quality of regulations and institutional characteristics of economies (OECD 2001; Balcerzak 2009b). High-quality institutions that are up to KBE requirements significantly affect the ability of market players to adapt to rapidly changing conditions. They influence the speed of proliferation of new technologies and the emergence of new ideas in the sphere of organization, production, and creation of products. OECD studies confirmed the growing importance of institutional factors affecting the level of transaction costs that influence entrepreneurship and the competitive pressure in economy, which have an impact on the number of actors able to make effective use of knowledge and to achieve further technological breakthroughs (see Bassanini et al. 2001). Based on empirical studies (OECD 2000, 2001) and the research of institutional economists working on the transaction cost theory (North 1994; Williamson 1985; Eliasson et al. 2004), one can indicate the following segments of national institutional systems, which in the reality of the KBE affect the pace productivity growth. The more advanced argumentation for the selection of these four segments of institutional system as a key element influencing the country's ability to utilize the potential of KBE is presented by Balcerzak and Pietrzak (2014) and Balcerzak (2015):

(a) The effectiveness of regulations aimed at supporting entrepreneurship—a high level of entrepreneurship positively influences supply of companies with high growth potential (see McKinsey Global Institute 2001).
(b) The effectiveness of juridical system in keeping low level of transaction costs and supporting effectiveness of market mechanism—the elimination of barriers to structural changes and the diffusion of new technologies or organizational changes are necessary conditions for raising the level of productivity growth (see McKinsey Global Institute 2002a).
(c) Competitive pressure and effectiveness of labor markets—a high level of competitive pressure is conducive to the phenomenon of Schumpeterian creative destruction and increases the rate of diffusion of the most effective technological solutions (see McKinsey Global Institute 2002b).
(d) Financial market institutions as a stimulator of development of enterprises with high growth potential—developed and relatively efficient financial markets are conducive to faster reallocation of capital from industries with low growth potential into new sectors with high development potential (OECD 2001; Balcerzak 2009c).

It can be seen that the problem of empirical analysis of the quality of institutional factors in the context of the KBE should be treated as a multidimensional phenomenon. Therefore, in this study the authors used the TOPSIS method that allows synthetic quantification of multidimensional phenomena. In case of the TOPSIS

method, a taxonomic measure of development is described as similarity to the ideal solution. In this method, the measure of development that describes the chosen aspect of the studied phenomenon is obtained by estimating its proximity to the positive ideal solution and its distance from the negative ideal solution. The final value of the synthetic measure is obtained as the arithmetic mean of the indicators obtained for given aspects. The more formal description of the TOPSIS method is presented by Balcerzak and Pietrzak (2014, 2015b).

In this article the research on quality of institutions for KBE was done for 24 European Union countries for the years 2004–2010. As a result of the unavailability of data for Luxembourg, Malta, and Cyprus, these countries were excluded from the research. Croatia was also not included in the research as it joined EU only in 2013. The year 2004 was chosen as the first year of the analysis as it is the year of the biggest European Union enlargement. From the institutional perspective, it can be considered as an example of significant institutional change in Europe. The data from Fraser Institute database created for the Economic Freedom of the World reports was used here. The year 2010 was the last year where the data for all the four mentioned institutional areas was available. A set of potential variables describing four previously identified segments of the institutional system, which are crucial for exploiting the potential of KBE, is presented in Table 1.

Due to the information quality criteria for potential diagnostic variables, which are usually applied in case of multivariate analysis, relating to the minimum level of variation that can be accepted (coefficient of variation in case potential variables should fulfill a given criterion—in this research it was set at the level $V > 0.2$), it was necessary to eliminate the following potential variables: $X_5^1, X_1^2, X_6^2, X_7^2, X_1^3, X_2^3, X_{13}^3, X_{14}^3$, and X_3^4.

Then the diagnostic variables were normalized with classic standardization formula (see more Balcerzak and Pietrzak 2014). Then a positive ideal solution and negative ideal solution with maximum and minimum values, respectively, for all variables in the years 2004–2010 were pointed. A constant positive and negative ideal solution for the whole period of the study was pointed. This is a condition for obtaining the time series that can be used as an input data in econometric research. Based on the Euclidean metric, a distance from the positive and negative ideal solution for each of the four aspects was estimated, which enabled the calculation of partial taxonomic measures of the development for the given aspects. In the last stage, the value of overall (synthetic) taxonomic measure of development (TMD) for all the four aspects was calculated as the arithmetic average based on the four previously received partial measures. The results for the years 2004 and 2010 are presented in Table 2. The data for all years of analysis for replication purposes is available in Balcerzak and Pietrzak (2014).

Table 1 The potential attributes describing quality of institutional factors influencing utilization of KBE potential used for TOPSIS method

Y_1—Formal regulations influencing entrepreneurship
X_1^1—Administrative requirements for entrepreneurs
X_2^1—Bureaucracy costs for entrepreneurs
X_3^1—The cost of starting business
X_4^1—Extra payments/bribes/favoritism
X_5^1—Licensing restrictions
Y_2—Effectiveness of juridical system in keeping low level of transaction costs and supporting effectiveness of market mechanism
X_1^2—Tax compliance
X_2^2—Judicial independence
X_3^2—Impartial courts
X_4^2—Protection of property rights
X_5^2—Integrity of the legal system
X_6^2—Legal enforcement of contracts
X_7^2—Regulatory restrictions on the sale of real property
Y_3—Competitive pressure and effectiveness of labor markets
X_1^3—Revenue from trade taxes (% of trade sector)
X_2^3—Mean tariff rate
X_3^3—Standard deviation of tariff rates
X_4^3—Nontariff trade barriers
X_5^3—Compliance costs of importing and exporting
X_6^3—Regulatory trade barriers
X_7^3—Foreign ownership/investment restrictions
X_8^3—Capital controls
X_9^3—Controls of the movement of capital and people
X_{10}^3—Hiring regulations and minimum wage
X_{11}^3—Hiring and firing regulations
X_{12}^3—Centralized collective bargaining
X_{13}^3—Hours regulations
X_{14}^3—Mandated cost of worker dismissal
Y_4—Financial market institutions as a stimulator of development of enterprises with high growth potential
X_1^4—Ownership of banks
X_2^4—Private sector credit
X_3^4—Interest rate controls/negative real interest rates

Table 2 The values of taxonomic measure of development for quality of institutions in the KBE context in the years 2004 and 2010

2004		2010	
Country	TMD	Country	TMD
Denmark	0.846	Denmark	0.874037
Finland	0.828	Finland	0.826549
Netherlands	0.755	Sweden	0.798672
Sweden	0.741	Netherlands	0.783481
Ireland	0.740	United Kingdom	0.752381
United Kingdom	0.737	Ireland	0.751787
Austria	0.694	Estonia	0.652863
Belgium	0.625	France	0.644563
France	0.604	Belgium	0.644081
Germany	0.596	Austria	0.633493
Estonia	0.594	Germany	0.614619
Spain	0.543	Spain	0.542529
Slovakia	0.542	Slovenia	0.516917
Lithuania	0.500	Slovakia	0.514530
Czech Republic	0.491	Lithuania	0.506033
Hungary	0.482	Latvia	0.499324
Portugal	0.482	Czech Republic	0.493135
Latvia	0.477	Hungary	0.479794
Slovenia	0.476	Portugal	0.469276
Italy	0.448	Italy	0.452015
Bulgaria	0.396	Bulgaria	0.429206
Greece	0.382	Poland	0.425887
Poland	0.378	Greece	0.383836
Romania	0.353	Romania	0.377285

Source: Own estimation based on data from Fraser Institute

3 Measurement of Quality of Life with Human Development Index

The Human Development Index (HDI) as a measure of socioeconomic development was presented for the first time in 1990 in the work of the United Nations Development Programme (1990). In case of HDI methodology, the social welfare was defined much broader than it was in case of dominant economic dimension focusing exclusively on economic growth. Due to the simplicity of the construction and the availability of the variables used for its index, HDI is currently commonly used as a tool to international benchmarks.

In case of HDI index, three aspects (areas) related to the quality of life are considered. The first aspect concerns the health of citizens and the quality of medical services. It is measured as life expectancy index. The second aspect concentrates on the quality of the educational system. In this case, the evaluation

Table 3 Values of HDI for the years 2004 and 2010

2004		2010	
Country	HDI	Country	HDI
Ireland	0.885	Germany	0.904
Netherlands	0.884	Netherlands	0.904
Denmark	0.883	Ireland	0.899
Sweden	0.883	Denmark	0.898
United Kingdom	0.883	Sweden	0.895
Germany	0.881	United Kingdom	0.895
Belgium	0.862	France	0.879
Finland	0.862	Austria	0.877
France	0.857	Belgium	0.877
Italy	0.852	Finland	0.877
Slovenia	0.851	Slovenia	0.873
Austria	0.845	Italy	0.869
Greece	0.839	Spain	0.864
Spain	0.838	Czech Republic	0.858
Czech Republic	0.834	Greece	0.856
Estonia	0.811	Estonia	0.830
Hungary	0.799	Lithuania	0.829
Lithuania	0.798	Poland	0.826
Poland	0.798	Slovakia	0.826
Slovakia	0.796	Hungary	0.817
Portugal	0.786	Portugal	0.816
Latvia	0.777	Latvia	0.809
Bulgaria	0.744	Romania	0.779
Romania	0.742	Bulgaria	0.773

Source: The data received from Human Development Report Office, United Nations Development Programme based on the methodology presented in United Development Programme (2014a, b)

of this area is done based on two variables: mean years of schooling and expected years of schooling. The last area shows the current economic standard of living and since 2010 is expressed by means of GNI per capita. Recognition of these three areas should allow to reflect quite objectively conditions of life of a given population relying on possible to obtain quantitative data (see Diener and Suh 1997). The HDI index in the years 2004 and 2010 in 24 EU countries is available in Table 3.

4 Econometric Analysis of the Impact of Quality of Institutions in the Context of KBE on HDI

The aim of the article is to evaluate a potential link between the quality of institutions in the context of the knowledge-based economy and quality of life in EU countries. To evaluate the relations between these two factors, a dynamic panel model was used. HDI index was taken as a dependent variable. Taxonomic measure of development (TMD_{it}) of quality of institutions calculated in the second section of the article was taken as an explanatory variable. Based on the commonly accepted assumption due to including delayed dependent variable among explanatory variables, a specification of dynamic panel model was done (see Baltagi 1995). The estimated model is represented by Eq. 1:

$$Y_{i,t} = \alpha_0 + \alpha_1 Y_{i,t-1} + \beta_1 X_{i,t} + \eta_{it} + \varepsilon_{i,t}, \tag{1}$$

where $Y_{i,t}$ is a vector of dependent variable (HDI), $Y_{i,t-1}$ is a vector of delayed dependent variable, $X_{i,t}$ is a vector of taxonomic measure of development $\text{TMR}_{i,t}$ that represents the quality of institutions for KBE, $\alpha_0, \alpha_1, \beta_1$ are the structural parameters of the model, η_{it} is the vector of individual effects of panel model, and $_{i,t}$ is a vector of disturbances.

The parameters of the panel model specified with Eq. 1 were estimated with the system estimator GMM (Blundell and Bond 1998). Two-step estimation procedure with asymptotic standard errors was applied. The estimator is a development of the first-difference GMM estimator (Arellano and Bond 1991). In case of that estimator, the estimation of both equations in first differences and equations in levels is done. The results of the estimation procedure are presented in Table 4.

The next step was the verification of panel model statistical properties. For this purpose, the Sargan test and tests for the serial autocorrelation of differences of residuals were used (Blundell et al. 2000). The statistics of the Sargan test indicates that over-identifying restrictions are justified, which confirms that all instruments applied in the estimations are proper. The statistics of the test for first-order serial correlation indicates negative statistically significant first-order serial correlation, and the statistics for second-order serial correlation indicates that there is no

Table 4 The results of estimation of dynamic panel model

Variable	Parameter	Estimation of the value of parameter	p-Value
$Y_{i,t-1}$	α_1	0.791	≈ 0.000
$X_{i,t}$	β_1	0.043	≈ 0.000
Statistical tests		Test statistics	p-value
Sargan test		20.446	0.34
AR(1)		-2.843	0.004
AR(2)		-1.841	0.064

Source: Own estimation based on Balcerzak and Pietrzak (2015b)

second-order serial correlation (see Baltagi 1995). This indicates that the applied GMM estimator is consistent and efficient.

The parameter α_1 is statistically significant which confirms the assumption of autoregressive mechanism in the case of HDI. The parameter β_1 is also statistically significant, which confirms significant impact of quality of institutions in the context of KBE on the quality of life measured with HDI in 24 EU countries in the years 2004–2010.

5 Conclusions

In the article the authors proposed a method of measuring quality of institutions in the context of the KBE in case of EU countries. The definition of high-quality institutions was based on the transaction cost theory, where the effective institutions result in lower level of transaction costs. The proposed quantitative approach based on the TOPSIS method can be considered as a complementary perspective to qualitative methodology which dominates in institutional economics. The authors proposed a synthetic measure based on the vector of variables grouped to for institutional aspects that are crucial for utilizing the potential of the KBE. The choice of the aspects was based on the empirical research for OECD countries in the contexts of their abilities to utilize the potential of the KBE, which have been done for the last two decades.

The selected four aspects of the institutional system were related to the effectiveness of legal regulations aimed at promoting entrepreneurship, law institutions conducive to maintaining a low level of transaction costs and high efficiency of the market mechanism, and legal regulations supporting the competitive environment and the efficiency of labor markets and financial market institutions. Based on previous empirical studies, it can be noted that these institutional aspects positively affect productivity growth in reality of KBE. This means that the high quality of institutions should support the utilization of macroeconomic potential of rapid technological changes within the KBE. Thus, it should lead to higher quality of life.

As a result of utilization of econometric dynamic panel modeling procedure, it was possible to fulfill the main aim of the article in the form of estimating the relationship between the quality of life and the quality of intuitions for KBE in EU countries in the years 2004–2010. The research confirms that institutional factors associated with the development of the KBE are an important determinant of the quality of life in EU countries, which must be taken into consideration by all governments in EU countries in the process of institutional reforms.

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Financial Sustainability of Funded Pension Systems in OECD Countries at Demographic Risks

Nepp Alexander

Abstract The current distribution pension system is on the verge of financial sustainability, which resulted in a budget deficit of the Pension Fund of the Russian Federation and the redirection of pension funds to the distribution system in 2014. One of the main reasons for this is the demographic risks. One of the tools for solving the demographic problem of the distribution pension system is funded systems. However, they are exposed to demographic risks as well. The paper provides an analysis of the impact of demographic risks on funded pension systems. It offers conditions for the financial sustainability of the funded pension system under the influence of demographic and macroeconomic factors. It investigates the compliance with the conditions of the financial sustainability of funded pension systems of Russia and OECD countries in the period from 1958 to 2012, making the forecast for the financial sustainability of funded pension systems until 2050, and the comparative dynamic analysis is held.

Keywords Funded pension systems • Financial sustainability • Demographic risks • Retirement age • The duration of pension payments

1 Introduction

The impact of demographic risks on the pension system is difficult to overestimate. Demographic risks affect the financial sustainability of pension systems through income and expenditure systems. Reasons for such impacts are the effects of age of entry into working life and retirement, the duration of the period of pension savings, an amount of employable citizens, and the number of citizens of retirement age and life expectancy (Potapenko and Shirov 2012).

Demographic risks of the pension system are heterogeneous and, in some cases, involve not only demographic factors. In the analysis of demographic risks, all pension systems will be divided into two parts: funded and distribution pension systems. The first is affected by such risks as increasing in life expectancy, which

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will affect the duration of pension payments, and increasing age of entry into the labor market influencing the amount of pension savings and fluctuations in the average retirement age, which will affect both the duration of pension savings and the duration of pension payments.

Demographic risks and their impact on pension systems were discussed by such economists as Wills and Sherris (2010) as well as by Cossette et al. (2007). Fehr (2009) analyzed the impact of macroeconomic risks on financial sustainability of pension systems. In his study financial stability is understood as the balance of income and expenditure in pension funds with due regard to macroeconomic risks. Pension systems with the distribution character are influenced by demographic risks to a greater extent. So, in addition to those already listed demographic risks for funded pension systems for distribution systems, the following ones are significant increasing the number of citizens—recipients of pensions—and reducing the number of the working population whose contributions and tax payments fund pensions. Funded systems act as an alternative mechanism helping to solve problems arising in the distribution of pension systems under the influence of demographic changes. However, funded pension systems are also affected by demographic risks.

In our work, we will focus on the impact of demographic risks for funded pension systems, maintaining their financial sustainability both in the past 50 years and the forecast for the next 40 years.

2 Impact of Demographic Risks on the Financial Sustainability of Funded Pension Systems: Theoretical Basis

The impact of demographic risks on funded pension systems is determined by the following factors: (1) the amount of accumulated pension capital (pension savings) is determined inter alia by the accumulation period, that is, the age of entry into working life and retirement age, and (2) the value of pension benefits depends on the age of survival, i.e., retirement age and age of life.

The impact of demographic risks on the funded pension system can be represented in a mathematical formula through the influence on the basic parameters of pension systems—the value of pension payments (PV) and the replacement rate (PZ). The amount of pension savings can be expressed in terms of the wage, the rate of insurance contributions, and the accumulation period:

$$\text{Pn} = \sum_{q=1}^{w-v} \text{sn} \times \text{Zpl} \times ((1+r) \times (1+a))^q = s \times \text{Zpl} \times \sum_{i=1}^{w-v} ((1+r) \times (1+a))^q$$

$$(1)$$

where

Zpl—average wage

r—average rate of wage indexation

q—period of wage indexation and investment period

sn—rate of insurance contributions directed to the funded system

a—rate of investment income (in shares) received from the investment of pension savings

w—retirement age

v—age of entry into working life

Pension payments can be represented as a quotient resulting from the sum of pension savings (Pn) and difference in age of survival—the period of payments of pension savings (d). In turn, the term of survival is determined to the age of retirement (retirement age) (w) and age of life expectancy (age of life) (z): $d = z - w$. Then, we substitute d into (1), and to determine the dynamic impact of demographic risks, we find the ratio of pension benefits under funded pension system for years i and j:

$$\frac{PV_i}{PV_j} = \frac{s_i \times Zpl_i \times \sum_{q=1}^{w_i - v_i} ((1 + r_i) \times (1 + a_i))^q}{z_i - w_i} \times \frac{z_j - w_j}{s_j \times Zpl_j \times \sum_{q=1}^{w_j - v_j} ((1 + r_j) \times (1 + a_j))^q} \tag{2}$$

As it can be seen from the formula (2), the impact of demographic risks on pension payments, namely, the age of entry into the labor market, the retirement age, and the age of life, will be largely limited by the investment income, the effect of which is amplified by a function exponent.

In the absence of growth of wages, the dynamics of pension payments in the funded pension system depends on the rate of insurance contributions (s), rates of investment income (a), and demographic parameters—the retirement age (w), the age of entry into working life (v), and lifetime (z). However, operating the rate of insurance contributions as a factor-effect to increase pension payments to funded pension system would mean a de facto an increase in the tax burden on enterprises. Therefore, when it is impossible or undesirable to increase the tax burden, then the investment income and demographic factors will only influence on pension payments:

$$
\begin{cases}
\dfrac{\mathrm{PV}_i}{\mathrm{PV}_j} = \dfrac{\sum\limits_{q=1}^{w_i-v_i}(1+a_i)^q}{z_i - w_i} \times \dfrac{z_j - w_j}{\sum\limits_{q=1}^{w_j-v_j}(1+a_j)^q} \\[2em]
r \to 0 \\
Zpl_i = Zpl_j \\
S_i = S_j
\end{cases}
\tag{3}
$$

It should be noted that this issue has been described, for example, by Gontmakher (2012). In the formula (3), the difference in life expectancy (z) and retirement age (w) is the duration of pension payments (tv), and the difference of retirement age (w) and the age of entry into working life (v) is the period of pension savings (tn). Retirement payments under funded pension system are less susceptible to demographic risks compared with pension payments within the distribution system, as under the funded pension system they can be leveled by the function exponent of investment income. If there is a task of constructing financially sustainable funded pension system that does not require leveling the impact of demographic risks by the investment income (i.e., $a = 0$), we obtain the condition of the financial sustainability of the funded pension system under the influence of demographic risks:

$$
\begin{cases}
\dfrac{\mathrm{PV}_i}{\mathrm{PV}_j} = \dfrac{t_{ni}}{t_{nj}} \times \dfrac{t_{vj}}{t_{vi}} \\[0.8em]
\mathrm{PV}_i \geq \mathrm{PV}_j \\[0.4em]
\dfrac{t_{ni}}{t_{nj}} \geq 1 \\[0.8em]
\dfrac{t_{vi}}{t_{vj}} \leq 1
\end{cases}
\quad \text{or} \quad
\begin{cases}
\dfrac{\mathrm{PV}_i}{\mathrm{PV}_j} = \dfrac{t_{ni}}{t_{nj}} \times \dfrac{t_{vj}}{t_{vi}} \\[0.8em]
\mathrm{PV}_i \geq \mathrm{PV}_j \\[0.4em]
\Delta t_n \geq \Delta t_v
\end{cases}
\tag{4}
$$

As formulas (1)–(4) demonstrate, the maintenance of pension payments at the current level in terms of demographic risks in the absence of growth of wages and investment income is possible if the increase in the period of pension savings exceeds the period of pension distributions or shortening of the period of pension savings is slower than the reduction of the period of pension distributions.

However, the advantage of funded pension systems as compared with the distribution ones lies in the fact that the impact of demographic risks on them can be offset by investment income, but not only due to the increase of the tax burden through increased insurance payments. Hence, there is a second option of the compliance of the financial sustainability of the funded pension system. At the negative impact of demographic risks, i.e., in the situation of the outstripping growth period of pension payments relative to the period of pension savings, pension payments remain the same, if the impact of investment income through the function exponent will be stronger or if there is an increase in rates of insurance payments (Fig. 1).

$$\frac{PV_i}{PV_j} = \frac{s_i \times Zpl_i \times \sum_{q=1}^{w_i-v_i}((1+r_i)\times(1+a_i))^q}{t_{v_i}} \times \frac{t_{v_j}}{s_j \times Zpl_j \times \sum_{q=1}^{w_j-v_j}((1+r_j)\times(1+a_j))^q}$$

:PV- pension payments in year i and j; Zpl - average wage; s- rate of insurance payments; r - the average rate of wage indexation; q - the period of wage indexation and investment period , i.e. the period of accumulation; sn- rate of insurance payments directed to the funded system; a- rate of investment income (in shares) received from the investment of pension savings; tv- period of pension payments equal to the difference in life expectancy (z) and retirement age (w); w- retirement age; v- age of entry into working life

Stagnation and lack of growth in wages
$(r \to 0)$;
$(Zpl_i = Zpl_j)$

Lack of growth of tax burden
$(Si=Sj))$

Lack of investment income leveling of demographic

$$\frac{PV_i}{PV_j} = \frac{S_i}{S_j} \times \frac{\sum_{q=1}^{w_i-v_i}(1+a_i))^q}{t_{v_i}} \times \frac{t_{v_j}}{\sum_{q=1}^{w_j-v_j}(1+a_j)^q}$$

$$\frac{PV_i}{PV_j} = \frac{t_{n_i}}{t_{n_j}} \times \frac{t_{v_j}}{t_{v_i}}$$

$$PV_i \geq PV_j$$
i.e. conservation of pension payments is possible at
$$\Delta t_n \leq \Delta t_v$$
due to compensation
$a>0$ (positive yield) and / or
$S_i \geq S_j$ (growth of rate of insurance contributions)

$$PV_i \geq PV_j$$
i.e. conservation of pension payments is possible at
$$\Delta t_n \geq \Delta t_v$$
i.e. increase in the period of pension savings should exceed the period of pension payments

Fig. 1 Condition of financial sustainability of pension funded systems under demographic risks. *Source*: Nepp et al. (2014)

Thus, the condition for the conservation of the replacement rate, as well as pension payments in funded pension systems, is the greater changing of the period of pension savings than the period of pension payments. The growth of demographic risks is typical not only for the Russian pension system. Demographic risks are one of the main problems for OECD countries' pension systems (MacInnes 2003).

3 Maintaining Financial Sustainability of Funded Pension Systems of OECD Countries: Past, Present, and Future

In OECD countries, there is also a general trend of increasing of life expectancy, which in turn causes an increase in the duration of pension payments (Mesle and Vallin 2004). The duration of pension payments for men of OECD countries on average in the period from 1958 to 2010 increased from 13.4 to 18.5 years. The increase amounted to 5.1 years or 38.5 %. Thus, even without an increase in pension payments and the number of pensioners, the increase in costs of pension systems

would amount to 38.5 %. The growth of the duration of pension payments by OECD countries is observed for women as well. However, the rate of increase is much higher. The duration of pension payments to women from 1958 to 2010 in the OECD countries on average increased from 17 to 23.3 years, i.e., 37.1 % (Nepp et al. 2015).

The retirement age is one of the main instruments by which governments seek to maintain financial sustainability of pension systems and to neutralize the impact of demographic risks to them. Thanks to the increasing retirement age, government reduce the duration of pension payments and increase the financial sustainability of pension systems. However, to analyze the growth of the duration of pension payments in isolation from changes in the retirement age would be wrong. We have made graphical analysis of the correlation of the changes of the length in pension payments and increase of the duration of pension payments for women of OECD countries (Nepp et al. 2014).

In the period from 1958 to 2010, all the countries are divided into two groups: the first group of countries is characterized by the performance of the condition to maintain the financial sustainability of the pension system under the influence of demographic risks in accordance with (4), and for the second group, the terms of financial sustainability of the pension system is not satisfied. In Table 1, countries are structured by dedicated groups represented in "The execution of the condition of

Table 1 The performance of the condition of financial sustainability of pension systems under the demographic risks for men and women

Periods	Financial sustainability is observed (inequality (4) is satisfied)		Financial sustainability is not observed (inequality (4) is not satisfied)	
	Pension system for women	Pension system for men	Pension system for women	Pension system for men
Period from 2010 to 2050	Japan, Hungary Italy, Australia, Austria, Britain, the Czech Republic, Slovakia, on average for the OECD countries	USA, Australia, Czech Republic, Great Britain, Hungary, Italy, on average for the OECD countries	Canada, Luxembourg, Mexico, Netherlands, Norway, Poland, USA, France, Switzerland, Sweden, Germany	Japan, Germany, Slovakia, Poland, Austria, Canada, Luxembourg, Mexico, Netherlands, Norway, Switzerland, Sweden
Period from 1958 to 2010	Japan, Germany, Hungary, Italy	Japan, Germany, Slovakia, Czech Republic, Poland	Australia, Austria, Britain, Canada, Luxembourg, Mexico, Netherlands, Norway, Poland, Slovakia, USA, the Czech Republic, France, Switzerland, Sweden, on average for the OECD countries	Australia, Austria, Britain, Canada, Luxembourg, Mexico, Netherlands, Norway, the United States, Hungary, Italy, France, Switzerland, Sweden, on average for the OECD countries

Source: World Bank (2009)

financial sustainability of pension systems under the influence of demographic risks for women," and the distribution of countries according to the inequality is shown (4).

As it is demonstrated in Table 1, not in all countries in the period from 1958 to 2010 the development of the pension system for women occurred in compliance with the condition of the conservation of conditions of financial sustainability, according to which the growth of the duration of pension payments in order to preserve the financial equilibrium of pension system is compensated by the increase of retirement age. For example, against the background of the duration of pension payments in countries such as Canada, France, Slovakia, Luxembourg, Norway, Switzerland, the Czech Republic, and Poland, retirement age for women decreased. In other countries, such as Austria, the UK, the Netherlands, Mexico, the USA, Australia, Sweden, Germany, Italy, Japan, and Hungary, the growth of the duration of pension payments is accompanied by an increase or fixation of retirement age.

In the period from 2010 to 2050, the situation changes: the conditions of financial sustainability have been performed in eight countries—Japan, Hungary, Italy, Australia, Austria, Great Britain, the Czech Republic, and Slovakia—and on the average for the countries of OECD. In other countries—Canada, Luxembourg, Mexico, the Netherlands, Norway, Poland, the USA, France, Switzerland, Sweden, and Germany—the inequality (4) is violated.

The conditions of conservation of financial stability of the pension system under demographic risks for men in accordance with the inequality (4) were carried out not in all countries. Between 1958 and 2010, under the influence of demographic risks, the financial sustainability decreased in pension systems for men in the following countries: Hungary, the USA, Mexico, the Netherlands, the UK, Australia, Austria, Sweden, Switzerland, Italy, Canada, Norway, Luxembourg, and France. In these countries the growth of the period of pension payments outstripped the increase of the retirement age. On the average in OECD countries, the situation was the same.

The condition of conservation of the financial sustainability in accordance with the inequality (4) is observed in Germany, Japan, the Czech Republic, Slovakia, and Poland. In these countries the retirement age was increasing faster than the duration of pension payments. The situation changes from 2010 to 2050. On the average the financial sustainability of pension systems is maintained in the USA, Australia, the Czech Republic, Great Britain, Hungary, Italy, and in the OECD countries. It is planned that the duration of pension payments will increase faster than the retirement age in Slovakia, Sweden, Switzerland, Norway, Luxembourg, Austria, Germany, Canada, France, the Netherlands, Poland, and Mexico.

In Table 1 all the countries in the period from 2010 to 2050 are divided into two groups: the first group of countries is characterized by the implementation of the condition of conservation of financial sustainability, and for the second group, the condition of financial sustainability of the pension system (the inequality 4) is not satisfied.

The division of countries on the principle of the conservation of financial sustainability is shown in Table 1.

As Table 1 shows, the financial instability of pension systems is observed in the majority of countries surveyed between 1958 and 2010 and will continue until 2050. It can have three negative effects: the reduction of social efficiency, i.e., the main indicators -the replacement rate and pension payments in financially unsustainable pension systems-, the growth of state budget expenditures in the form of various subsidies, and increase the tax burden on economic entities. In this connection there must be some measures to counter these negative effects. One possibility is to increase the retirement age actually or latently through the stimulation of continued employment that we have already discussed in another paper (Nepp et al. 2014).

Employment and pension policy in the second group of countries is of interest in terms of measures against demographic risks. In these countries, it is a continuation of work incentives and thus the period of accumulation of pension assets while reducing the period of pension payments. The combination of these two measures would minimize demographic risks and increase financial sustainability of pension distribution systems. Exceeding of the actual retirement age over the legally established, observing in the first group of countries, is exacerbating the impact of demographic risks to the financial security of pension systems.

4   Conclusion

Funded pension systems are under the influence of demographic risks in a lesser degree than the alternative distribution systems. Demographic risks of the pension system are heterogeneous and, in some cases, involve not only demographic factors. The funded pension systems are affected by such risks as increasing in life expectancy, which will affect the duration of pension payments and increasing age of entry into the labor market influencing the amount of pension savings and fluctuations in the average retirement age, which will affect both the duration of pension savings and the duration of pension payments.

Distribution pension systems are influenced by demographic risks to a greater extent. So, in addition to those already listed demographic risks for funded pension systems for distribution systems, the following ones are significant, increasing the number of citizens—recipients of pensions—and reducing the number of the working population whose contributions and tax payments fund pensions.

The condition of conserving financial sustainability of funded pension systems is proposed: the dynamics of pension payments and the replacement rate should not exceed the dynamics of insurance payment rates, the rates of the investment income, and periods of savings and payments.

Countries with financially sustainable and unsustainable pension systems are identified. The prognosis of the fulfillment of the condition of financial sustainability until 2050 has been made. The condition of conserving financial sustainability of funded pension systems is proposed: the dynamics of pension payments and the

replacement rate should not exceed the dynamics of insurance payment rates, the rates of the investment income, and periods of savings and payments.

Countries with financially sustainable and unsustainable pension systems are identified. The prognosis of the fulfillment of the condition of financial sustainability until 2050 has been made.

Between 1958 and 2010, under the influence of demographic risks, the financial sustainability decreased in pension systems for men in the following countries: Hungary, the USA, Mexico, the Netherlands, the UK, Australia, Austria, Sweden, Switzerland, Italy, Canada, Norway, Luxembourg, and France. In these countries the growth of the period of pension payments outstripped the increase of the retirement age. On the average, in OECD countries, the situation was the same. The condition of conservation of the financial sustainability is observed in Germany, Japan, the Czech Republic, Slovakia, and Poland. In these countries the retirement age was increasing faster than the duration of pension payments. The situation changes in the period from 2010 to 2050. On the average the financial sustainability of pension systems is maintained in the USA, Australia, the Czech Republic, Great Britain, Hungary, Italy, and in the OECD countries. It is planned that the duration of pension payments will increase faster than the retirement age in Slovakia, Sweden, Switzerland, Norway, Luxembourg, Austria, Germany, Canada, France, the Netherlands, Poland, and Mexico.

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Crude Oil Price Shocks and Macroeconomic Performances in the ASEAN Economies

Giray Gozgor, Youngho Chang, and Mehmet Huseyin Bilgin

Abstract This paper examines the relationship between the crude oil price shocks and the macroeconomic performance in the panel data set of 10 ASEAN economies: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam, over the period 1970–2013. We implement a second-generation panel unit root test, the panel cointegration analysis, accounting for multiple structural breaks, the panel dynamic ordinary least squares (PDOLS) estimations, and the panel-causality test in sequence. The empirical findings imply that there is only a statistically significant cointegration between the crude oil prices and the real GDP per capita levels. The results of the panel-causality test also indicate that there is a significant pairwise causal relationship between the levels of crude oil price and the real GDP per capita. In addition, the results of the PDOLS estimations indicate that 10 % increase in the crude oil price leads to 1.8 % increase in the real GDP per capita in the ASEAN economies in general. Running the common correlated effects panel estimations, we obtain the coefficients for each country and observe that the significant and positive effects are valid in 7 of 10 countries.

Keywords Crude oil price shocks • Income • Unemployment • Inflation • Domestic credits • ASEAN economies • Panel data estimation techniques

1 Introduction

Classic supply-side economic theory suggests that an oil price shock suppresses macroeconomic activity since an increase in oil price leads to a higher cost of production, a decline in productivity, and eventually leading to a reduction in per

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capita gross domestic product (GDP) or per capita output. This issue can also lead to a higher unemployment rate and a decline in the domestic credits due to a lower macroeconomic activity in firms. Indeed, unemployment may arise from an oil price shock via the change in employment structures in oil-intensive industries, leading firms to undertake production methods that are less dependent on oil and resulting in wide labor reallocations among sectors, affecting unemployment in the long run (Chang et al. 2011). However, this occurs with varying degrees across countries with different economic characteristics (e.g., see Hamilton 1983, 1985; Gisser and Goodwin 1986; Mork 1989, 1994; Mork et al. 1994; Lee et al. 1995; Lee and Ni 2002; Huang et al. 2005; Lardic and Mignon 2006, 2008; Tang et al. 2010; Peersman and Van Robays 2012; Bilgin et al. 2015). On the other hand, inflation-oil price nexus indicates that an inflationary pressure stemming from increased oil price can create an inflationary shock (Bruno and Sachs 1982; Hamilton 1996; Hooker 1996; Brown and Yucel 2002; Cologni and Manera 2008). However, some papers argue that effect of oil price shocks on inflation is insignificant (e.g., LeBlanc and Chinn 2004).

As seen, there is a vast amount of evidence on the relationship between oil price and aggregate economic activity, particularly in developed economies. However, oil price can also severely affect the economic activity in developing economies with several spillover channels (Bilgin et al. 2015). In that aspect, the aim of this study is to explore the impact of oil price fluctuations on four leading macroeconomic variables in 10 ASEAN countries within the panel data framework: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam over the period 1970–2013. This study analyzes four relationships with two variables each, namely, (i) per capita income and oil price, (ii) inflation and oil price, (iii) unemployment rate and oil price, and (iv) domestic credit and oil price.

The empirical analysis begins with the identification of possible cointegration (long-run relationship) between these relationships by means of panel unit root and panel cointegration tests. Panel cointegration between nonstationary panel-series indicates that a linear combination of the panel data series is stationary. For this purpose, we implement a second-generation panel unit root test, the panel cointegration analysis, accounting for multiple structural breaks, the panel dynamic ordinary least squares (PDOLS) estimations, and the panel-causality test in sequence.

The empirical findings in the study imply that there is only a statistically significant cointegration between the crude oil prices and the real GDP per capita levels. The results of the panel-causality test also indicate that there is a significant pairwise causal relationship between the levels of crude oil price and the real GDP per capita. In addition, the results of the PDOLS estimations indicate that 10 % increase in the crude oil price leads to 1.8 % increase in the real GDP per capita in the ASEAN economies in general. Running the common correlated effects panel estimations, we obtain the coefficients for each country and observe that the significant and positive effects are valid in 7 of 10 countries.

The rest of the study is organized as follows. Section 2 describes the data, empirical model, and the econometric methodology of the tests used. Section 3 represents a discussion by empirical results and analysis. Section 4 concludes the paper.

2 Data, Empirical Model, and Econometric Methodology

2.1 Data

This paper considers a panel data set for 10 ASEAN economies: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. We focus on the period from 1970 to 2013. The data frequency is annual. The starting date of the empirical analysis in each country is related to the continuous time-series availability.

This paper examines the relationship between the real crude oil prices between the macroeconomic indicators (the inflation rate, the real income, the unemployment rate, and the level of domestic credit). To create a better panel data set, we consider a proxy measure of real domestic oil prices that is the international oil price in the USD multiplied by the local exchange rates to the USD. We also use the real API Dubai spot price f.o.b. (constant 2010 USD price per barrel) as the global crude oil price. The crude oil price data come from the "global economic monitor (GEM) commodities database" of the World Bank. We create data for the real domestic price via multiplying the global crude oil price by the official exchange rate (local currency per USD, period average). We consider the domestic crude oil price in logarithmic form.

We also consider several variables to measure macroeconomic performance: Domestic credit provided by the financial sector (% of GDP), real GDP per capita (current local currency) in logarithmic form, inflation rate (consumer prices, annual %), and total unemployment rate (% of total labor force). These data are obtained from the World Development Indicators (WDI) of the World Bank. We also report a summary of the descriptive statistics in Appendix 1 the correlation matrix in Appendix 2 and a summary of fuel exports in the ASEAN economies over the period 1960–2014 in Appendix 3, respectively.

2.2 Empirical Model

At this point, we represent the following empirical models:

$$\ln \text{ GDPC}_{i,t} = \alpha_1 + \beta_1 \ln \text{ GDPC}_{i,t-1} + \beta_2 \ln \text{ RCOILP}_{i,t-n} + v_i + v_t + \varepsilon_{i,t} \quad (1)$$

$$\text{UNEM}_{i,t} = \alpha_2 + \delta_1 \text{UNEM}_{i,t-1} + \delta_2 \ln \text{ RCOILP}_{i,t-n} + v_i + v_t + \varepsilon_{i,t} \quad (2)$$

$$\text{INF}_{i,t} = \alpha_3 + \phi_1 \text{INF}_{i,t-1} + \phi_2 \ln \text{ RCOILP}_{i,t-n} + v_i + v_t + \varepsilon_{i,t} \quad (3)$$

$$\text{DC}_{i,t} = \alpha_4 + \varphi_1 \text{DC}_{i,t-1} + \varphi_2 \ln \text{ RCOILP}_{i,t-n} + v_i + v_t + \varepsilon_{i,t} \quad (4)$$

In the equations from (1) to (4), $\ln \text{ GDPC}_{i,t}$ and $\ln \text{ GDPC}_{i,t-1}$ are the log "real GDP per capita" in country i at times t and t–1, $\text{UNEM}_{i,t}$ and $\text{UNEM}_{i,t-1}$ are the unemployment rate in country i at times t and t–1, $\text{INF}_{i,t}$ and $\text{INF}_{i,t-1}$ are the inflation rate in country i at times t and t–1, $\text{DC}_{i,t}$ and $\text{DC}_{i,t-1}$ are the level of domestic credit in country i at times t and t–1, and $\ln \text{ RCOILP}_{i,t-n}$ is the real domestic proxy crude oil price in logarithmic form in country i at time t–n. The "country effects," the "period effects," and the "error terms" are denoted by v_i, v_t, and $\varepsilon_{i,t}$, respectively.

2.3   Econometric Methodology

This paper examines the effects of crude oil price shocks on the macroeconomic performance ASEAN economies in the long run. First, we address "cross-sectional dependence" among the macroeconomic indicators and the real proxy crude oil prices in the panel data set. Our panel data methodology addresses cross-sectional dependence among real proxy crude oil prices and macroeconomic indicators; therefore, the panel data methodology can tell us possible interactions in the related ASEAN economies in general. To this end, we initially use panel unit root tests and panel cointegration analysis. When we find a significant relationship between the proxy crude oil prices and macroeconomic indicators, we run the panel dynamic ordinary least squares (PDOLS) estimations and the panel–Granger causality tests. In short, we implement in sequence the second-generation panel unit root test, the panel cointegration analysis, accounting for multiple structural breaks, the PDOLS estimations, and the panel-causality test.

2.3.1   Cross-Sectional Dependence and Second-Generation Panel Unit Root Tests

The panel unit root tests have begun to be widely used in literature. However, we need to check whether the impact of cross-sectional dependence is significant in the macroeconomic indicators and real oil price series. To this end, first, we perform a formal test of "cross-sectional dependence (CD)" test of Pesaran (2004). Our results support the presence of cross-sectional dependence; therefore, we use the "second-generation" panel unit root test. There are now a number of "second-generation" panel unit root tests available, but given the relatively small number of individuals

in the panel data, the panel unit root test of Pesaran (2007) can represent a better performance (Pesaran 2007).

2.3.2 Panel Cointegration Analysis of Westerlund (2006) and Estimation Techniques

In this paper, we consider the panel cointegration analysis to determine whether long-run relationships exist among macroeconomic indicators and real oil prices in the ASEAN economies. However, the Fisher–Johansen-type test of Maddala and Wu, the linear panel cointegration test of Kao, and the linear panel cointegration test of Pedroni do not consider potential structural breaks in the series. Given that our data cover the period from 1970 to 2013, structural breaks can be crucial in our case. For instance, Westerlund (2006) proposes the panel cointegration test procedure that allows for multiple structural breaks in the series.[1] To this end, we employ the panel cointegration test of Westerlund (2006).

Following the findings of the panel cointegration analysis, we proceed to obtain long-run findings from the panel data estimations. For this purpose, we employ the PDOLS estimation technique of Kao and Chiang (2000) and Mark and Sul (2003) to obtain the long-run coefficient of the panel data framework in the ASEAN economies.

Furthermore, following the results of the panel data estimations, we check the robustness of long-run findings using the panel–Granger causality test of Dumitrescu and Hurlin (2012). The test statistics can be simply calculated by running standard Granger causality regressions for each cross section in the panel data set.[2] The test statistics that are the average of the test statistics for each unit is defined as the Wbar statistic. The standardized version of the test statistic follows a standard normal distribution, and this is defined as the Zbar statistic (Dumitrescu and Hurlin 2012).

On the other hand, we analyze the effects of crude oil price on the real GDP per capita in each ASEAN country. For this purpose, we run the common correlated effects panel (CCEP) estimations of Pesaran (2006), due to this methodology allowing for cross-sectional dependence among the panel units.[3]

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[1]For this purpose, the panel cointegration test of Westerlund (2006) uses the global minimization criteria for the sum of squared residuals that is proposed by Bai and Perron (1998) in finding the timing of structural breaks.

[2]Since the panel data causality test methodology of Dumitrescu and Hurlin (2012) is based on the short-run relationship, all the variables in the system are required to be stationary.

[3]The CCEP estimation is the most efficient estimation technique for the panel structure, due to not only allowing for "homogenous technology parameters" but also it models "heterogeneous factor loadings" in the estimation (Pesaran 2006). This estimation technique can also successfully eliminate "time-variant and unobservable" effects in ASEAN economies and it solves possible "identification problems" that can be related to a significant correlation among "cross-sectionally dependent countries" (Pesaran and Tosetti 2011).

3   Empirical Results and Discussion

As a preliminary, we test for cross-sectional dependence among the real GDP per capita, the unemployment rates, the inflation rates, the level domestic credit, and the real domestic oil prices in the ASEAN countries by applying the cross-sectional dependence (CD) test of Pesaran (2004). We report the results in Table 1.

According to the results of the CD test in Table 1, the null hypothesis of "no cross-sectional dependence of macroeconomic indicators and domestic oil prices among the ASEAN economies" is rejected. Thus, all macroeconomic variables and the domestic real oil prices are cross-sectionally dependent for the related period. We then perform the cross-sectional augmented (CIPS) panel unit root test of Pesaran (2007) that is accounted for cross-sectional dependence and illustrate their results in Table 2.

The results of the CIPS test in Table 2 show that the real income, the unemployment rate, the level of domestic credit, and the crude oil prices in the ASEAN economies can be defined as unit root processes. We find that the inflation rate is stationary. Therefore, we use the panel cointegration test of Westerlund (2006) in nonstationary variables and report the related empirical results in Table 3.

The results of four test statistics of the panel cointegration test of Westerlund (2006) in Table 3 indicate that there is a long-run relationship between the real GDP per capita levels and the real proxy domestic crude oil prices in the panel data framework.

Table 1   Results of the CD test of Pesaran (2004)

Cross-sectional dependence	Log GDP per capita	Unemployment rates	Inflation rates	Domestic credits	Real domestic oil prices
The CD statistics and (probability)	8.12 (0.000)	2.97 (0.003)	11.6 (0.000)	4.67 (0.000)	28.4 (0.000)
Average absolute value of the off-diagonal elements	0.322	0.231	0.381	0.215	0.716

Notes: The CD test of Pesaran (2004) is defined under the null hypothesis of no cross-sectional dependence in the related variables among 10 ASEAN economies. The p-values are in parentheses

Table 2   Results of the CIPS test of Pesaran (2007)

Heterogeneous unit root test (the CIPS)	Log GDP per capita	Unemployment rates	Inflation rates	Domestic credits	Real domestic oil prices
Zt-bar statistics	0.327 (0.628)	−1.475 (0.070)	−5.140 (0.000)	1.295 (0.902)	1.016 (0.845)

Notes: The CIPS test of Pesaran (2007) assumes cross-sectional dependence in the form of a single unobserved common factor. The test is defined under the null hypothesis that there is a unit root in the related variables in the 10 ASEAN economies. The test statistics include both the constant and the time trend terms. The optimal lag length is selected by the Akaike information criterion (AIC). The p-values are in parentheses

Table 3 Results of the panel cointegration analysis of Westerlund (2006)

	Value	Z-value	P-value
Log real GDPC–Log RCOIP			
Gt	−2.531	−2.624	(0.004)
Ga	−7.053	0.086	(0.534)
Pt	−7.024	−2.331	(0.010)
Pa	−6.717	−1.627	(0.052)
UNEM–Log RCOIP			
Gt	−1.126	2.374	(0.991)
Ga	−2.010	3.029	(0.999)
Pt	−2.691	1.947	(0.974)
Pa	−1.579	1.914	(0.972)
DC–Log RCOIP			
Gt	−2.675	−3.139	(0.001)
Ga	−3.978	1.881	(0.970)
Pt	−4.743	−0.079	(0.469)
Pa	−2.707	1.137	(0.872)

Notes: The panel cointegration test of Westerlund (2006) has the null hypothesis that there is no cointegration between the related variables in the 10 ASEAN economies. The constant and the linear–deterministic time trend terms are also considered. The lag intervals are selected by the AIC

In addition, the results of one of four test statistics of the panel cointegration test of Westerlund (2006) show that there is a long-run relationship between domestic credit levels and the real proxy domestic crude oil prices. These results need to be analyzed further; therefore, we also check the relationship considering the PDOLS estimations. Finally, there is no long-run relationship between the unemployment rate and the real proxy domestic crude oil prices in the ASEAN economies.

At this stage, we therefore implement the PDOLS estimation technique of Kao and Chiang (2000) and Mark and Sul (2003) to examine how real domestic proxy oil prices commonly affect the real GDP per capita and the level of domestic credit in the panel data framework and to obtain long-run coefficient of the effects of the real domestic oil prices on the real GDP per capita and the level of domestic credit in the ASEAN countries, respectively. We report the results of PDOLS estimations in Table 4.

The long-run coefficient of the PDOLS estimations in Table 4 indicate that 10 % increase in the real domestic proxy oil prices pioneer to 1.8 % rise in the real GDP per capita in the ASEAN countries in general. However, there is no statistically significant impact of the real domestic proxy oil prices to the level of domestic credit in the ASEAN countries.

Now, we provide the stationary of the real GDP per capita and the real domestic proxy oil price, and then use the most recent and the robust panel–Granger causality test of Dumitrescu and Hurlin (2012) to determine the direction of the relationship. We report the related results in Table 5.

The results of the panel–Granger causality test of Dumitrescu and Hurlin (2012) in Table 5 show that there is a pairwise causality between the real GDP per capita and

Table 4 Results of the panel DOLS estimations

Panel for the 10 ASEAN economies	Log real GDP per capita	Domestic credit (% of GDP)
Lagged log real domestic proxy crude oil prices	0.182 (0.058) [3.138] ***	−5.178 (3.635) [−1.424]
Long–run variance	0.1431	443.3
Adjusted R-squared	0.992	0.880

Notes: The constant and time trend terms are also estimated, but they are not reported. We use the pooled estimation and the coefficient covariance is computed using the sandwich method. The Bartlett kernel and the Newey–West fixed bandwidth are used for the coefficient covariance. The optimal number of lag length is selected by the AIC. Numbers in the bracket and the parenthesis are the t-statistics and the standard errors, respectively. *** indicates statistical significance at the 1 % level

Table 5 Results of the panel–Granger causality test of Dumitrescu–Hurlin (2012)

Panel–Granger causality	10 ASEAN economies	W-Stat	Zbar-Stat	Probability
Null hypothesis	Log RGDPC does not homogeneously cause Log RCOILP	4.095	5.954	(0.0000) ***
Null hypothesis	Log RCOILP does not homogeneously cause Log RGDPC	2.277	2.374	(0.0176)**
Null hypothesis	DC does not homogeneously cause Log RCOILP	0.822	−0.517	(0.6046)
Null hypothesis	Log RCOILP does not homogeneously cause DC	0.995	−0.199	(0.8423)

Note: *** and ** indicate statistical significance at the l % and 5 % levels, respectively. The p-values are in parentheses

domestic proxy crude oil prices in the ASEAN economies in general. In line with the PDOLS results, there is no statistically significant causal relationship between the level of domestic credit and the domestic proxy crude oil prices in the ASEAN economies.

Up to here, our results are robust to different panel methodology frameworks, a small number of panel units, possible multiple breaks in the series, and size distortions. However, when we look at the economic perspective, the previous literature state that the dynamics of the proxy oil price and their effects on the real income in developing economies can be country specific, i.e., the relationship can depend on whether the country is oil importing or oil exporting. To test this hypothesis and to check the robustness of the common findings of the panel data estimation procedure, we also examine the effects of the proxy domestic oil price on the real GDP per capita in each country in particular. To this end, we run the CCEP estimations and report the related results in Table 6.

The results of the CCEP estimations show that the real domestic proxy crude oil prices are negatively to the real GDP per capita levels in the ASEAN countries, and the average coefficient is obtained as 0.49. The empirical results demonstrate that the greatest positive impacts of the domestic crude oil price on the real income in Brunei Darussalam, Cambodia, Laos, Vietnam, Indonesia, Malaysia, and Singapore, respectively.

Table 6 Results of the CCEP estimations of Pesaran (2006) for each ASEAN country

ASEAN countries	Log real proxy domestic crude oil price
Brunei Darussalam	1.643 (0.169)***
Cambodia	0.592 (0.282)**
Indonesia	0.528 (0.078)***
Laos	0.587 (0.075)***
Malaysia	0.322 (0.074)***
Myanmar	−0.331 (0.241)
The Philippines	0.730 (0.441)
Singapore	0.173 (0.066)***
Thailand	0.126 (0.126)
Vietnam	0.546 (0.033)***
Panel	0.492 (0.161)***
RMSE of the CCEP	0.186
I(1) in the CCEP	9.27 [0.00]

Notes: The dependent variable is the real GDP per capita in logarithmic form. The model includes the constant term, but it is not reported. We include the sets of cross-sectional period averages to the estimation. RMSE is the root mean square error. The I(1) indicates the result of the CIPS test under the null hypothesis of non-stationarity and maximum number of lags is two. Standard errors are in parentheses and the p-values are in brackets. *** and ** indicate statistical significance at the 1 % and 5 % levels, respectively

In this paper, we interestingly observe that the levels of domestic crude oil price and the real GDP per capita are positively related in seven ASEAN economies and some policy implications can be deducted from these results: First, it is important to note that the measure for crude oil price includes the measures for nominal exchange rates, and if the domestic currency is weakened, the proxy domestic crude oil price will be higher. Therefore, the weaker domestic currency level also yields to a higher level of domestic proxy crude oil price. The weak currency is expected to boost the exports in any developing economy. We know that most of these ASEAN economies have implemented export-led growth models; and therefore, we suggest that our results can be mainly explained via this evidence. In short, the domestic crude oil prices can be positively related to the real GDP per capita due to the exchange rate policies.

Second, we suggest that these ASEAN countries should maintain this exchange rate policy to control the domestic crude oil price that leads to a higher real GDP per capita. At this stage, these countries can also efficiently manage taxes on crude oil price, which is partly ignored in this paper. The tax policy on the crude oil price would control the price spillovers from the world crude oil prices to the domestic crude oil prices.

Third, these countries should maintain the infrastructure investments and eliminate civil conflicts to control transportation costs in terms of crude oil exports and imports, and our results indicate that this can help to reach a higher level of the real GDP per capita.

Finally, renewable and alternative energy sources can break down the dominant role of crude oil price, and we suggest that this policy can eliminate the direct relationship between the crude oil prices and the real income in related seven ASEAN economies.

4 Conclusion

This paper examines the relationship between the crude oil price shocks and the macroeconomic performance in the panel data set of 10 ASEAN economies: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam over the period 1970–2013. First, we address cross-sectional dependence among the macroeconomic indicators and the real proxy crude oil prices in the panel data set. We then implement in sequence, the second-generation panel unit root test; the panel cointegration analysis, accounting for multiple structural breaks; the PDOLS estimations; and the panel-causality test.

The empirical findings imply that the crude oil prices have a unit root, there is a mean-reversion in the inflation rates, there is the hysteresis effect on the unemployment rates, but no long-run relationship between the crude oil prices and the unemployment rates, and there is persistence in the domestic credit levels and a statistically significant cointegration between the crude oil prices and the domestic credit levels. However, the results of the panel-causality test and PDOLS estimations show that there is no statistically robust relationship between the crude oil prices and the domestic credit levels.

We also observe very high level persistence in the real GDP per capita levels and there is a statistically significant cointegration between the crude oil prices and the real GDP per capita levels. The results of the panel-causality test show that there is a pairwise relationship between the crude oil price and the real GDP per capita. In addition, the results of the PDOLS estimations indicate that 10 % increase in the crude oil price leads to 1.8 % increase in the real GDP per capita in the ASEAN economies in general.

Running the CCEP estimations, we obtain the coefficients for each country and observe that the significant and positive effects are valid in Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Singapore, and Vietnam. These statistically significant results show that the level of proxy domestic crude oil prices has positive impacts on the long-run income level in Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Singapore, and Vietnam. These findings are parallel with the evidence of Du et al. (2010) and Tang et al. (2010), who observe similar results in China. Hedging strategies for oil market can be important tool to control the effects of oil price shocks on the macroeconomic activity in ASEAN economies (e.g., Lau et al. 2014).

Further papers on the subject can consider time-series techniques to analyze not only the impacts of the domestic energy prices but also the price fluctuations on the measures of macroeconomic performance in other developing economies with larger data sets and frequency. In addition, the relationships among inflation rate, real exchange rate, and oil price shocks or oil price volatility can also be examined for the ASEAN economies.

Appendix 1: Summary of Descriptive Statistics for the Panel Data Set

Variables	Mean	Standard dev.	Minimum	Maximum	Observations
Log real GDP per capita	11.14	2.697	5.926	17.50	378
Domestic credit (% of GDP)	56.10	41.31	4.456	177.5	331
Unemployment rate (%)	3.646	2.493	0.000	11.90	230
CPI inflation rate (%, annual)	8.390	12.28	−6.04	128.4	359
Log real (domestic proxy) crude oil price	6.813	3.493	2.251	14.51	389

Appendix 2: Correlation Matrix

	Log crude oil price	Log real GDP per capita	Domestic credits	Inflation rate	Unemployment rate
Log crude oil price	1.000	–	–	–	–
Log real GDP per capita	0.955	1.000	–	–	–
Domestic credit	−0.352	−0.344	1.000	–	–
Inflation rate	0.135	0.113	−0.233	1.000	–
Unemployment rate	−0.053	−0.071	−0.121	−0.011	1.000

Appendix 3: Summary of Fuel Exports over 1960–2014 (% of Merchandise Exports)

Country name	1960s	1970s	1980s	1990s	2000s	2010s
Brunei Darussalam	98.993	99.675	99.900	96.596	94.130	94.939
Cambodia	0.139	2.335	N/A	N/A	0.001	0.003
Indonesia	38.944	59.126	63.216	28.844	26.465	32.271
Laos	374.198	249.046	N/A	N/A	N/A	N/A
Malaysia	6.027	11.033	24.503	10.053	12.444	19.663
Myanmar	0.471	1.244	N/A	0.268	N/A	38.504
The Philippines	1.013	1.051	1.282	1.708	1.832	2.759
Singapore	21.569	27.111	22.450	11.016	11.342	17.719
Thailand	0.217	0.536	0.431	1.254	3.843	5.431
Vietnam	N/A	N/A	N/A	17.957	22.108	9.926

Data Source: World Bank Development Indicators, the World Bank Group

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Government Debt and GDP Growth

Nadezhda Semjonova

Abstract The question of how the government debt affects state's economy is still under discussion. The goal of the present research is to explore correlations between government debt and such indicators as GDP, GDP growth rate, debt accumulation rate and budget deficit. Data on 176 world countries were analyzed. Significant negative correlation between debt and budget deficit and poor correlation between debt and GDP growth demonstrate that countries spend borrowed money to satisfy current societal needs, rather than for investments in economy. The only exception is the South and East Asia region, where higher debt is associated with higher GDP growth.

Keywords Government debt • GDP • Budget deficit

1 Introduction

The problem of the high government debt is of the high importance on the modern world. The 2008–2010 recession forced number of countries (Greece, Portugal, Spain, Latvia, etc.) to increased borrowing, due to this its debt had grown up significantly (Ancans 2013).

The relation between government debt and the economics is still under discussion (Ludvigson 1996). Neoclassic approach, based on the Ricardian equivalence, claims that the debt has no influence on the economic growth at all (Barro 1987). For example, Basetto and Kocherlakota (2004) considered a situation when state increases incomes by rising distortionary taxes and demonstrated possibility to manage government debt without influence on distribution of capital and prices.

From other hand, a number of authors demonstrated that debt may have both stimulating (at the level less than 60–70 % of GDP) and depressive effect (Afonso and Jalles 2013; Checherita-Westphal and Rother 2012) on GDP growth rate. Alongside the effect on GDP growth, high debt level was claimed to harm financial development, especially in emerged markets (Ismihan and Ozkan 2012).

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Greiner (2012) demonstrated that the effect depends on the government policy: when the government tries to adjust public spending and consolidate budget, highest debt causes decrease of the GDP growth rate. Vice versa, when the government adjusts lump-sum transfers to fulfil its intertemporal budget constraint, there will be no influence of debt on the economic growth. These findings are in some extent controversial to the experience of the Baltic states in 2008–2009, when adjustment (decrease) in public spending facilitates GDP growth (Raudla and Kattel 2013).

The analysis of the world government debt data over the period from 2003 to 2011, performed in (Semjonova 2014), demonstrated that the proportion of the developed countries with extremely high debt level increased. In contrary, the poorest countries reduced their debt, mainly due to the poverty-reducing heavily indebted poor countries (HIPC) initiative, launched in 2003 by the International Monetary Fund (IMF) and the World Bank (IMF 2013). The HIPC initiative has written off the debt of poorest counties, mainly in Africa region, and altered the total world picture and position of countries in a "debtor list." Leaving aside HIPC initiative, the change in the distribution of the debt by the world countries from 2003 to 2011 is region specific. For example, in South-East Asia and Pacific region, the number of counties with the debt, that exceeded 60 % of GDP, decreased from 12 in 2003 to 5 in 2011. In contrary, in Western Europe, the number of such countries increased from 12 in 2003 to 15 in 2011. The situation is even more dramatic for the developed world: in 2003, five out of nine most developed countries (G9 by classification of IMF) had the debt over 60 %. In 2011 that number increased up to eight out of nine. This tendency looks alerting, comparing with the world one: the number of countries with the debt more than 60 % of GDP decreased from 85 (2003) to 48 (2011).

Analysis of the long-term GDP growth over the period from 2003 to 2011, which includes the 2007–2008 recession (Semjonova 2014), did not demonstrate correlation between government debt in 2003 and long-term GDP growth at the world level. One exception was South and Eastern Asia and the Pacific region, where positive correlation between debt in 2003 and further economic growth was observed. Besides, there was weak significant correlation between long-term GDP growth and debt in 2011: generally, the countries that accumulated higher debt over the recession period demonstrated lower GDP growth. The author did not find any threshold for debt level, under which the debt could have stimulating effect.

The aim of the present research is to evaluate correlation between the value of government debt before and after recession period debt and number of economic indicators: GDP, GDP short-term growth rate, debt accumulation rate and budget deficit as well as between increment of the debt over recession period and long-term GDP growth. This may help answer number of questions: do the rich countries borrow more, does debt stimulate short-term economic development and do countries invest borrowed money or just respond to daily needs.

2 Data and Methodology

The object of the research is the world countries economies. The research is based on publicly available data on 176 world countries from IMF and World Bank databases. Selection of these 176 countries was governed entirely by data availability: countries with no data were censored out. The analysis covered period from 2003 till 2011. The beginning of the period was chosen to coincide with the start of HIPC initiative. As to the end of the period, in 2011 the economic indicators start to improve after recession.

In the present paper, the following indicators that characterize current economic situation were analysed:

- Y—GDP in 2003 and 2011, measured in billion of USD, current prices
- r—GDP growth rate in 2003 and 2011, percents
- D/Y—government debt-to-GDP ratio in 2003 and 2011
- α—government debt annual growth to GDP ratio in 2003 and 2011
- Def—budget deficit $(-)$/surplus $(+)$ growth to GDP ratio in 2003 and 2011

Additionally, two indicators were used to evaluate long-term growth tendencies:

- R—long-term GDP growth indicator, calculated as

$$R = \frac{\mathrm{GDP}_{2011} - \mathrm{GDP}_{2003}}{\mathrm{GDP}_{2003}} \times 100\,\% \tag{1}$$

- $\Delta D/Y$—long-term government debt growth indicator, calculated as

$$\Delta D/Y = \left(\frac{D}{Y}\right)_{2011} - \left(\frac{D}{Y}\right)_{2003} \tag{2}$$

All 176 world countries were broken down in six regions and two categories. Six regions was based on geographic and cultural closeness: Western Europe, Eastern Europe and Central Asia (former CIS countries), South and East Asia and Pacific, Middle East and North Africa, sub-Saharan Africa, Latin America and the Caribbean. The greatest world economies (USA, Canada, Germany, France, Italy, UK, Spain, Japan and Korea) were grouped in G9 category. The last category was comprised by most significant players on the international debt market, whose debt is indicated by the "Debt Clock" service: G9 plus Argentina, Australia, Brazil, China, Greece, India, Ireland, Mexico, Portugal, Russia, Saudi Arabia (World Debt Clock 2014).

In the present paper, evaluation of the possible mutual influence of the government debt and on the state economy was made by estimation of the correlation between pairs $D/Y-Y$, $D/Y-r$, α-Def, $R-\Delta D/Y$. The correlation was evaluated both graphically, by corresponding scatter diagram and by means of Pearson correlation

coefficient. The statistical significance of the correlation coefficient was tested using Student's criterion with the level of significance 0.05.

Note, that when the countries—outliers—were excluded from calculations, the correlation coefficient remains significant. The correlation disappears when the Western Europe countries are excluded, thus at the world level, one could not claim that countries with bigger economies have bigger debt. Exclusive position of the Western European countries may be due to the political impact of European Union.

3 Research Results

3.1 Relationship Between Government Debt and GDP (D/Y−Y)

As it was demonstrated previously (Semjonova 2014), the proportion of countries with extremely high debt level increased at the end of the considered period exactly among the group of "big" economies. To evaluate, which countries—"big" or "small" ones—tend to borrow more, the correlation coefficient between government debt-to-GDP ratio (D/Y) and GDP (Y) was calculated. Results for the world regions are summarized in the Table 1.

Positive values of the correlation coefficient would imply that countries with "large" economies tend to borrow more. Such positive correlation was observed both in 2003 and 2011 in the South and East Asia and Pacific region. Besides, detailed analysis of the data on the Fig. 1 demonstrated that such high correlation is due to influence of Japan on the region data. Indeed, exclusion of Japan from the calculation reduces correlation coefficient to the non-significant.

Table 1 Correlation between government debt and GDP (D/Y−Y)

Group of countries	Correlation in 2003		Correlation in 2011	
G9	0.15	(P = 0.71)	0.28	(P = 0.46)
"Debt Clock" countries	0.11	(P = 0.63)	0.18	(P = 0.46)
South and East Asia and Pacific—Japan excluded	**0.47**	**(P = 0.01)**	**0.46**	**(P = 0.02)**
	−0.29	(P = 0.15)	−0.12	(P = 0.22)
Western Europe	0.32	(P = 0.06)	**0.34**	**(P = 0.04)**
Eastern Europe and Central Asia	−0.19	(P = 0.60)	−0.32	(P = 0.31)
Latin America and the Caribbean	−0.11	(P = 0.57)	−0.03	(P = 0.86)
Middle East and North Africa	−0.10	(P = 0.70)	−0.34	(P = 0.16)
Sub-Saharan Africa	−0.15	(P = 0.32)	−0.07	(P = 0.67)
Whole world—USA, China, Japan, Western Europe excluded	−0.01	(P = 0.88)	**0.26**	**(P = 0.00*)**
			0.15	(P = 0.07)

Note: *represents significance level less than 0.005
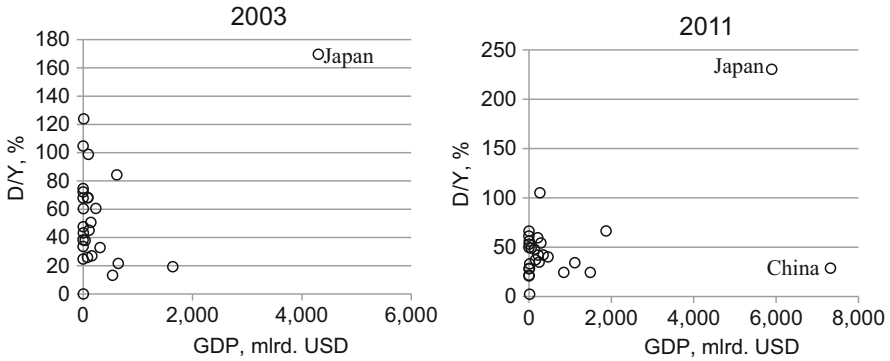
Fig. 1 Correlation between debt-to-GDP ratio and GDP, South and East Asia and Pacific

Figure 1 demonstrates that two biggest economies in the region implement opposite government debt policies: in 2011, China succeeded to keep state debt below 28.7 %, while Japan raised their debt up to 230.3 % from GDP. The latter is the highest debt in the world in 2011. The second highest debt in this region is one of Singapore, 105.2 % from GDP.

Western Europe is another region that demonstrated significant positive correlation between government debt and GDP in 2011. Alongside, Fig. 2 shows that the debt level exceeds 80 % in the four out of five greatest economies in this region. The debt of the Greece, 170.3 %, is the biggest in the region and, simultaneously, second in the world. For the five countries: Greece, Iceland, Ireland, Italy and Portugal, the debt exceeds 100 %. For the period from 2003 to 2011, all mentioned countries, except Italy, increased their D/Y for more than 50 % points, but for Italy, that in 2003 already had D/Y more than 100 %, the increment was only 16.7 % points. Note that non-significant correlation coefficient in 2003 was quite close to one in 2011. The corresponding *P*-value of 0.06 is quite close to the assumed level of significance (0.05), thus one may pose some doubts about absence of correlation in 2003 and conclude that in the Western Europe countries with bigger economies tend to borrow more.

There was no significant correlation between D/Y and Y in other world regions. Nevertheless, in the world as a whole, weak positive significant correlation was observed in 2011. Figure 3 presents corresponding scattering diagram, where three outliers—USA, Japan and China—are clearly identified.

3.2 Relationship Between Government Debt and GDP Growth Rate (D/Y−r)

While planning for budget incomes, the government usually relies on the GDP prognosis. When the prognosis is negative, i.e. foresees reduction of the GDP
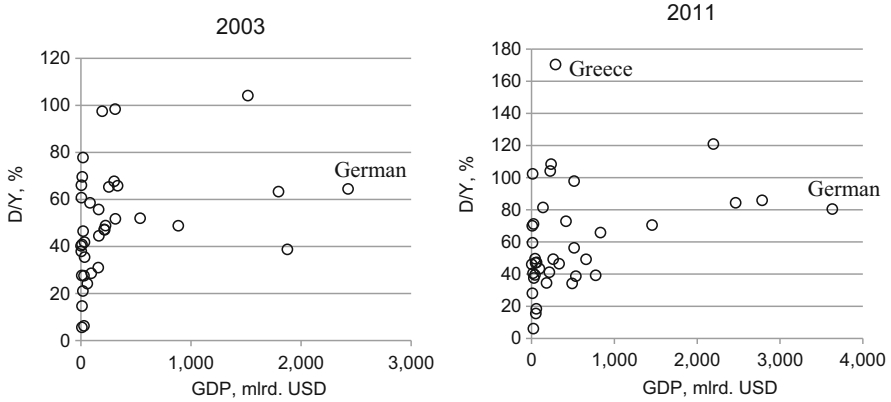
Fig. 2 Correlation between debt-to-GDP ratio and GDP, Western Europe
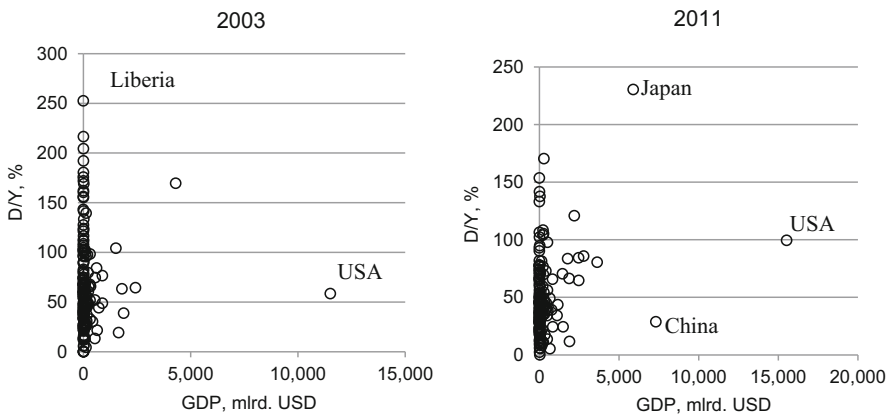
Fig. 3 Correlation between debt-to-GDP ratio and GDP, world data

growth rate, the government has to account on the decrease of budget income. In this case, the state may borrow more to provide smooth government functioning and to support local business during recession period. Thus, one may expect a negative correlation between GDP growth and the level of government debt. Table 2 summarizes correlation coefficients between D/Y and GDP growth rate r.

Table 2 data demonstrates significant moderate negative correlation between D/Y and r in the whole world that supports the hypothesis that low economic development rate is related to the higher borrowing. For the "Debt Clock" countries, the correlation coefficient in 2011 was high enough to suppose that there is still some economic instability after recession in 2007–2008, that, in turn, leads to the higher level of borrowing in developed countries. This is demonstrated at the Fig. 4.

Table 2 Correlation between government debt and GDP growth rate $(D/Y-r)$

Group of countries	Correlation in 2003		Correlation in 2011	
G9	−0.20	$(P = 0.61)$	−0.22	$(P = 0.56)$
"Debt Clock" countries	0.03	$(P = 0.89)$	**−0.73**	**$(P = 0.00^*)$**
South and East Asia and Pacific	0.12	$(P = 0.55)$	−0.35	$(P = 0.07)$
Western Europe	−0.16	$(P = 0.33)$	**−0.61**	**$(P = 0.00^*)$**
Eastern Europe and Central Asia	−0.14	$(P = 0.70)$	−0.38	$(P = 0.22)$
Latin America and Caribbean	0.01	$(P = 0.94)$	**−0.43**	**$(P = 0.01)$**
Middle East and North Africa—Libya excluded	**−0.68**	**$(P = 0.00^*)$**	−0.06	$(P = 0.82)$
			−0.61	**$(P = 0.01)$**
Sub-Saharan Africa	**−0.59**	**$(P = 0.00^*)$**	−0.19	$(P = 0.20)$
Whole world	**−0.33**	**$(P = 0.00^*)$**	**−0.31**	**$(P = 0.00^*)$**

Note: * represents significance level less than 0.005
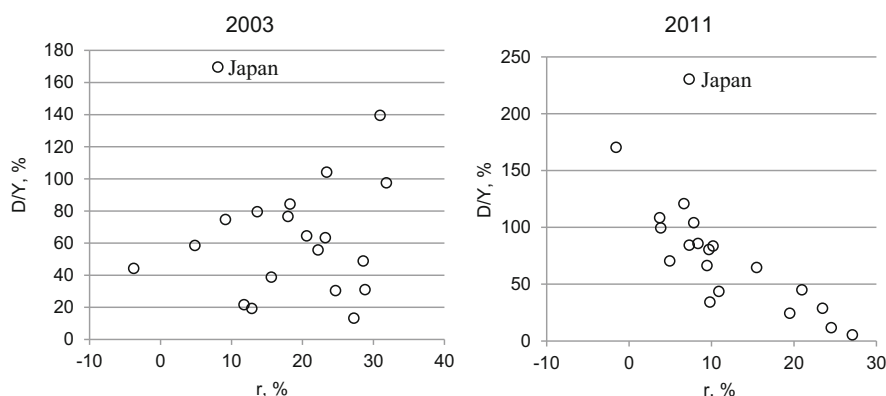
Fig. 4 Correlation between debt-to-GDP ratio and GDP growth rate, "Debt Clock" data

Detailed analysis shows that for the "Debt Clock" countries that have GDP growth rate 20 % and more, the level of the government debt does not exceed 45 %. These are Argentina, Australia, China, Russia and Saudi Arabia; the latter in 2011 had r = 27.1 %, which is biggest in the group, but D/Y = 5.4 %, which is one of the smallest in the world.

As opposite, the countries with r less than 8 %, D/Y exceeded 70 %, alongside for five "Debt Clock" group countries D/Y exceeded 104 % in 2011. The similar situation was observed in 2011 in the Western Europe region, see Fig. 5.

From 37 Western European countries, in 2011 only six had GDP growth rate within 15–20 %, these are Estonia, Latvia, Lithuania, Serbia, Sweden and Switzerland. Debt level of those countries did not exceed 50 %, but for Estonia it was 6 % which is one of the lowest in the world. Greece was the only country with negative GDP growth rate of −1.6 %; its whole D/Y exceeded 170 %. The second highly indebted country in the region is Italy with D/Y = 121 % and r = 6.7 %.
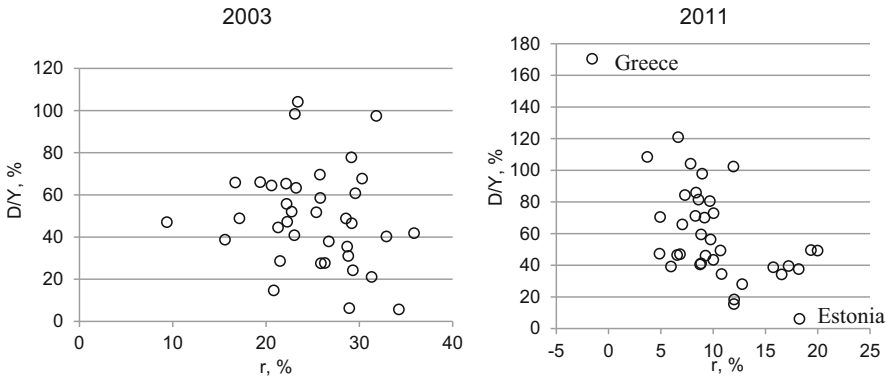
Fig. 5 Correlation between debt-to-GDP ratio and GDP growth rate, Western Europe data
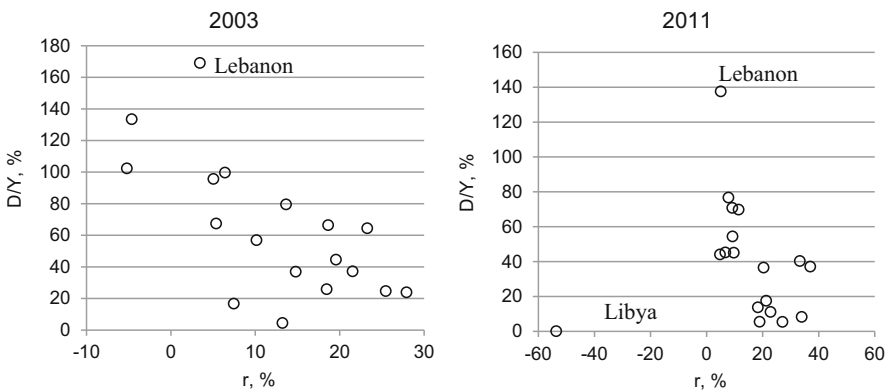
Fig. 6 Correlation between debt-to-GDP ratio and GDP growth rate, Middle East and North Africa region data

In 2011 moderate but significant correlation between government debt and GDP growth rate was observed for Latin America and Caribbean region countries, too.

Strong negative correlation was observed both in 2003 and in 2011 in the Middle East and North Africa region as well. As demonstrated in Fig. 6, in 2003, five countries (Egypt, Israel, Jordan, Lebanon and Syria) had D/Y higher than 100 %, and GDP growth rate did not exceed 6.5 %, being even negative in Egypt and Syria (−5.2 % and −4.6 %, correspondingly).

In 2011, D/Y decreased in all Middle East and North Africa countries, except Lebanon, where it grew over 100 %. With exception of Libya there is strong negative correlation between debt and growth rate in 2011, too. Note that Iraq economy with extremely high D/Y of 493 % was excluded as well due to lack of data in IMF and World Bank databases.

In 2003, rather strong correlation characterized sub-Saharan Africa region. This finding coincides with intensive and unjustified borrowing that, finally, led a
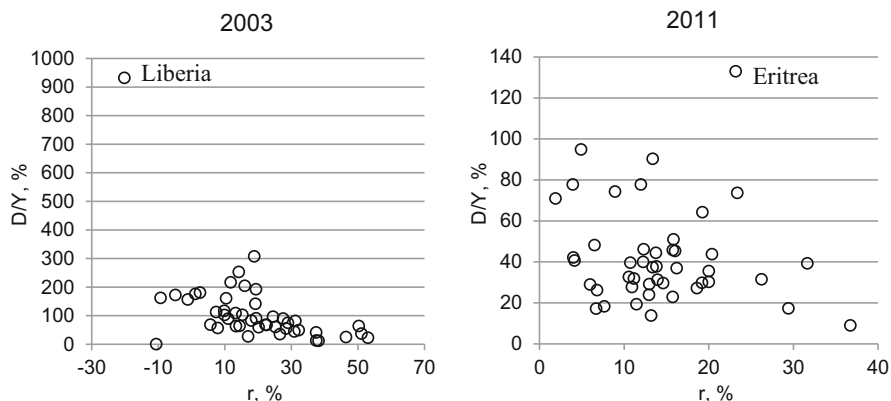
Fig. 7 Correlation between debt-to-GDP ratio and GDP growth rate, Sub-Saharan Africa region data

number of the African countries to the default threshold. Besides, the correlation disappeared in 2011. This may be caused by the need to implement more sustainable borrowing policy in the framework of HIPC debt-relief initiative.

Figure 7 shows that in the sub-Saharan Africa region in 2003, there were 18 countries with D/Y higher than 100 %, among them four had negative growth rate: Burundi, Gambia, Liberia and Malawi. In 2011, after implementation of HIPC initiative, only Eritrea kept a high debt level of 133 %.

Although the initiative provided debt relief to the poorest countries and thus facilitates its economic development, thee countries now meet the challenge to maintain low debt level (Mwaba 2005).

Figure 8 demonstrate rather uniform scattering cloud between debt volume and GDP growth rate. Nevertheless, there is weak, but significant correlation between these parameters. Exclusion of countries with extremely high D/Y or ones with high negative r does not change neither the value of the correlation coefficient nor its statistical significance. Therefore, one may conclude that there is a true tendency for countries with lower growth rate to have higher debt.

These findings generally are in line with the conclusion of Furceri and Zdzienicka (2012) that even short-term debt crises causes decrease in output. The high negative correlation between debt and GDP growth rate, observed in 2011 in the developed countries ($r = -0.73$) and Western Europe ($r = -0.61$), as compared with one on the whole world ($r = -0.31$), may be the direct consequence of the 2007–2009 year crisis.

3.3 Relationship Between Debt Growth Rate and Budget Deficit (α-Def)

To evaluate, in what extent the debt is used for financing of the state budget deficit, the correlation between annual increment of the government debt and the budget
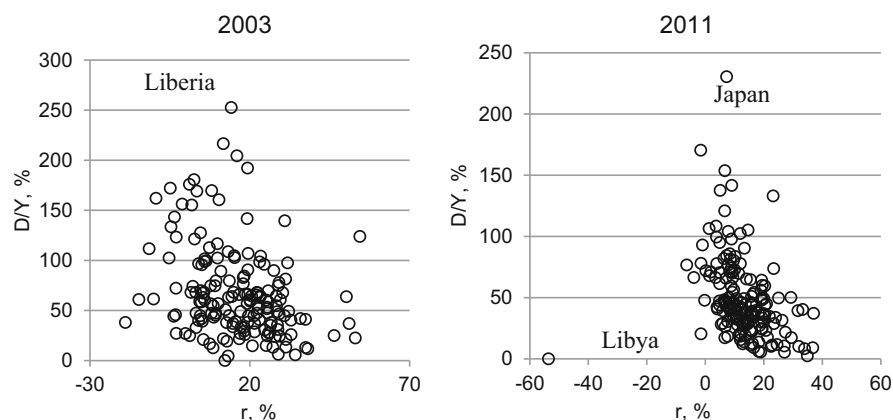
Fig. 8 Correlation between debt-to-GDP ratio and GDP growth rate, world data

Table 3 Correlation between debt growth rate and budget deficit (α-Def)

Group of countries	Correlation in 2003		Correlation in 2011	
G9—Japan excluded	−0.54	($P = 0.14$)	−0.60	($P = 0.09$)
			−0.73	(**$P = 0.03$**)
"Debt Clock" countries	**−0.66**	(**$P = 0.00*$**)	**−0.70**	(**$P = 0.00*$**)
South and East Asia and Pacific—Brunei and Singapore excluded	**−0.59**	(**$P = 0.00*$**)	−0.25	($P = 0.22$)
			−0.51	(**$P = 0.01$**)
Western Europe	−0.25	($P = 0.13$)	**−0.79**	(**$P = 0.00*$**)
Eastern Europe and Central Asia	−0.51	($P = 0.16$)	−0.17	($P = 0.60$)
Latin America and Caribbean	**−0.35**	(**$P = 0.05$**)	**−0.52**	(**$P = 0.00*$**)
Middle East and North Africa—Qatar and Kuwait excluded	**−0.72**	(**$P = 0,00*$**)	−0.44	($P = 0.07$)
			−0.68	(**$P = 0.00*$**)
Sub-Saharan Africa	**−0.36**	(**$P = 0.02$**)	−0.21	($P = 0.16$)
Whole world	**−0.37**	(**$P = 0,00*$**)	**−0.36**	(**$P = 0.00*$**)

Note: * represents significance level less than 0.005

deficit was calculated (Table 3). Significant negative correlation could imply that the governments borrows with the only purpose to compensate for budget deficit (the correlation is negative because deficit is expressed as negative numbers). As one could expect, in most of the regions, the correlation is significant and higher debt corresponds to higher budget deficit.

Exceptions, observed in the Table 3, seems to be mostly due to influence of the outliers: for example, in the G9 group, the correlation in 2011 becomes significant with Japan excluded. The same is for the Middle East and North Africa region: after exclusion of Qatar and Kuwait, the correlation coefficient for 2011 increases and becomes significant.

Note that for the "Debt Clock" group, strong correlation existed both in 2003 and in 2011. Figure 9 demonstrates that among "Debt Clock" countries, six operated
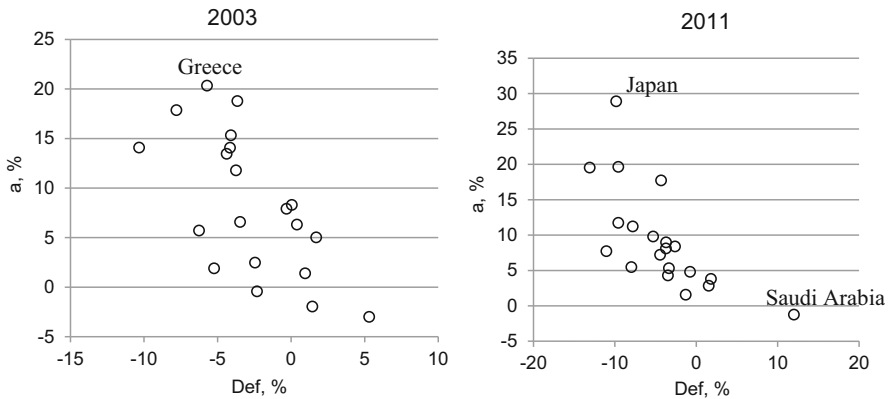
Fig. 9 Correlation between debt growth rate and budget deficit, "Debt Clock" data

with budget surplus in 2003, but in 2011, those were only three: Russia, Saudi Arabia and Korea. Saudi Arabia showed the highest surplus both in 2003 (5.3 %) and in 2011 (12.0 %). In addition this country is the only one which did not borrow both in the beginning and the end of the considered period. As opposite, Saudi Arabia repaid their obligations, thus having negative debt increment. Despite the 2011 surplus, both Russia and Korea increased their debt; in addition in these counties annual borrowing amount twice exceeded budget deficit.

Canada demonstrates another example of the borrowing policy, increasing their debt independently on the budget deficit: in 2003, Canada had surplus of 1 %, but in 2011—deficit—4 %; nevertheless, debt growth rate α was 8 % from GDP every year. The United States is the only country that borrows less than budget deficit: in 2003, the latter was −6.3 % from GDP, but debt had increased only by 5.7 %; in 2011 deficit was −11 %, but debt had grown by 7.7 %.

Figure 10 shows good correlation between debt growth rate and budget deficit in Western Europe only in 2011. Both in 2003 and 2011, there were six countries with the surplus in this region; besides only Estonia, Luxemburg and Norway managed to keep up with non-deficit policy both in the beginning and in the end of the considered period. One could note that Norway was the only country with surplus that significantly reduced their debt in 2011: the total reduction was −8.2 %.

In 2011, the main borrowers were EU countries, among them Cyprus, Greece, Ireland, Portugal, Spain and United Kingdom demonstrated debt growth rate more than 11 %, among them Ireland had the biggest budget deficit.

After Fig. 11 data, South and East Asia and the Pacific region countries demonstrated average, but significant correlation both in 2003 and 2011, given that Singapore and Brunei were excluded in 2011. Singapore and Brunei both had noticeable surplus in 2003 and in 2011, but both increased their debt. In Singapore debt growth rate increased from 8.7 % in 2003 to 17.8 % in 2011. In Japan, in 2003 debt growth rate was two times higher than deficit, but in 2011 it was three times
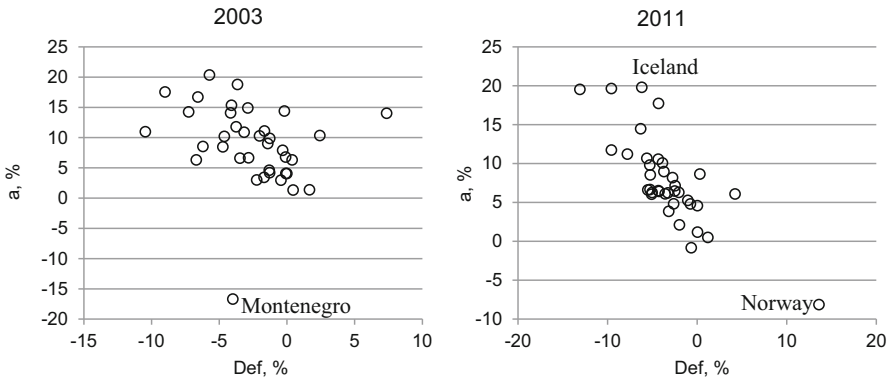
Fig. 10 Correlation between debt growth rate and budget deficit, Western European region data
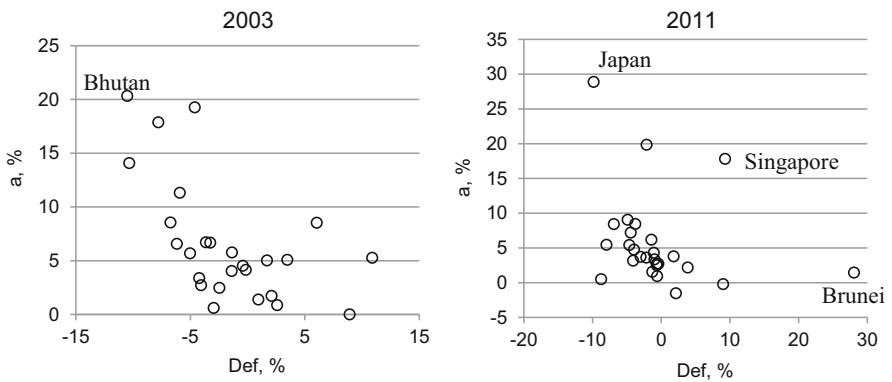
Fig. 11 Correlation between debt growth rate and budget deficit, South and East Asia and Pacific region data

higher. Such an excessive borrowing could suggest that Eastern Asia countries partially invest borrowed money.

Figure 12 illustrates weak but significant correlation between debt growth and budget deficit for the whole world. While exploring indicators for individual countries, one could note that both in 2003 and in 2011, newly accumulated debt exceeded budget deficit for nearly all countries. This was not the case for Latin America and the Caribbean region, where 23 out of 32 countries borrowed just as much as needed or even less than needed to compensate budget deficit. Thus, one may conclude that, with a few exceptions, government budget deficit is mainly financed form the borrowed funds.
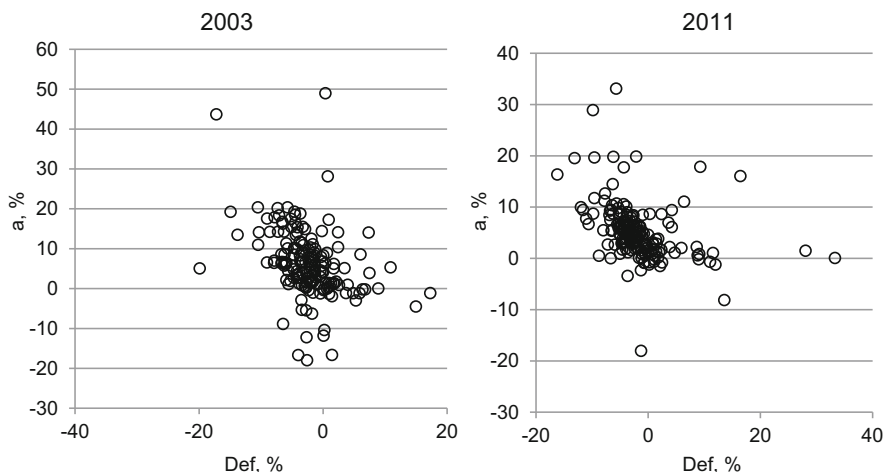
Fig. 12 Correlation between debt growth rate and budget deficit, world data

3.4 Relationship Between Long-Term GDP Growth Rate and Long-Term Increment in Debt-to-GDP Ratio (R−ΔD/Y)

To evaluate in what extent economic development was related to the government debt all over the considered period, the correlation coefficient between long-term GDP growth indicator and long-term increment in debt-to-GDP ratio was calculated (Table 4).

Table 4 demonstrates significant negative in the most developed group of countries, in a half of all geographic regions and in the world as a whole. This could be evidence that in a long-term perspective, increase in the government debt level is associated with negative economic development.

Figure 13 shows that no one of G9 countries managed to decrease their government debt. Moreover, for three countries—USA, Japan and United Kingdom—debt growth was higher than GDP growth. Canada demonstrated best results in a group, having smaller *D/Y* increment by 7 % only and nearly 100 % GDP growth, higher in the group.

In the "Debt Clock" group, only six countries managed to decrease government debt. These are Argentina, Brazil, India, Mexico, Russia and Korea. The fastest economic growth was demonstrated by Brazil ($R = 348$ %), China ($R = 346$ %) and Russia ($R = 341$ %). Two of them—Brazil and Russia—decreased government debt by 10 % and 19 %, respectively, but China slightly increased their debt. Higher decrease of *ΔD/Y* was observed in Argentina (by 94.5 %) and in Saudi Arabia (by 74 %).

Figure 14 shows that in Western Europe significant debt reduction by more than 10 % was observed mainly in non-EU countries: Macedonia, Norway, Serbia,

Table 4 Correlation between long-term GDP growth rate and long-term increment in debt-to-GDP ratio $(R - \Delta D/Y)$

Group of countries	Correlation coefficient	
G9	**−0.75**	**(P = 0.02)**
"Debt Clock" countries	**−0.63**	**(P = 0.00)***
South and East Asia and Pacific	**−0.61**	**(P = 0.00)***
Western Europe	**−0.54**	**(P = 0.00)***
Eastern Europe and Central Asia	0.12	(P = 0.74)
Latin America and Caribbean	**−0.37**	**(P = 0.04)**
Middle East and North Africa	0.26	(P = 0.32)
Sub-Saharan Africa	−0.02	(P = 0.90)
Whole world—Liberia excluded	−0.14	(P = 0.07)
	−0.20	**(P = 0.01)**

Note: * represents significance level less than 0.005
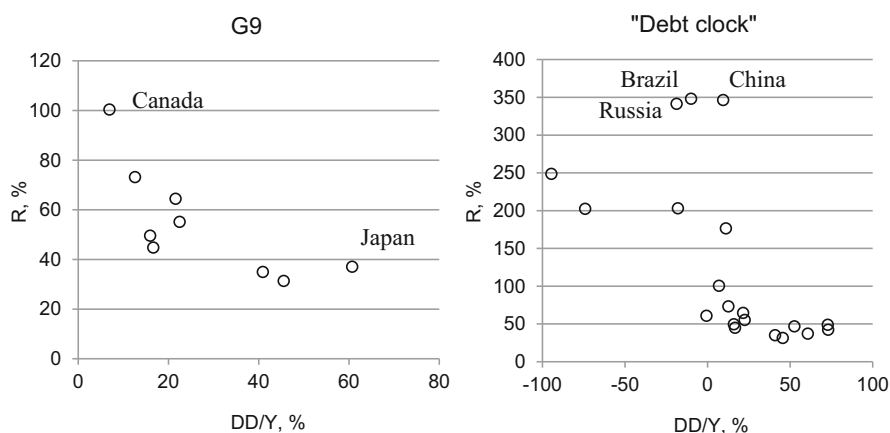
Fig. 13 Correlation between long-term GDP growth rate and long-term increment in debt-to-GDP ratio for G9 and "Debt Clock" countries

Switzerland and Turkey. Exceptions are Bulgaria and Sweden (both had 14 % reduction). In turn, biggest debt growth, more than by 50 %, was in Greece, Iceland, Portugal and Ireland.

From 27 South and East Asia and Pacific region countries, 13 reduced government debt. The "record" here belongs to Solomon Islands and Indonesia, which had debt reduction by more than 35 %.

Similar tendency was observed in the Latin America and Caribbean region: Figure 15 demonstrates that 23 out of 32 region's countries decreased their debt. Still, one has to note that five of them benefited from partial debt relief.

Collected data showed that in the recent period, more developed countries in general failed to reduce government debt. This could imply that more developed countries already reached the maximum of their economic potential, thus further GDP growth becomes more difficult. On the other hand, consumption level tends to increase; thus, governments have to borrow more to satisfy societal needs.
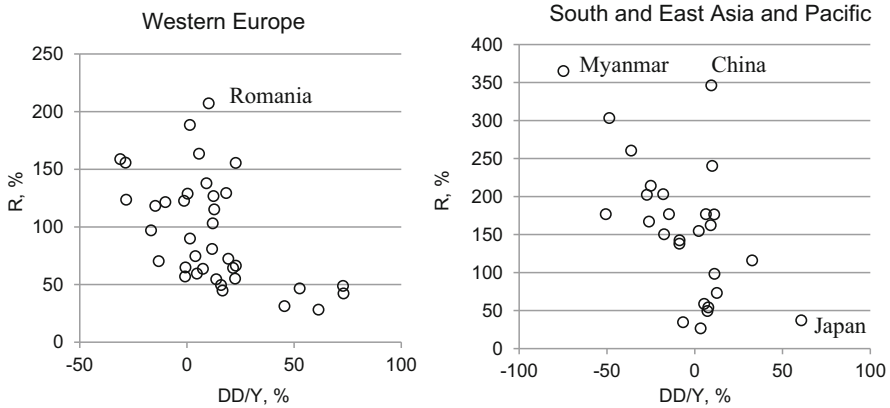
Fig. 14 Correlation between long-term GDP growth rate and long-term increment in debt-to-GDP ratio for Western Europe and South and East Asia and Pacific countries
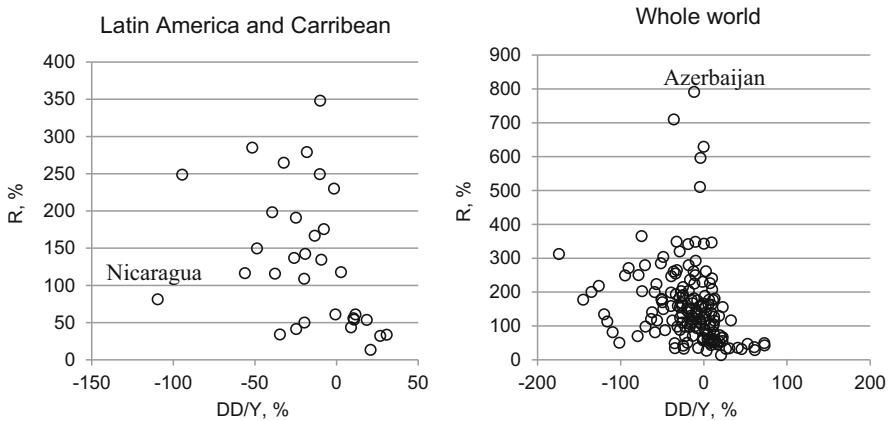
Fig. 15 Correlation between long-term GDP growth rate and long-term increment in debt-to-GDP ratio for Latin America and Caribbean region and whole world (excluding Liberia) countries

Preformed correlation analysis leads to the conclusion that higher government debt is associated with smaller GDP growth rate. Significant borrowed funds have not provided economic growth but rather were a reaction on the crisis. This is especially actual for developed countries, which appeared to be more crisis vulnerable.

Depression of the growth rate with the increment of the debt may indicate recent tendencies of the states to cope with the crisis by spending reduction and consolidation of the budget. Greiner (Greiner 2012) demonstrated that in such a case, high debt causes decrease of the GDP growth rate. On the other hand, some authors (Wiley 2014) claim that budget consolidation is the only way to reduce debt and prevent debt crisis. Thus, for the future research, the question of interest may be,

"would countries, which allowed higher budget deficit during crisis, have higher growth rate afterward?"

4 Conclusions

There is no evidence to claim that countries with bigger economies have higher government debt.

In the short term, there is significant moderate negative correlation between GDP growth rate and government debt that supports the hypothesis that low economic development rate is related to higher borrowing.

Significant correlation between debt and budget deficit and poor correlation between debt and GDP growth indicate that countries spend borrowed money to satisfy current social needs, rather than for investments in economy.

Negative correlation between long-term GDP growth and increment of the government debt indicates that debt, accumulated during recession, had not stimulated economic development after the crisis. Moreover, in a long-term perspective, higher debt associates with lower GDP growth.

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Oil Spot Prices' Next Day Volatility: Comparison of European and American Short-Run Forecasts

Tomáš Heryán

Abstract The aim of the current paper is to estimate spot prices' next-day volatility of the two largest kinds of crude oil, European Brent oil and American WTI oil, and examine differences due to selected global incidents. Daily data for oil spot prices are from May 1987 till January 2015. The contribution of the study is in a comparison of oil spot prices' development and impacts of the Euro sovereign debt crises, recent global financial crises, and also the historical affairs as the military conflict in the Persian Gulf in 1990, or particular incidents after the start of the new millennium. The estimation method for short-run forecasting is the volatility model GARCH (1,1). While it has been proven that there was higher volatility during the global financial crisis within American WTI oil prices, higher errors were examined within European Brent oil prices. There was no higher volatility due to the euro crisis in the last 4 years. Nonetheless, both investigated oil prices were affected by highest volatility during military conflict in 1990 in our estimated period. It was clearly concluded that military conflicts can affect oil prices in a much higher way than recent financial crises.

Keywords Oil spot prices • Next-day volatility • Brent crude oil • WTI crude oil • GARCH (1,1)

1   Introduction

Turbulent development on the oil market undoubtedly initiated by the oil shocks has brought about numerous changes into the system of covering the world economy oil and oil derivatives' demand (Baláž 2008). There is a significant number of studies related to the issue in the recent literature (Alvarez-Ramirez et al. 2015; Baumeister et al. 2015; Ji and Huo 2015; Nazlioglu et al. 2015; Panopoulou and Pantelidis 2015). But any of those do not investigate and compare volatility relations among the prices of both of the biggest oil indices in the world,

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European Brent oil price and American West Texas Intermediate (WTI) oil price. Brent crude oil is the reference petroleum for pricing of crude oil exports to Europe and certain sales to the USA, while American WTI crude oil is an indicator for pricing of crude oil exports to the USA (Baláž 2008).

The aim of the paper is to estimate spot prices' next-day volatility of two largest kinds of crude oil, European Brent oil as well as American WTI oil, and examine differences due to selected global incidents. There is an estimated period divided into six subperiods due to selected historical affairs. The main contributions of the study to the current research are in the comparison of both oil prices and in an investigation of the relation between price volatility of both crude oils.

The remainder of the paper is structured as follows. In the next section there are a few recent literature sources analyzed very briefly. In Sect. 3 there is a data and methodology description, Sect. 4 discusses empirical results, and finally, in Sect. 5, it concludes.

2   Recent Literature Overview

Nazlioglu et al. (2015) examine whether there is a volatility transmission between oil prices and financial stress by means of the volatility spillover test. They employ WTI crude oil prices and Cleveland financial stress index for the period 1991–2014 and divide the sample into precrisis, in-crisis, and postcrisis periods due to the downward trend in oil price in 2008. The volatility model estimations indicate that oil prices and financial stress index are dominated by long-run volatility. The volatility spillover causality test supports evidence on risk transfer from oil prices to financial stress before the crisis and from financial stress to oil prices after the crisis. The impulse response analysis shows that the volatility transmission pattern has similar dynamics before and after the crisis and is characterized by higher and long-lived effects during the crisis.

According to Panopoulou and Pantelidis (2015), the predictability of the price of oil is of great interest to policymakers, central banks, CEOs, and international investors. Strategic and investment decisions of airline, automobile, and energy companies are based on scenarios built on forecasts for the future path of oil price. Even homeowners have in mind some kind of expectations about the future price of oil when deciding about energy-saving investments. Moreover, they argue that energy and especially crude oil futures have become widespread investment vehicles among traditional and alternative asset managers, mainly due to their equity-like return, their inflation-hedging properties, and their role in risk diversification. Therefore their study focused on forecasting methods.

Alvarez-Ramirez et al. (2015) focused on long-term autocorrelation asymmetries in the dynamics of crude oil markets for prices in the period from 1986 to 2014. Their results show that the autocorrelations can be different for price downturns and upturns, and the differences depend on the time scale. For time scales smaller than a quarter, the asymmetry is positive in the sense that negative

price trends exhibit less persistence than positive price trends. The opposite behavior was detected for larger time scales. They argue that the crude oil prices' development has an important impact in the unfolding of the socioeconomic activity in countries worldwide. Due to low spare capacity, rising demand, and a diversity of geopolitical concerns, the crude oil prices have high levels of volatility in the last two decades, with poorly predictable behavior with respect to the economic events, as well. Their study provided a contribution to the empirical literature on asymmetry phenomena of crude oil price dynamics by using daily price data of just the WTI market.

Oil-related events have increased the uncertainty and complexity of the worldwide oil market. Ji and Huo (2015) investigate the effects of four types of oil-related events on world oil prices, using an event study methodology and a volatility model AR-GARCH. The results indicate that world oil prices responding to different oil-related events display obvious differentiation. The cumulative abnormal returns, which reflect the influence of the global financial crisis, tend to drop first and then reverse and rise, while the cumulative abnormal returns induced by other oil-related events present a stronger persistent effect. The impact of the global financial crisis on oil price returns is significantly negative, while the impact of the Libyan war and hurricanes is significantly positive. Nonetheless, the reactions of oil price returns to different OPEC production announcements are inconsistent.

In recent years there has been an increased interest in the link between financial markets and oil markets, including the question of whether financial market information helps to forecast the real price of oil in physical markets, argue Baumeister et al. (2015). They show that, among a range of alternative high-frequency predictors, cumulative changes in US crude oil inventories in particular produce substantial and statistically significant real-time improvements in forecast accuracy. The set of high-frequency predictors includes (i) the spread between the spot prices of gasoline and crude oil; (ii) the spread between the oil futures price and the spot price of crude oil; cumulative percentage changes in (iii) the Commodity Research Bureau (CRB) index of the price of industrial raw materials; (iv) US crude oil inventories and (v) the Baltic Dry Index (BDI); (vi) returns and excess returns on oil company stocks; (vii) cumulative changes in US nominal interest rates (LIBOR, Fed funds rate); and (viii) cumulative percentage changes in the US trade-weighted nominal exchange rate. However, they conclude that there is not typically much lost by ignoring high-frequency financial data in forecasting the monthly real price of oil.

Also an issue of the gasoline should be mentioned within the issue of crude oil. Havranek and Kokes (2015) argue that the income elasticity of gasoline demand is a key parameter in energy and environmental economics. It helps us understand, among other things, how emissions of greenhouse gases stemming from the consumption of gasoline will evolve in the future as developing countries get richer. Their results indicate that the worldwide demand for gasoline is almost insensitive to changes in income in the short run and relatively insensitive to income in the long run. They do not also find larger income elasticities for developing countries compared with the OECD countries. In contrast, when control for vehicle stock is

taken into account, developing countries display somewhat smaller income elasticities on average.

According to Katircioglu et al. (2015), the use of more fuel-efficient vehicles and transportation services is now more widespread. Moreover, renewable energy resources like biofuels can be used as alternatives to oil. In this way, the demand for oil will decrease and countries' oil dependency will reduce. This will also reduce the impact of oil price movements on macroeconomic variables. They investigate the relationship between oil price movements and macroeconomic aggregates, such as GDP, CPI, and unemployment for OECD countries. Panel cointegration tests confirm that there is a long-term relationship between oil prices and those macroeconomic aggregates. On the other hand, results of this study reveal that the price of oil exerts statistically and negatively significant impacts on the macroeconomic aggregates in the case of OECD countries in general.

3 Data and Methodology

Daily data for crude oil prices is obtained from the US Energy Information Administration, international statistical database. It uses both the European Brent oil price index and the American WTI price index. Baláž (2008) argues that Brent crude oil has a crucial role in world crude oil pricing.

In Fig. 1 we see a development of both prices, European Brent oil and American WTI oil. The whole estimated period is from May 20, 1987 till January 12, 2015, but it is divided into six subperiods due to selected historical affairs. These affairs are (i) start of estimated period; (ii) the military conflict in the Persian Gulf in 8/1990; (iii) establishing of ECU in the EU in 1999; (iv) creation of euro currency in 2002 and establishing the EMU; (v) 9/15/2008, bankruptcy of Lehman Brothers; and (vi) start of the sovereign debt crisis when Greece officially asked for the disbursement of money from the aid package of the IMF. Each period is estimated separately in empirical part then.

In Table 1 we see that our dates (accurate start or an end of each subperiod) differ a bit with the borders in Fig. 1. It is caused by missing data in both time series, which have not been fulfilled due to the fact that we are estimating changes among intraday prices. Therefore, we have to find then in our time series right values for the price in those days to make good sample dates in models.

Methodologically the same volatility GARCH (1,1) model as in Heryán (2014) has been employed. An equation of GARCH model (1) and its variance Eq. (2) are described according to Asteriou and Hall (2011):

$$Y_t = \alpha + \sum_{i=1}^{5} \beta_i X_{t-j} + \varepsilon_t \tag{1}$$
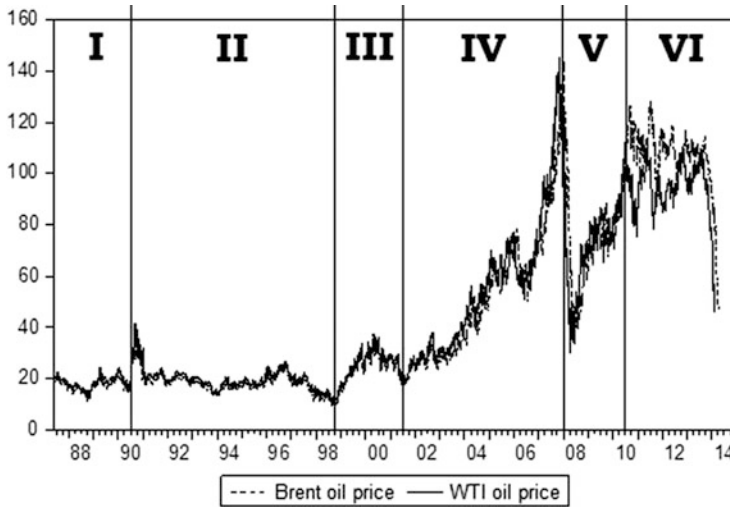
Fig. 1 Development of selected crude oil prices. *Source*: Author's illustration

Table 1 Subperiods from whole estimated period

	Subperiods	*Due to*
I	Premilitary	Oil price minimum before its high increase in 1990
II	After the military conflict in the Persian Gulf	Establishing of electronic currency ECU
III	Pre-EMU period	Establishing of the EMU (euro currency)
IV	Precrisis period	Ends due to the bankruptcy of US Lehman Brothers when the global financial crisis was reflected in full in September 15, 2008
V	The global crisis period	After the bankruptcy till the Greece officially asked the IMF for money in April 23rd 2010
VI	The debt crisis period	Starts when the Greece asked for money and the sovereign debt crises were reflected in full

Source: Author's illustration

$$h_t = \alpha_0 + \sum_{i=1}^{1} \varphi_i h_{t-1} + \sum_{i=1}^{1} \vartheta_j \varepsilon_{t-1}^2 \qquad (2)$$

where Y_t means current price volatility examined as a change between log values of both oil prices in time t, ε_t means residuals, and α is a constant. Variable X_{t-j} is lagged price volatility of Brent oil ($j = \{0; 1; 2; 3; 4\}$), which has, according to Baláž (2008), a crucial role in world oil pricing. Within the model a generalized error distribution (GED) assumption is used. Asteriou and Hall (2011) indicated that GARCH models also allow us to add explanatory variables in the specification of the conditional variance equation h_t. Due to them it might help to explain the

variance better. But it was not found as significant; therefore there is no explanatory variable in Eq. (2). Symbol h_{t-1} means GARCH in time $t-1$, and symbol ε_{t-1}^2 means an ARCH process as a sum of the squared residuals within the variance equation of the model. All variables within conditional variance equation h_t have to be significant to reach the main results of GARCH model in a good condition.

4 Discussion on Empirical Results

The time series are all stationary at their first differences. There are no correlation values among the stationary time series, which are far from zero. So it is not a problem due to multicollinearity between lagged regressors in all models (see Appendix, Table 5). However, using OLS regression, the autoregressive conditional heteroskedasticity (ARCH) problem in all estimations has been proven. It therefore employs using ARCH/GARCH models.

Initially, relations between the development of oil prices and lagged regressors, lagged development of the same oil price of both crude oils have been estimated separately. From Tables 3 and 4 from Appendix, it is obvious that there are just significant relations among whole samples, for both. But there is no relation between previous day volatility in almost all cases. Just within one subperiod, in the precrisis subperiod of the WTI volatility, a significant result with a previous day volatility has been proven, but it is close to zero. It has also been proven that there are no any other relations between other lags. Whether a significant relation with lagged volatility could be estimated, it could be useful in futures market for both oils. But it is not.

If we take a look at Fig. 2, we can compare oil spot prices' next-day volatilities. There is the short-run predicted price volatility, estimated just for each next day. The differences against real historical values to make the errors of short-run forecasts have been examined. To make graphs more clear because of GARCH volatility in the same graph, each error is illustrated as a negative value. When we compare both GARCH volatilities, of Brent as well as WTI oil price, we can conclude that it is very similar in its development. It is similar except the development during the global financial crisis when the price of WTI oil reached a higher volatility. But in general, the volatility of oil price suffered much more during a military conflict in the Persian Gulf in 1990 than during the global financial crisis. The maximum value of Brent oil volatility was 131.24 and 126.85 % for WTI oil. However, due to the level of both prices in Fig. 1, it is argued that both prices were on lower level in 1990 than, e.g., in 2008. The more stable price in whole estimated period is definitely Brent oil with a standard deviation at 6.60 % (than 7.50 % within WTI oil's). According to these results, the errors of short-run forecasts within the WTI oil price volatility have been logically higher in 1990. But during the global financial crisis, the errors within Brent oil have been examined at a much higher level, on the other hand. What is interesting is there are opposite results in times
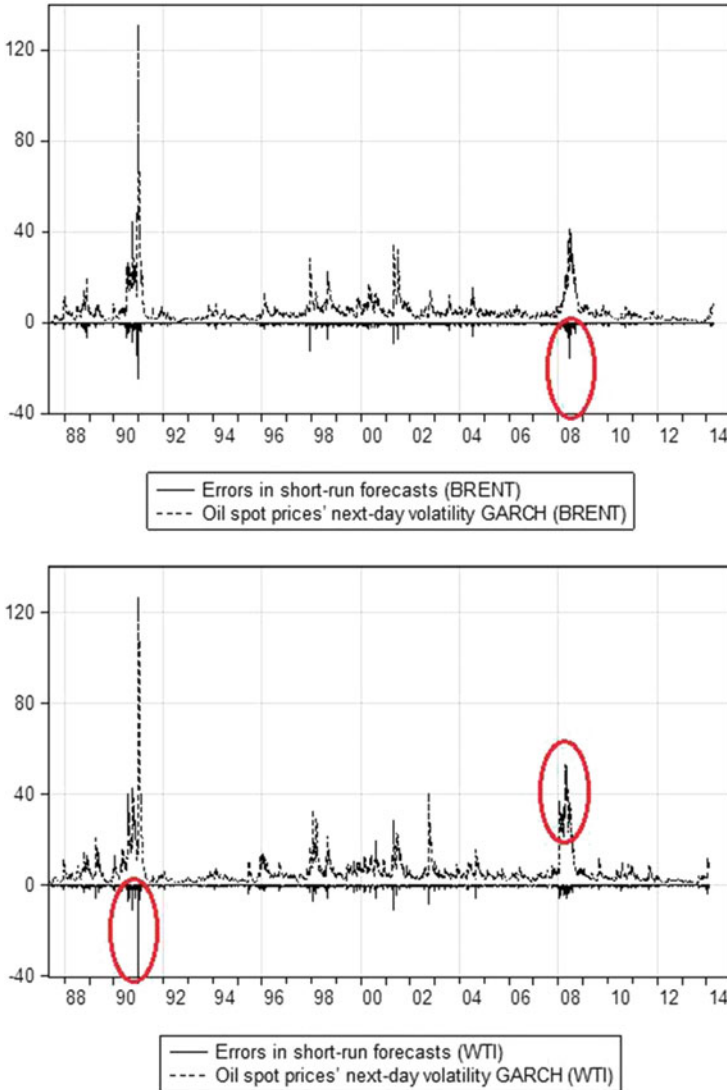
Fig. 2 Spot prices' next-day volatility of selected oils

affected by the EMU sovereign debt crisis (see Fig. 3 in Appendix), and the WTI price volatility was higher.

Nonetheless, the results in Table 2 differ from the previous. In Table 2 we see estimation outputs for all subperiods. It has been tested if there is an impact of the Brent price volatility to the volatility of the WTI oil price to test the statement whether Brent crude oil has a crucial role in world crude oil pricing (Baláž 2008). Moreover, one could also argue that even if we reach statistically significant results
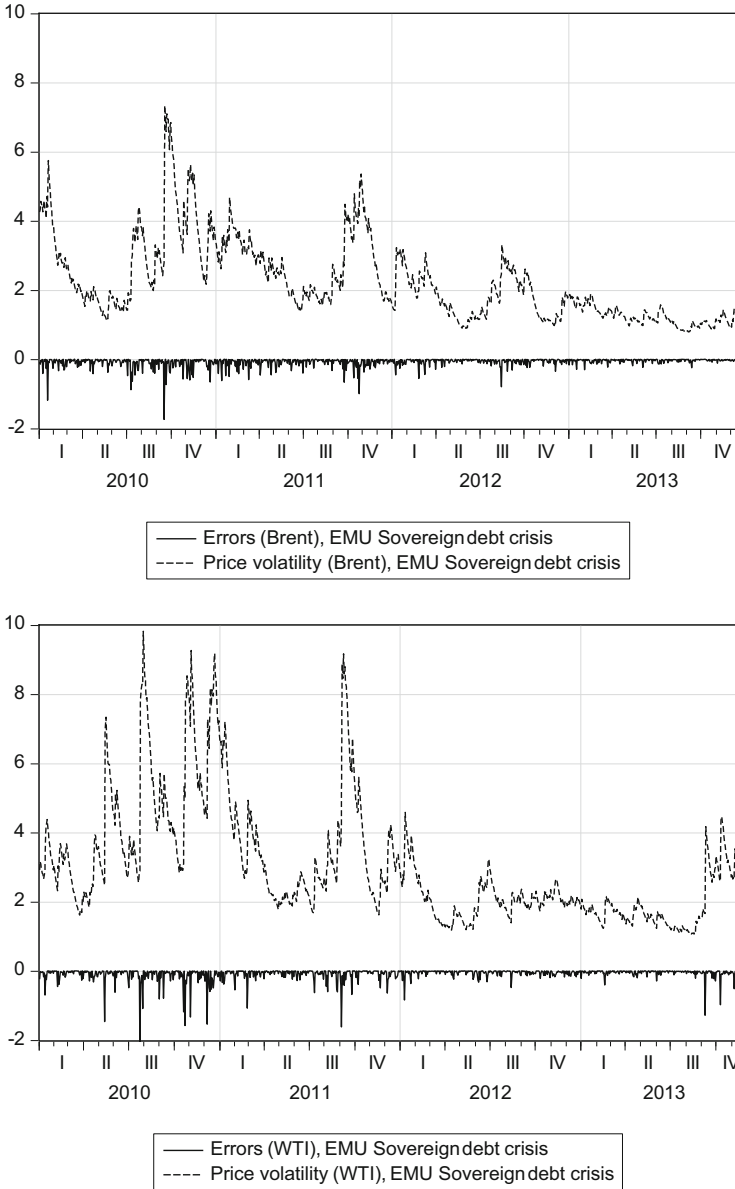
Fig. 3 Oil spot prices' next-day volatility during the EMU sovereign debt crisis

for the whole period, we cannot use that model for a prediction due to crises subperiods. To be objective, the whole sample was divided into six subperiods. We can clearly see that there are no significant results not even in crises times (subperiods V and VI) but even in subperiod IV after establishing euro when oil

Table 2 GARCHs for WTI volatility with lagged Brent volatility as exogenous

period	ALL	I	II	III	IV	V	VI
obs.	6972	812	2077	760	1681	644	954
α	0.0252	0.0174	-0.0045	0.1114	0.1476	0.1025	0.0361
$\beta_i X_t$	0.0691**	0.2214**	0.1073**		-0.0050	0.0326	0.0239
$\beta_i X_{t-1}$	0.0853**	**0.3064****	0.0906**	**0.1853****	0.0372	-0.0085	-0.0004
$\beta_i X_{t-2}$	0.0795**		0.1328**	0.1242**	0.0258	0.0427	0.0074
$\beta_i X_{t-3}$	**0.1083****	0.1094**	**0.2733****	0.1310**	-0.0011	-0.0087	0.0045
$\beta_i X_{t-4}$	0.0634**	0.0739*	0.1838**		-0.0170	-0.0077	-0.0349
AR(1)		-0.2046					
α_0	0.0531**	0.1414*	0.0679**	0.7604*	0.3621*	0.0625	0.0262
φ_i	0.0744**	0.1321**	0.1253**	0.0919**	0.0549**	0.0567**	0.0529**
ϑ_j	0.9179**	0.8436**	0.8642**	0.7992**	0.8674**	0.9316**	0.9398**
GED	1.3418**	1.2428**	1.3820**	1.2592**	1.5762**	1.5720**	1.2820**
DW	2.0597	1.9197	2.0849	2.0399	2.1467	1.9477	2.1317
LM	no ARCH	no ARCH	no ARCH	no ARCH	no ARCH	**ARCH**	no ARCH

Note: Symbol ** or * means statistically significant result at 1 % or 5 % level

prices started to increase (see Fig. 1). All results in good condition have been estimated only in three subperiods before establishing the EMU. We do not argue that just the existence of the EMU negatively affected the volatilities. On the other hand, it is not rejected that a globalization process has a negative impact on world oil prices raised in that subperiod sharply.

   The results in Table 2 prove that in all three subperiods before establishing euro currency, it was possible to estimate oil spot prices' next-day volatility of WTI oil due to impacts of the Brent oil volatility. It was definitely better to fix future prices of the oil therefore, and this fact supported a lower level of price volatility. Baláž (2008) mentioned that petroleum exchanges do not fix, but only register, prices. According to him futures contracts embody a significant economic function— pricing. But fixing of prices is sometimes common within futures transaction on the physical market. When a trader disposes of crude oil and price fluctuations on physical markets remain uncertain was said to be a good example in his study. In case the trader fails to sell his crude oil stock instantly, he may sell futures instead. As soon as the physical stock is sold, he will purchase the futures in question back (Baláž 2008). According to our results, it should be definitely easier and cheaper to fix the prices through the financial derivatives in our first three subperiods than nowadays due to higher level of uncertain price volatility (see next paragraph).

5 Concluding Remarks

The aim of the paper was to estimate spot prices' next-day volatility of two largest kinds of crude oil, European Brent oil and American WTI oil, and examine differences due to selected global incidents. Even when the results for both

GARCH models with both price volatilities separately have not been significant in all subperiods, it was significant for the whole period in both cases. Therefore a comparison of both oil spot prices' next-day volatility has been made. While in times affected by the global financial crisis there has been an estimated higher price volatility of Brent oil, in times affected by the EMU sovereign debt crisis, there has been estimated higher price volatility of WTI oil. On the other hand, the highest level of both prices' volatility has been estimated during the military conflict in the Persian Gulf in 1990.

Moreover, the results proved that while Brent price volatility is crucial for development of the WTI price volatility before 2002, in all subperiods after it is not. It supports an argument that Brent crude oil has no crucial role in world crude oil pricing nowadays. That fact would been useful for crude oil traders before 2002, but it can just negatively affect higher prices of hedging through using financial derivatives to fix future oil prices. Future studies can investigate the same research question for the case of natural gas.

Appendix

Table 3 GARCHs for Brent with lagged volatility of the same oil as exogenous (Brent)

period	ALL	I	II	III	IV	V	VI
α	0.0409 [b]	0.0371	-0.0065	0.1807 [b]	0.1646 [b]	0.1063	-0.0177
$\beta_i X_{t-1}$	0.0326 [**]	0.0526	0.0384	0.0663	-0.0093	0.0133	0.0210
α_0	0.0303 [**]	0.0773 [*]	0.0492 [**]	0.5123 [b]	0.2804	0.0065	0.0139
φ_i	0.0667 [**]	0.1458 [**]	0.0690 [**]	0.0900 [**]	0.0376 [**]	0.0515 [**]	0.0495 [**]
ϑ_j	0.9295 [**]	0.8511 [**]	0.9184 [**]	0.8417 [**]	0.8972 [**]	0.9476 [**]	0.9461 [**]
GED	1.3508 [**]	1.1916 [**]	1.3431 [**]	1.4609 [**]	1.5482 [**]	1.4742 [**]	1.3268 [**]
DW stat	2.0014	1.9907	2.0067	2.0108	2.0231	2.0166	1.9543
LM test	no ARCH	no ARCH	no ARCH	no ARCH	no ARCH	no ARCH	no ARCH

Note: Symbol [**] or [*] means statistically significant result at 1 % or 5 % level

Table 4 GARCHs for WTI with lagged volatility of the same oil as exogenous (WTI)

period	ALL	I	II	III	IV	V	VI
α	0.0430 *	0.0137	-0.0085	0.1999 *	0.1604 **	0.0972	0.0232
$\beta_i X_{t-1}$	-0.0263 *	-0.0579	-0.0055	-0.0116	**-0.0659** **	0.0341	-0.0532
α_0	0.0491 **	0.1425 *	0.0637 **	0.5253	0.3331 *	0.0627	0.0248
φ_i	0.0674 **	0.1321 **	0.0779 **	0.0348	0.0505 **	0.0561 **	0.0496 **
ϑ_j	0.9255 **	0.8483 **	0.9095 **	0.8912 **	0.8777 **	0.9321 **	0.9433 **
GED	1.3249 **	1.3008 **	1.2523 **	1.2699 **	1.5583 **	1.5617 **	1.2773 **
DW stat	1.9719	2.0093	1.9571	1.9462	2.0127	2.0201	2.0256
LM test	no ARCH	no ARCH	no ARCH	no ARCH	no ARCH	**ARCH**	no ARCH

Note: Symbol ** or * means statistically significant result at 1 % or 5 % level

Table 5 Rejected problem of multicollinearity among regressors

Correlation t-Statistic Probability	X_t	X_{t-1}	X_{t-2}	X_{t-3}	X_{t-4}
X_t	1.0000 ----- -----				
X_{t-1}	*0.0314* 2.6277 0.0086	1.0000 ----- -----			
X_{t-2}	*-0.0075* -0.6306 0.5283	*0.0312* 2.6148 0.0089	1.0000 ----- -----		
X_{t-3}	*-0.0225* -1.8846 0.0595	*-0.0075* -0.6278 0.5302	*0.0313* 2.6220 0.0088	1.0000 ----- -----	
X_{t-4}	*-0.0088* -0.7333 0.4634	*-0.0226* -1.8930 0.0584	*-0.0077* -0.6470 0.5176	*0.0313* 2.6246 0.0087	1.0000 ----- -----

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Part III
Management

The Effects of Public Key Infrastructure (PKI) Implementation on Process Improvements in Public Authorities: An Empirical Study of the PKI Implementation in Tax Administration of the Federation of Bosnia and Herzegovina

Aida Habul, Amila Pilav-Velić, and Mirza Teftedarija

Abstract The use of public key infrastructure in administration has great potential, given that a large number of services are performed in a traditional manner, including long waiting lines and the waste of time, human, and financial resources. This paper is aimed at investigating whether the PKI implementation in public institution such as the Federation BiH Tax Administration contributes to improving its process, enhancing performance and quality of public services, including the end-user satisfaction. The research focuses on the two most extensive and basic processes of Tax Administration (TA): the tax form submission and the issuance of tax payment certificates. The methodology includes comparison between the existing "AS IS model," based on the manual authentication and the new "TO BE model," which includes the PKI implementation. The research findings indicate that TO BE model has contributed to the process optimization, including a complete automation of the user authentication and authorization processes. Therefore, the filling of tax return process is carried out in 5, instead of previous 14 different processes, resulting in significant costs in savings and time. On the other hand, a successful PKI implementation depends on the understanding and commitment of staff, including their readiness to change. To that end, they were asked to respond to a questionnaire on their experiences with the PKI. The sample included 37 respondents, who work in different tax offices. It is encouraging that 89 % of them are convinced that the PKI implementation in their institution would significantly improve their tasks and processes, enabling them to develop partnerships with taxpayers.

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1 Introduction

The public authorities in the Federation of Bosnia and Herzegovina (FB&H) still
work under the burden of bureaucracy, and as such, they are not the end-user
oriented. The reasons can be found in the lack of legal framework that allows the
use of electronic documents in operations and business processes, insufficient
financial resources and the lack of vision, and in the lack of professional and skilled
workforce. The first obstacle is removed by the 2013 adoption of the Law on
Electronic Documents (Federation BiH, Law on Electronic Documents 2013),
and hence the use of public key infrastructure (PKI) in administration has great
potential, given that a large number of services are performed in a traditional
manner, including the long waiting lines and the waste of time, human, and
financial resources. On the other hand, public authorities are overburdened with
paperwork and face extremely inefficient processes. According to a Federation BiH
government directive, the Federation BiH Tax Administration has been selected for
pilot implementation of the PKI system, given that it is an executive body with
many offices throughout the Federation BiH, providing a wide range of services to
taxpayers. Also, setting and implementing the PKI in the Federation BiH Tax
Administration lays a solid basis from which all other public bodies and institutions
can easily draw on. Thus, this paper will investigate whether the PKI implementa-
tion in a public institution such as the Federation BiH Tax Administration contrib-
utes to process improvements, enhancing performance and quality of public
services, including the end-user satisfaction. The research focuses on two basic
processes of Tax Administration: the tax form submission and the issuance of tax
payment certificates. These existing processes are rather complex and include a
wide range of activities, which are mainly based on a "face-to-face" authentication.
This type of process design increases costs for both the taxpayers and the tax
administration. However, the PKI implementation will result in significant savings
in operating costs, time, and speed of transaction, while the authentication process
will be performed through an online application and an adequate certification
process.

   The methodology includes a comparison between the existing AS IS model
based on the manual authentication and the new TO BE model which includes the
PKI implementation. Considering that a successful PKI implementation depends on
the understanding and commitment of staff, including their readiness to change, the
data for this study were also collected using a survey research method. The
respondents were asked to answer a questionnaire based on their experiences and
perceptions of the PKI implementation and its effects on process improvements in
the Tax Administration of the Federation of BiH.

The paper is structured as follows. First, Sect. 2 reviews the theoretical background, while Sect. 3 describes the research methodology. Section 4 provides an overview of the two basic processes in Tax Administration (TA) of the Federation of Bosnia and Herzegovina. Section 5 proposes the new TO BE model based on the PKI implementation. In Sect. 6, we conduct a comparative analysis of the AS IS model and the proposed TO BE model. Section 7 defines the necessary requirements for a successful PKI implementation, including the cost-benefit analysis. Section 8 discusses the staff survey results, while Sect. 9 brings a brief conclusion.

2   Theoretical Background

PKIs are complex distributed systems responsible for providing information to users, enabling a reasonable confidence level (Chadwick and Zhao 2005). The term public key infrastructure (PKI) refers to the entire legal, technical, and organizational framework for drawing conclusions from a given set of certificates, trust relations, and other pieces of evidence (Kohlas and Maurer 2000). PKI is a very complex system based on asymmetric cryptography and combines certificates, certification authority (CA), repository of certificates, certificate users, and all their mutual interactions (interactions between individual elements of the system). Its main purpose is to ensure communication over insecure communication channels. Basically, PKI includes four security characteristics: authentication, integrity, confidentiality, and non-repudiation (Hsu and Tung 2008; Henry 1999). Despite the fundamental technologies supporting authentication, integrity, and confidentiality, it is important to note that the PKI technology also has a concrete and tangible value. PKI will provide certain advantages within the organization such as potential for substantial savings, which is one of the most important motivation factors for the PKI implementation (Adams and Lloyd 2002). Also, Lin and Laih (2003) found that the PKI benefits include not just cost savings but also increasing security and making profit as significant determinants for obtaining the competitive advantage of a company. Precisely, the biggest advantages of successful PKI implementation in public authorities include: reducing the cost of transaction access processing, risk reduction and isolation, reducing paperwork, improving work efficiency through a more automated and more secure business processes, and increasing labor productivity while reducing the administrative burden. Hence, it changes structures and processes of government organizations, and essentially, it represents e-government (Lofstedt 2012) enhancing the level of security in line with different users' needs (Nash et al. 2001). Although data confidentiality and privacy using cryptographic algorithms are in its essence, PKI represents a framework that supports a number of technical as well as business needs (Kovinić 2010; Raina 2003).

PKI is the basis on which other applications and network security components can be successfully configured. Lambrinoudakis et al. (2003) indicated that most of the e-government security requirements can be fulfilled through the public key infrastructure (PKI) security services. Systems that often require the PKI-based

security mechanisms include e-mail messages, different applications (e.g., survey applications, identification applications, etc.), product creation and sale via electronic systems services (e-commerce services), offer of financial services via the Internet (online banking), and exchange of messages through the network.

3 Methodology

3.1 *Sampling and Data Collection*

In accordance with the specific character of the research subject, the primary and secondary sources of data were used. The empirical analysis of the PKI implementation and its impact on the business process improvements in public administration were made in the case of the Tax Administration of the Federation of Bosnia and Herzegovina. Namely, the Federation BiH Tax Administration is one of the most important administrative bodies and has a quite complex organization. It has a two-tier organizational structure: the head office in Sarajevo and cantonal tax offices (10) with their branch offices. Its core business processes include the registration of taxpayers and assigning a unique identification number (UIN), receiving and processing tax returns, tax accounting and processing of payments, issuing tax certificates, creating and sending notices to taxpayers, enforced collection, audit, taxpayer services and education, cooperation and information exchange with the stakeholders, etc. Therefore, this institution issues a large number of certificates, performs control of income, and receives a large number of applications, requests and forms, as prescribed under the law.

Taking these facts into account, this public institution is an adequate sample for investigation of successful PKI implementation effects on the business process improvements in public administration, and as such, it can serve as a role model for all other public institutions.

3.1.1 Employee Survey

Considering that a successful PKI implementation depends on the understanding and commitment of staff, including their readiness to change, the data were collected using a survey research method. The sample included 37 employees from different branch offices. The respondents were asked to answer a questionnaire based on their experience and perceptions of the PKI implementation and its effects on process improvements in the Tax Administration of the Federation of BiH.

3.2   Survey Instrument

The research was conducted via a questionnaire. The questionnaire had three sections. In the first section, respondents were asked to describe the existing processes and activities related to the basic processes such as completing and filing of tax returns (tax form submission) and the issuance of tax payment certificates. In the second section, the staff indicated their expectations and perceptions regarding the PKI implementation and its benefits. In the last section, respondents provided some demographic information (e.g., age, gender), including their work experience, qualifications, etc.

3.3   Data Analysis

This paper employs a structured analysis, which is specific because of its process orientation and focuses on data flow through business and software processes. The results of the structured analysis are presented in diagrams of the business process models, before and after the PKI implementation (Appendixes 1 and 2). The business process modeling was performed using the ARIS tool. A comparative analysis of the processes before and after the PKI implementation (the AS IS and TO BE models) identified key improvements, including the process shortening and savings. Also, in order to examine the justifiability of the PKI implementation, an adequate cost-benefit analysis was made, as well as an analysis of perceptions and expectations of staff directly deployed in these business processes.

3.4   Research Results

This paper is focused on two basic processes: the tax form submission and the issuance of the tax certificate. Firstly, the description and analysis of the existing processes—AS IS model based on manual authentication—are provided. Then new—TO BE model which includes PKI implementation and complete automation of the user authentication and authorization process—is proposed. Aiming to investigate whether PKI implementation and new TO BE model contribute to process improvements, better performances and quality of public services including end-user satisfaction and comparative analysis are presented.

4 The AS IS Model and Existing Processes

4.1 Tax Form Submission

Under the existing process of tax form submission, the taxpayer provides the information and calculates the amount of their own tax obligations. The form signed is submitted by the authorized person in the company to a tax office, where the face-to-face authentication is performed. Tax administration officer checks and verifies the tax form and manually enters the data into the computer, preparing them for reporting purposes. Next, an officer in the TA branch office who entered the data digitally signs the listed form with the certificate. The taxpayer archives another copy of the submitted form as the proof of fulfilling the tax obligation. This entire process is performed in 14 steps (Appendix 1).

The costs of this process on the taxpayer's side include the cost of purchasing paper, printing costs, but also the costs of the face-to-face authentication in terms of visiting a TA branch office (waiting in line, data verification and certification, etc.), including the archiving costs. On the other hand, the costs of this process on the side of the Tax Administration imply the costs of admission process, the "authentication of taxpayers," and the data entering into the system. Also, it is important to note that this process is continuing and occurs on a monthly basis for each individual taxpayer.

4.2 Issuance of the Tax Certificate

When it comes to the second process, the taxpayer submits a written request for tax clearance certificate to the relevant Tax Administration branch office and pays administrative fee for request processing. The branch office administrator checks the data in the process of the face-to-face authentication, including the data accuracy. If taxpayer provided incorrect data, the data should be harmonized with the central register of taxpayers (CRT). But if the data is correct, a certificate may be issued. This process often takes several days (Appendix 2).

The costs of the issuing certificates process on the taxpayer's side include the form filling (the cost of purchasing paper, printing costs, etc.), the manual authorization (stamp and signature of the representative), and the face-to-face authentication in terms of visiting a TA branch office (waiting in line, data verification and certification, etc.), and waiting for tax clearance certificate (waste of time). The costs of the issuing certificates process on the side of the TA include the costs of form admission, the costs of "authentication of taxpayers," and then the costs of the request processing. This process also occurs on a monthly basis for each individual taxpayer.

5   The TO BE Model and Process Improvements

5.1   Tax Form Submission

The use of PKI in the authentication procedure would cut the tax form submission process from 14 down to 5 steps, which would make significant savings in operating costs, time, and speed of transaction. Under this method, a taxpayer can fulfill tax obligations anywhere and anytime. In this case, the taxpayer also has to prepare the data for entry, but the second step is the access to application based on the authorizations granted to a taxpayer based on credentials. Then the data is entered into the system, and if they are correct, the form is saved and digitally signed by the taxpayer. The authentication process is performed during the access to application, and it is based on the digital certificates (PKI). But before that, the taxpayer should request a certificate from a precisely specified website or from another location that is determined by a certification center. If the taxpayer is active and registered in the central register of taxpayers (CRT), the request will be forwarded to the certification center, which creates a certificate. Based on the certificate, the taxpayer obtains the access to tax forms and requests (Appendix 3).

In the new redesigned process of tax form submission, the taxpayer has the following costs. The total costs include the certificate download issued by the certification center and also the costs of filling out the tax request in the application form, which are miniscule compared to the costs of the existing process. On the tax administration side, the only costs incurred are for the issuing certificates process on the basis of taxpayer's request, because the user/taxpayer authentication is performed automatically, and the data is entered into the application by the taxpayer.

5.2   Issuance of the Tax Certificate

In the new TO BE model, the issuing certificate process would be optimized from 12 down to 5 steps which implies significant simplification of the entire process and also significant savings. The authentication and verification of certificates are performed using the access point to web application of Tax Administration. The electronic switching system (ESS) application verifies taxpayer's certificate. If the data from the certificate is incorrect, application denies taxpayer's request. But, if the data is correct, the login page is opened, where the user authorization will be performed, including username and password. The request for tax clearance certificate will be submitted electronically by entering company's unique identification number (UIN), and if the taxpayer's tax obligations are in order (no debts and unpaid taxes, fees, and other tax liabilities) at the date of issue of certificate, a written confirmation—the certificate— will be issued. However, if the tax obligations are not in order at the date of issue of certificate, the request will be rejected. In this method, the time frame of issuing certificate process is reduced from several

days to several minutes, which represents one of the biggest benefits of the TA's business process improvements. The aspects of security are obtained through the mechanisms of authentication and authorization (Appendix 4).

When it comes to the costs of this redefined process, on the taxpayer's side, there are costs of certificate download and request submission, as well as the costs of tax clearance certificate printing. The Tax Administration has only the costs of issuing certificates, given that the user's authentication and authorization are automatically performed.

6 Comparative Analysis of the AS IS Model and the New TO BE Model Which Includes the PKI Implementation

A comparative analysis of the AS IS and TO BE models indicates improvements in both key processes in terms of cutting the time, automation, and significant savings on the side of both the taxpayer and the Tax Administration. Specifically, the steps in both processes are reduced by some 50–60 %, which is a tremendous optimization, while the greatest savings are archived by automating the processes of user's authentication and authorization.

The effects of the PKI implementation on both processes are illustrated in Table 1.

Table 1 A comparative overview of the AS IS and TO BE models

Process	Subprocesses	The AS IS model	The TO BE model
		Activities	
Tax form submission	Data preparation by taxpayer	Data calculation	Data calculation
		Form printing	Data entry into the application
		Filling in the data in the form	
	Providing authentication on both sides	Signing of request by the authorized person	Automatic verification of certificates and company data
		Request stamping by the taxpayer	
		Visit to tax administration	
		Form submission in the TA	
		Form reception by the TA	
		Data authentication checking	
		Form stamping by the TA—reception confirmed	
		Return of stamped copy of the form	

Table 1 (continued)

Process	Subprocesses	The AS IS model	The TO BE model
		Activities	
	Tax forms data processing	Data entry into the system	Data entry into the system
		Confirmation of the entered data	Confirmation of the entered data
		Form archiving	
Issuance of the tax certificate	Submission of the request for the issuance of certificate	Request printing	Application entry
		Filling in the data in the request	Data entry
	Providing authentication on both sides	Signing of request by the authorized person	Automatic verification of certificates and company data
		Request stamping by the taxpayer	
		Going to tax administration	
		Request submission in the TA	
		Request reception by the TA	
		Data authentication checking	
		Request stamping by the TA—reception confirmed	
	Request processing	Data checking	Data checking
		Certificate issuance	Certificate issuance
		Certificate signed by the authorized person in the TA	

7 The TO BE Model Implementation

Implementation of a proposed model entails the fulfillment of several requirements such as the new hardware procurement—a server certificate body, network infrastructure improvements—given that opening of the web application to external users represents a security risk, as well as the existing software upgrades. The latter means that it is necessary to enable the existing software to "read" the certificates issued by the certification body. Also, the training of external and internal users is very important, especially the administrative staff and employees who provide support to the end users.

However, definitely, the first and most important step in the PKI implementation is the process of issuing certificates. Considering that the validation of public keys is crucial for a successful PKI implementation, the Tax Administration has conducted pilot activities on issuing certificate process. On such basis, the cost-

benefit analysis of issuing certificates through all (73) post office branches was performed.

7.1 Certificates Issuing

The taxpayer submits a written request for the issuing of a certificate with the relevant post office branch as the Certifying Center. The request form provides the basic information on the taxpayer, such as the unique identification number (UIN), name, address, and other registration information. Based on the submitted request, the officer in the post office branch checks the reported data through web applications and web services in the registration center, the information system of the Tax Administration, and the central register of taxpayers. If the taxpayer status is active and the data from the request form matches the corresponding data in the central register of taxpayers, the authorized officer can issue the certificate and install on the smart card. However, if a taxpayer does not meet the requirements, the request cannot be processed until the taxpayer harmonizes the data or changes the status into active. The result of the process is the issued certificate for the taxpayer, granting the right to access the information system of the Tax Administration anywhere and anytime. The taxpayer has the key for authentication and logging into the system, and henceforth the tax form submission and other processes are significantly easier for the taxpayers.

7.2 Cost-Benefit Analysis

As we have already pointed out, the cost-benefit analysis of certificates issuing through all (73) post office branches was performed (Tables 2 and 3). The assumption is that at least two employees in each branch are involved in issuing certificate processes. Also, the costs of smart card purchase are not included in the total costs assessment, given that taxpayers are responsible to acquire them.

Considering that the PKI implementation in the TA will be funded by the Federation BiH government, the internal rate of return (IRR) method is used to assess investments under the following formula:

$$X = \sum R_t/(1+d)^t \text{ for values for } t \text{ from 1 to } T, \qquad (1)$$

where:

X is the project price
T is the number of years when the system should be used
R_t is the return for year t

Table 2 Cost analysis

Cost analysis
Disposable capital costs—76,066.00 €

Capital costs—hardware
    • *Purchase of computers for 73 post office branches, two new computers per branch office—146 computers x 500.00 € = 73,000.00 €*
    • *Purchase of smart card readers for post office branches and licenses for smart card readers 146 pieces x 21 € = 3066.00 €*

Disposable development costs—16,700.00 €

• *Upgrade the existing application for use of CA authorization: 7500.00 €*
    • *Creating the user manual for the taxpayers: 1500.00 €*
    • *Administrative staff training (146 employees in 73 post office branches): 7500.00 €*
    • *Configuration of VPN tunnel between post office branches and Tax Administration: 8 engineer hours x 25 € = 200 €*

Annual operating costs: 3000.00 €

Fixed costs:
    • *License for the CA server: 2500.00 €*
Variable costs:
    • *Office materials and supplies: 500 €*

Total costs: 95,766.00 €

Note: The total cost assessment includes the Microsoft CA server, considering its compatibility with existing servers, and the fact that public authorities in the Federation of BiH have installed Windows servers and under an agreement with Microsoft branch office in BiH, they have free access and tech support

Table 3 Benefit analysis

Benefit analysis
Cost reduction: 59,860.00 €

• *Salary savings—as a result of process automation—savings of 70 % of working time for the salary of 600 €–420 € x 73 TA branch offices = 30,660.00 €*
    • *Office supplies savings—reduction in costs of purchasing* paper, printing costs, etc.*—150 € savings per TA branch office x 73 = 10,950.00 €*
    • *Communication cost cuts—complete automation of the user authentication and authorization process—savings of 50 % of working time for salary of 500 € x 73 TA branch offices = 18,250.00 €*

Thus, for the project which costs 95,766.00 € and which generates return of 59,860.00 € and lasts for 3 years, the IRR is:

$$95,766.00 = 59,860.00/(1+d)^1 + 59,860.00/(1+d)^2$$
$$+ 59,860.00/(1+d)^3, \tag{2}$$

whereby IRR for a 2-year period stands at 16.27, indicating that the system will bring benefits after 2 years, while for a 3-year period, the IRR stands at 39.47, which means even greater benefits of the PKI implementation in the TA. Hence, according to the cost-benefit analysis, the PKI implementation is profitable at least when it

comes to the one application implementation in the TA. Introduction of other applications would include only the costs of the existing application upgrade in terms of compatibility with the CA, and it represents a one-time cost.

8 Employee Survey

Considering that any change in the existing business processes involves the understanding and commitment of employees, our intention was to explore their attitudes and perceptions related to the PKI implementation in the most extensive processes. The survey included 37 employees from different TA branch offices. The aim was to analyze the structure of employees as well as the time they spend on verification of submitted tax forms and entering the data into the computer, preparing them for reporting purposes. When implementing PKI, this time can be saved and used for other and more significant activities such as collection of taxes which represents the main mission and responsibility of Tax Administration. Results show that 64.87 % of respondents have been working in the Federation BiH Tax Administration for more than 15 years, which indicates a competent staff with extensive experience. Most of them (56.75 %) are involved in the requests reception and processing (Fig. 1).

A number of working hours spent on both observed processes and administrative tasks are different among the respondents. Thus, 32.45 % of them spend less than 2 h on receiving and processing requests. However, most respondents (48.65 %) spend more than half of daily working hours performing tasks related to taxpayer requests (Fig. 2).

Also, 92 % of the respondents are confident that the PKI implementation increases the quality of services for taxpayers, while 90 % of the respondents indicated that the PKI implementation enables them to spend their working hours on other activities and tasks. Thus, most of the surveyed employees (70.27 %) believe that the saved working hours should be spent on monitoring the taxpayers (Fig. 3).

Fig. 1 Main processes in the tax administration branch offices
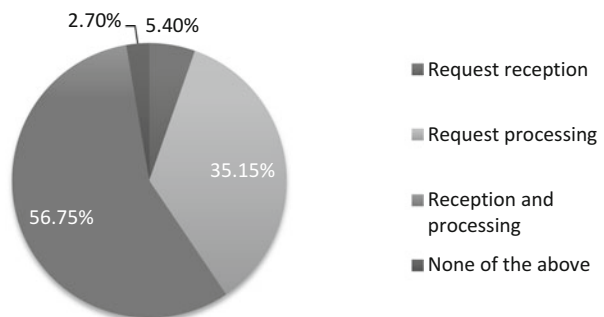
Fig. 2 Working hours
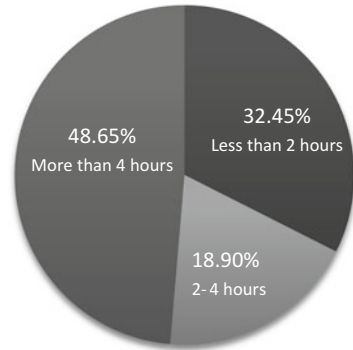
Fig. 3 Other working activities and tasks in TA branch offices

5.40% 2.70%
8.10%
70.27%

- Bureaucratic jobs
- Control and collection
- Close monitoring of taxpayers
- Other jobs
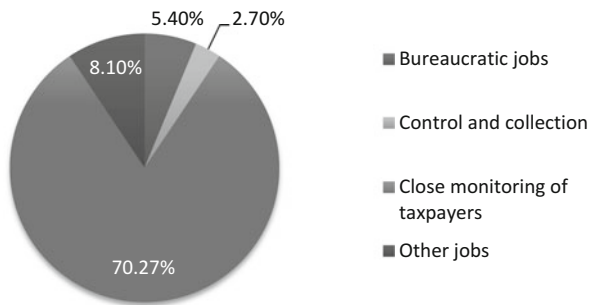
This structure of responses is in line with the perceptions of the most of surveyed employees (92 %) that the establishment of electronic issuing of certificates will improve partnership between taxpayers and Tax Administration. Respondents are convinced that such partnership and appropriate counseling and prevention activities would significantly reduce the need for inspection supervision. In addition, 86.5 % of the respondents stated that the PKI implementation and complete automation of the user authentication and authorization processes will reduce everyday expenses in the TA branch offices.

9 Concluding Remarks

This paper indicated that the PKI implementation in public institution such as the Federation BiH Tax Administration contributed to its processes improvements, enhancing performance and quality of public services including the end-user satisfaction. Based on comparison between the AS IS model (existing processes), which includes the manual authentication and the new TO BE model, which includes the PKI implementation, we provided an overview of the most significant benefits of the PKI implementation, which mainly include the savings in operating costs, time and speed of transaction. These savings largely concern the

authentication process within two most extensive processes (completing and filing of tax returns and issuance of tax payment certificates) of Tax Administration, and it will be performed through an online application and an adequate certification process. Thus, the research findings indicate that the tax form submission process is carried out in 5, instead of the previous 14 different processes, resulting in significant cost savings and promptness. On the other hand, a successful PKI implementation depends on the understanding and commitment of staff including their readiness to change. Therefore, they were asked to respond to a questionnaire based on their experience with PKI. It is encouraging that 89 % of them are convinced that the PKI implementation in their institution would significantly improve tasks and processes, enabling them to develop partnership relations with taxpayers.

Appendix 1: Tax Form Submission Process: The Existing AS IS Model
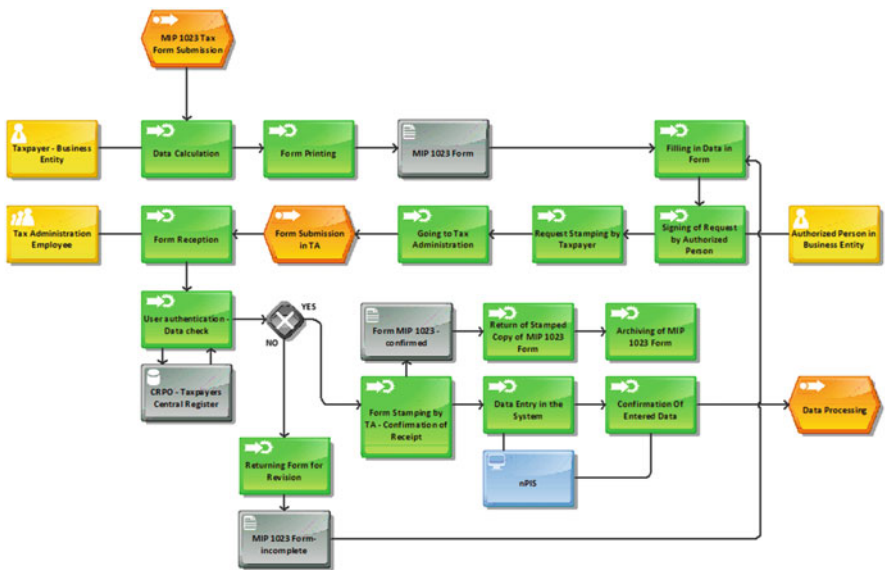
Appendix 2: Issuance of the Tax Certificate: The Existing AS IS Model
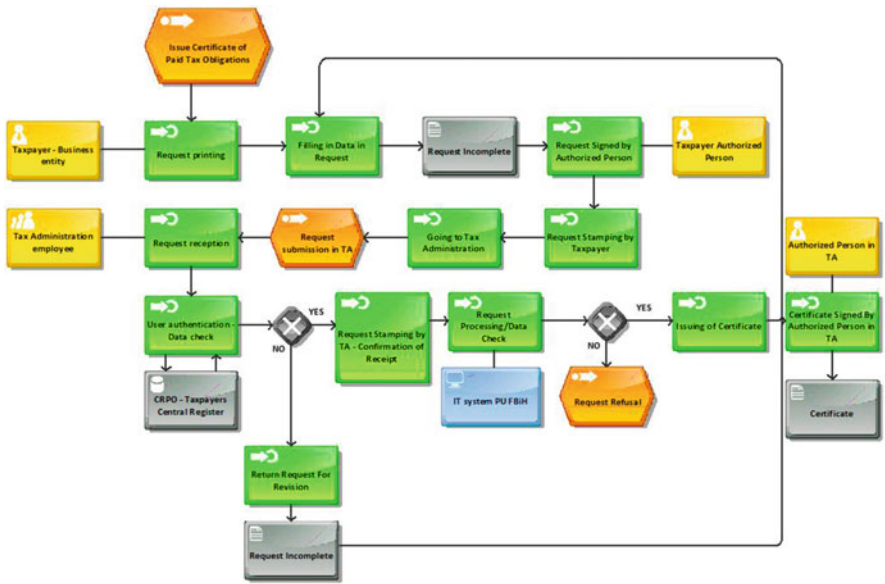
Appendix 3: Tax Form Submission Process: Proposed TO BE Model
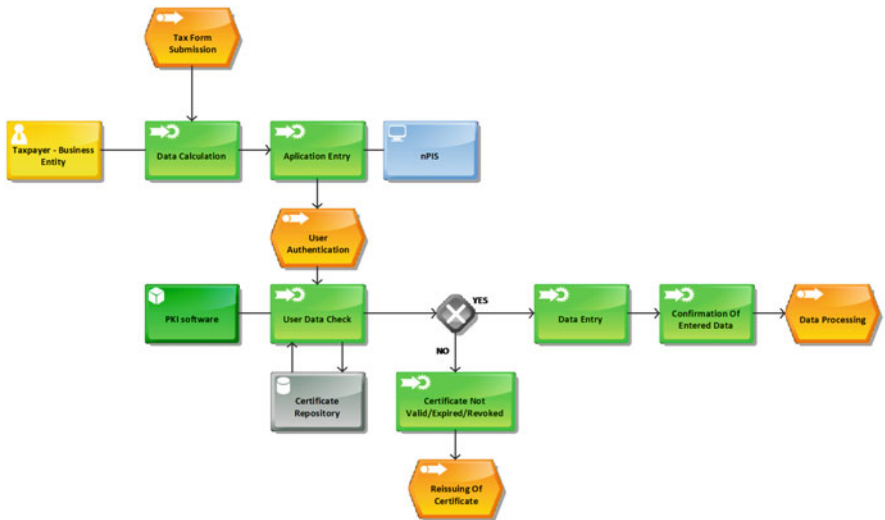
Appendix 4: Issuance of the Tax Certificate: Proposed TO BE Model
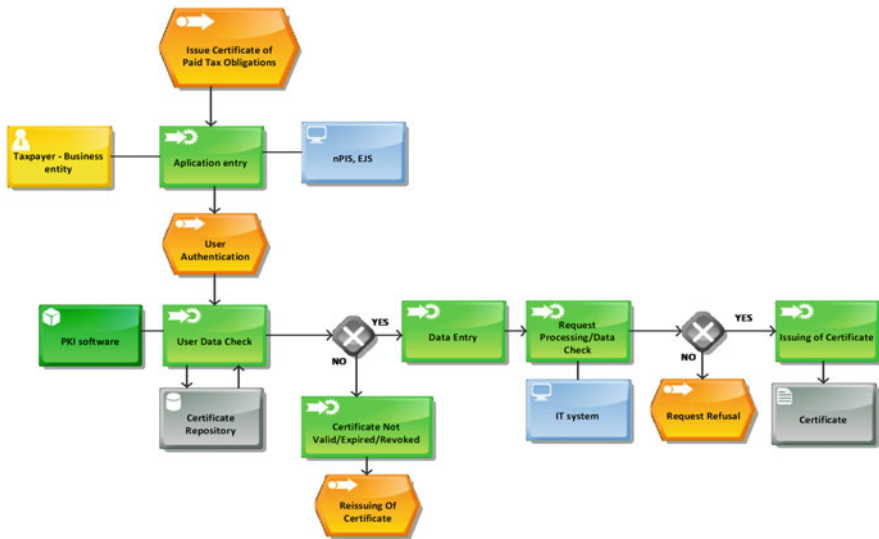
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The Features of Family Business in the Country with Transitional Economy: Russian Case

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Abstract The modern economy has only few decades of history in Russia. The family business being a basic economical foundation in countries with developed economies is a relatively new phenomenon in Russia. The main objective of the research is to describe the specifics of family business in the country with no succession tradition. For the research, questionnaires and in-depth interviews were used. We have collected questionnaires from family business members and from experts, who provide consulting service for them. Results of the research are qualification of family business definition in the present Russian circumstances and discovering uncommon process of simultaneous evolution of family culture together with organizational culture of the firm.

1 Introduction

In the last 25 years, there has been growing interest in studying the family business. According to Litz et al. (2012), a time when the family business was a persona non grata in business school settings has come to an end. Many authors show that family business is the most commonly occurring form even among large companies (Berglöf and von Thadden 2000). The understanding of the high importance of the family businesses role in the economy makes a growing number of researchers to carry out its investigations. Many researchers (Zahra and Sharma 2004; Litz et al. 2012) noted a significant increase in diversity in schools and methodologies of family business study which began in the late 1980s–early 1990s. Some of the studies have been focused on the comparison between family and non-family firms (Beehr et al. 1997; Gallo et al. 2004; Duh et al. 2010); others investigated the features of corporate culture (Dyer 1988; Denison et al. 2004; Atmadja et al. 2014) or explored the strategy and management in family firms (Donckels and Frohlick

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1991; Dyer 2006; Altindag et al. 2011). Therefore, various aspects of the family business research become extremely popular in the international context.

Russia's transition from a command to a market economy has created conditions for the emergence and development of the family businesses in all economic sectors and at all levels: in small, middle, and large companies. Yakovlev and Danilov (2007) note that the family business has historically played the starting point of almost all modern major companies and this form of organization is still typical for a large number of large firms—both in developed and developing countries. For small- and medium-sized companies, family-run company is the dominant type. Post-privatization process of the concentration of the ownership has led to the transformation of many companies in Russia in the entrepreneurship or business partnership. The process of concentration of ownership has been discussed by many authors (Kapel'ushnikov 2001; Yakovlev 2003; Dolgopyatova 2004; Guriev and Rachinsky 2005; World Bank 2005). As noted by Yakovlev and Danilov (2007), most companies can be described as the private entrepreneurship and business partnership with the first generation of owners.

However, despite the fact that the classical corporate forms of business organization are few in number, Russian studies, as a rule, follow the traditional outline issues of corporate governance and explore two large classes of firms: corporations with dispersed ownership structure and non-corporations with concentrated ownership structure. At the same time, when the number of international publications concentrated on the study of the phenomenon of family firms is growing steadily, we should note the lack of interest of Russian researchers to this problem. We believe that the lack of concrete examples, the lack of transparency of the family business, and also the lack of statistics on the number of family firms, as well as the novelty of the phenomenon of modern Russia, seriously reduce the motivation of local authors in the study of this type of companies.

In this paper, we argue that the modern Russian family business has a lot of special features caused by the specificity of transition period of Russian economy and the absence of the succession tradition. We have studied Russian family business using research questionnaires and in-depth interviews with family business members, a staff of family firms, and experts, who provide consulting service for them. Results of the research are qualification of family business definition in the present Russian circumstances and original classification of Russian family firms according to characteristics of their organizational culture.

2 The Definition of the Family Firm

In Western literature, the definition of family businesses seriously varies from using strict criteria, such as the proportion of families in the capital, to the non-strict, such as the recognition of the business "family" on the basis of a questionnaire. For example, Anderson and Reeb (2003) used simultaneously three measures: (1) a family owned/continues to own shares in the equity capital, (2) representatives of

the family are members of the board of directors, and (3) founder or his successor shall serve as CEO. Tanewski et al. (2003) suggested the following criteria for the selection of family firms: (1) 50 % or more of shares are owned by members of the same family, and (2) a group of representatives of one family is able to effectively monitor and manage the business. Beehr et al. (1997) argued that a family business can be distinguished as one in which the owner and at least one more member of the family work in the business. Daily and Dollinger (1992) put forward the affiliation between owner and key managers working in the company and dominance the opinion that this is a family business among them as the main criterion of the family company. Bernard (1975) considered enterprise as a family business if it is controlled by the same family. Davis (1983) believed that the family business is a firm in which the policy and strategy have been influenced by one or several family clans significantly. The influence is carried out through the equity and the participation of family members in management.

The Russian family business has great specificity which caused by its history. We argue that it is important to form specific approach to the definition of Russian family business because of its orphan nature. Korolev (2007) noted the orphan character of Russian business which means that the modern Russian business did not go through the step of succession. There are only few examples of successful transfer of business to the next generation of owners in Russia. Moreover, considering the 20-year horizon, Yakovlev and Danilov (2007) argue that the corporatization and sale to a strategic investor are the most possible outcomes for major Russian companies in opposition to the transfer to the next generation of the family. Berezina (2012) notes that the majority (57 %) of private entrepreneurs are planning to sell their businesses in the future. Our expertise and consulting practice confirm the hypothesis that modern Russian family business is not ready to the procedure of succession and transfer of business to the next generation.

The orphan nature means that firstly Russian business has had no time to develop a tradition of coming of the successors to managerial positions in business and secondly not all family companies have a well-developed system of corporate governance. Therefore, the definition should differentiate the family business from a business partnership and private entrepreneurship of the head of the family. In our point of view, the features of the family business should include the involvement of family members in control, dominant family ownership (more than half of the shares of the company or a group of family-owned companies should be owned by family), and existing of succession plan in the business.

3 Methodology

The study involved questionnaires and in-depth interviews with family members and business owners as well as ordinary employees working in the family business. We have collected 26 questionnaires from 12 companies which we can recognize as Russian family business. We used two criteria to determine the family companies:

(1) The domination of the family ownership (more than half of the shares of the company or a group of the companies should be owned by the family)
(2) The involvement of family members in management and control (more than one member of the family involved in management and control)

The observed companies belonged to different sectors of the economy: the four of them were engaged in manufacturing, two in retail industry, and six in the service sector. The 12 respondents were the owners of the companies, the 9 members of their families were working in the companies, and 5 employees were not family members.

The questionnaire consisted of 30 questions and was divided into five parts. The first part included questions about the history and development of the company, as well as the insertion criteria in the family business category. These criteria were important because not all the observed companies were originally created as the family business; some of them became the family business during their development process. The second part included questions about family values and their impact on the organizational culture of the company. The third part included questions on the criteria of the company effectiveness and the importance of the nonfinancial goals. The fourth part analyzed the leadership role and type in the family business. The fifth part included questions about business succession and ensuring its continuity.

We also conduct in-depth interviews with six business owners, six family members, four non-family member employees, and three experts dealing with the Russian family business. In-depth interviews were focused on obtaining detailed information about the characteristics of the organizational culture of the Russian family firms with respect to the issue of succession and continuity of the business and about the specifics of the relationship between the owners and the successors of the family in the Russian companies.

4   Results

We can distinguish three types of companies that respondents were classified as "family." The first has been created by spouses. The second has been created by the head of the family who then took reliable persons. The third type is a partnership business that involved family members of one or more founders immediately after foundation or sometimes later.

It should be noted that respondents have replied to the question of the definition of family business differently. Part of them have been focused on the supervision of the family over the company; however, other parts have been focused on family participation in a business. The first approach states that a company can be considered as a family business if all management decisions are made by members of the family. This is possible if the family and affiliates owned from qualified majority to 100 % of the shares.

All interviewed respondents believe that business can only be considered as the family one if family members have been involved in the work on managerial positions. However, this is not observed in all companies. Several respondents have noted that the owners of their companies have begun to think about succession plan quite late. This leads to problem of discrepancy between successor's education, skills, and competencies and requirement of effective implementation of the management functions.

Also, some confusion should be noted with understanding of the definition of family business especially in the category of business successors. They often have called the family business which one where the head of a company involves family members in work on the noncore positions. This is not supported by research of management structure since in such cases, the family council is not involved in the decision-making process, and moreover, such companies do not have a mechanism of translation of family values.

The study identified a number of specific features of the culture of the Russian family business and families which own a business. One of them is related to the impact of business culture on family values. The fact of doing business by the head of the family impacts on relations within the family and the family culture changes. Thus, the relationships within the family begin to shape on the basis of business principles. For example, there is no "free money" in such families, and money may be granted to successor for getting an MBA degree only in the form of family credit. Thus, successor should reimburse the credit after graduation, and sometimes, he or she should pay the interest (lower than a bank interest) which in general is not typical for Russian families.

The second feature is related to the high-risk nature of the Russian business environment which shapes a particular perception of values among entrepreneurs. We can assume that the instability and unpredictability of the environment and the need to constantly take high-level risks lead to a kind of "professional deformation" of the entrepreneur's personality. It leads to changing not only business approaches but also daily life decision-making approach which becomes more risky and not always rational. At the same time, it is obvious that entrepreneurs who start the business especially in Russia are able to take the risk and responsibility and ready for any version of ends including the most negative one.

Third, common to all respondents was unclear understanding of the role of culture in creating a family organizational culture and values of the company. Usually, family members guess that image of entrepreneurship in Russia is negative and that people are also negative to the family business in general. However, the research results show that actually employees have more loyal look at "nepotism" in a company than owner and family members have supposed.

The study results show that Russian family business companies can be divided into two types. The first type is promoting nepotism and do not afraid to show it. The second type suggesting the presence of a negative perception of nepotism in the society tends to avoid the family involvement in the business, and if such involvement has happened, prefer to hide it.

The research results show that the perception of the business is also different. There are two different approaches. The first group includes cases that the owner of a company was at a low cost that was more less than its real price (e.g., as a result of privatization). In this case, the company is considered as a family resource rather than as a business. The management of the company is often built on the principle of beat the bag out of resource for the family. The employment policy is built from the perspective of providing family members of a snug little job and not from the perspective of effective recruitment. Nepotism blooms in such a company.

The second group primarily includes companies that have passed through the fierce competition. They focused on the rational use of resources and effective recruitment policy in which preference is given to most qualified and professional candidates who can bring great profit to the company and not to family members in order to provide them with a permanent source of income. Also, many of the respondents of the second group have noted that family members have often had a harder time than other employees especially in the beginning of the careers in the company because they have to prove to the team that they are successful professionals and not freeloaders.

5   Conclusions, Limitations, and Directions for Future Research

The study represents a small contribution to scientific knowledge on the family business specificity in the country with transitional economy which has no succession tradition. The results showed that today the Russian economic science and practice have not formed a clear and unambiguous definition of the family business. However, most part of the respondents agreed that the family business must meet three main criteria:

(1) The domination of the family ownership (more than half of the shares of the company or a group of the companies should be owned by the family).
(2) The involvement of family members in management and control (more than one member of the family involved in management and control).
(3) The company should be inherited by a member (or members) of the owner's family or have the succession plan.

Without the last point, the company cannot be considered as a family business as the family likely loses control over the management after the owner withdraws from the business.

The succession and continuity of the family business is a topical issue for the majority of respondents. Today, the temporary solution to this problem is dominated (like to remain the owner in the nearest future or to manage business as long as possible), but the question will arise again in the future.

The absence of succession tradition in Russian economy leads to a few types of problems for the Russian family business owners: these are the lack of experience in using the tools of inheritance in Russia, the lack of the business and welfare successor training institutes, and the deficits and high risks of the professional managers hiring. These problems mean that it is necessary to develop the special training infrastructure which should include not only professional and educational component but also the entire system of the education successors from the family.

The influence of the family on the company organizational culture was widely covered in the literature (Duh et al. 2010; Dyer 2006; Vallejo 2008). However, one of the interesting results of our study was to identify the reverse process of the business impact on the relationships within the family. This impact sometimes leads to deformation of the initially traditional and trusting relationships in the Russian families, makes them more hard and conflictive. Therefore, the impact on the family business can be not only constructive but also destructive.

An important element of the organizational culture of Russian family firms is relation to nepotism. Historically, nepotism in Russia has a negative connotation. Therefore, most family businesses which were built "from scratch" and survived in fierce competition try to hide that they are family and that the family members are working in the company. The owners in such companies think that the family nature of the business is weakness, and it can demotivate non-family member employees. However, the results show that usually non-family member employees have good vibes working in the company with family members if they have the necessary professional qualities and a high level of qualification.

At the same time, the results of the study show that there is a group of companies that have the opposite attitude toward nepotism. They were mainly acquired by the owner in the privatization process or at a price which was significantly below market. They are usually regarded by the owner the family resources that can be used for the employment of family members. The key management positions in such companies are often appointed by the family members without the necessary qualifications and experience. This reduces the efficiency of the company and degrades the psychological climate in the team, because the non-family member employees disapprove such negative practice of nepotism.

Our research identifies the main features of the Russian family firms' organizational culture and the specificity of business succession problem in Russian economy. However, the study was based on the use of qualitative methods and a relatively small sample of respondents. This is due to lack of developed family business in Russia, lack of lists of family businesses, and the unwillingness of the majority of Russian companies to participate in the economic and management research and to provide the necessary data. Perhaps the future studies using the quantitative methods and the representative sample help clarify and supplement the results.

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Proximity Offshoring Generating Considerable Savings with No Significant Increase of Risks or Losses in Quality— Nearshoring Playing a Key Role on a Business Transformation Program

Jorge F. Guedes and Leandro Pereira

Abstract Information Technology leaders are demonstrating an increased concern on the distance dimension while considering sourcing initiatives. This suggests that, in Information Technology outsourcing activities, "distance is not dead"—actually, distance is seen as a source of challenges that can hurt the project overall health. In order to reduce these risks keeping an effective cost, proximity offshoring (nearshoring) is getting more used over the past two decades, but the academic literature on the subject is still on its beginnings. Using an Information Technology project, part of a large business transformation program that took place in Geneva (Switzerland), done by a vendor that delivered more than 2500 days in consulting as the main case study, this paper analyzes and discusses the benefits and challenges of incorporating nearshoring practices in these types of initiatives. The analysis starts by suggesting that nearshoring can add value to Information Technology projects if managed the right way—when compared to traditional services delivery (onsite consultants), nearshoring practices can have an outstanding result, with a very positive financial impact, showing considerable savings and avoiding a significant increase of risks or losses in quality, leading to an increased return on investment (ROI). Finally, some recommendations are suggested as the starting point for a framework for nearshore usage, pointing directions for further research. A similar analysis was already published by the same authors for a training project, aiming to understand if the same trends are applicable in several types of services delivered using nearshoring practices.

Keywords Outsourcing • Nearshoring • Offshoring • Business transformation • Services

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1 Introduction

The consultancy industry worldwide, mainly on the Information Technologies (IT) services, is becoming more aware of the benefits of nearshoring practices, especially for software delivery activities. The overall concept of nearshoring in the IT sector has developed deeply since its beginning, according to Carmel and Abbott (2006), when an innovative IT company called PRT to set up offices in the Caribbean during the nineties, with a team of Indian software developers to code on a standard similar to the one delivered by offshoring in India, but in a location nearer to the demand. Nevertheless, the research in the governance model, on its advantages and downsides, on risks, and on real value to companies, is still not matured. Actually, according to some authors such as Hahn et al. (2011), the topic has been largely overlooked in the academic sphere, being documented and discussed mainly by the press and by companies on white papers. One can confirm that it is an even larger gap if we target fully grown business transformation programs, from a vendor perspective, on the EMEA (Europe, Middle East, and Africa) region—this fact is also suggested by research which is already published (Hahn et al. 2011), with this being a widely known gap in the subject. In fact, academic literature focusing on these topics is virtually inexistent, especially taking into account the region in which the case study takes place. This paper's goal is to share some findings focusing on services delivered on a nearshore model for an SAP implementation project, part of a large transformation program focused on the IT delivery side. These services were delivered by a large German software company and took place during 2014/2015, for an Asian consumer goods company with global operations, based in Geneva, Switzerland. The project at study was delivered during 15 consecutive months, with more than 2500 days delivered by the vendor and with the participation of 30 consultants sourced from 5 different countries with 7 different nationalities. It is organized as follows: we begin by briefly reviewing the nearshoring concept since its origins, followed by a short review of the IT delivery side of the project used as a case study. We then analyze the practice of nearshoring services on that same project, focusing on its evolution per main phase of the project, reasoning benefits and major challenges, and moving to an analysis focused on the financials aspects of these types of services opposed to a more traditional[1] service deployment. We also analyze the customer's feedback and perception toward the services, comparing them with the feedback and perception of the customer toward local consultants deployed on a traditional fashion. Additionally, we analyze a lessons learned exercise conducted on the vendor side. Finally, we review the findings and leave some recommendations for further research, hoping to highlight new paths for research. We already published another paper, where we used the same research methodology on a training project, aiming

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[1]In this study, "traditional consulting" or "traditional delivery" will be considered as resources close to the demand—namely, from Switzerland and Germany, due to the specifics of the market.

to better understand if the same benefits could be verified in different types of professional services delivered on a nearshoring basis.

2   Distance as a Key Dimension to be Considered on Outsourcing Initiatives

Managers from the IT sector have been making efforts to increase the competitiveness of their businesses by trying to find new methods and practices to deliver their tasks and services—the main objective is always to reduce risks and costs, optimizing the services, while adding value to the final customer. This has been achieved many times by sourcing services, namely, outsourcing or offshoring services to more competitive setups. In fact, from an analysis of the literature, we can see that the outsourcing and offshoring of services have been a technique greatly discussed and analyzed by the academia, suggesting that this trend should continue. This extensive academic research on the topic already led to great accomplishments in the practice around the globe, being now a widely used practice—it is now used by all of the major companies around the world, by numerous sectors of activity, and in multiple industries. This usage obviously leads to a segmentation of the market, with players making efforts to position themselves better with the demand, coming up with new methods to increase their competitive advantage. As commented by Carmel and Abbott (2006), during this time, several types of "shoring"- and "sourcing"-driven words showed up, ranging from "farm shoring," "two shoring," "best shoring," and so on. But from all of the "new shorings" that appeared over the globe, nearshoring is without a doubt the trendiest one. This term is being used by multiple players around the world, encouraging great impacts for practitioners and high value delivered to the demand—it is also being regarded as an outstanding selling pitch by sales managers since it promises to reduce the return on investment (ROI) from the customer side. Even with this high usage, it might still be difficult to define the concept of nearshoring, especially when compared to traditional offshoring. The main difference is by the end of the day very simple: distance, meaning that nearshoring can actually be regarded as proximity offshoring. As suggested by Westner (2007), most academics make a clear differentiation between nearshore countries that are close and offshore countries that are far away. Carmel and Abbott (2006) are also known for affirming in multiple situations that distance is dead, but let's have in mind that time zones and aspects related to culture are not. This is not contradictory since issues related to distance can be bypassed by new collaboration and telecommunication solutions, but the major pain points from several companies are actually linked to time zones and aspects related to the culture of the employees—and let's make no mistakes; these challenges cannot be overcome easily. These challenges played a key role as the main drivers to start with the creation of new sourcing solutions, namely, practices of offshoring closer to the client (demand), and this

was the start of the concept of "nearshoring." By an analysis to the currently available literature, one can confirm that as suggested by Carmel and Abbott (2006, p. 4), "By the late 1990 the offshoring community started to regularly use the term nearshore—A large Israeli software firm, which is now called Amdocs, created a nearshore subsidiary in Cyprus (a short flight from Tel Aviv)," and this can already be considered as a type of nearshoring. On top of this, practices related to nearshoring have been employed by several other players but have not been directly identified as nearshoring (just as offshoring, not having any consideration with distance). Many examples can be found in this "employment of nearshoring practices without acknowledging it," for instance, in several cases between Canada and the United States since many of the offshoring that the United States do is in fact nearshoring to the Canadian neighbors. A good point has been brought up to the academic community by Trefler (2005), which set that services from a call center company in Canada can be delivered to customers in the United States without any impact in quality. Hence, we can recognize that services delivered with nearshoring practices have been around for more than two decades, although not directly named as nearshoring since the importance that customers (demand) gave to distance was very limited. We can affirm that it has matured; this was since the involved parties pinpointed some high-impacting risks (which became major issues overtime) with practices related to traditional offshoring in locations far from the demand. With this lessons learned as a valuable component of the manager's toolbox, offshoring initiatives started to be moved to sites closer to the demand, often with increased costs but also reduced risks. The reader should be aware that the components that establish nearshoring have been identified as it can be found on the work from Wiener et al. (2010), which point out seven distance dimensions that claim benefits of nearshore (proximity offshore) destinations over farshore destinations (traditional offshore): geographical proximity, time difference, cultural similarity, historical linkage, linguistic similarity, political alignment, and economic grouping. It has to be noted that regardless of the more than two decades in the usage of the nearshoring practices all around the world, the academic literature on the subject is still humble. Research focusing on nearshoring and not in traditional offshoring is still not widely spread. Many practitioners employ it in a close fashion to traditional offshoring, not really providing much variation from a practical perspective. In fact, as pointed out by Carmel and Abbott (2006), some analysis revealed that nearshore is often used as a selling point—accompanied by attractive slogans such as "Bridge between East and West," "Silicon Border," or "Silicon Beach." Despite this depreciative analysis, there is more to nearshoring than just a marketing stunt. The practice has potential that might be unlocked, maximizing the outcome of the services delivered, reducing risks, turning the demand more confident with the services, and boosting the overall business. The main objective of this study is to analyze and discuss the employment of nearshoring practices on an implementation project of an IT solution, in the EMEA (Europe, Middle East, and Africa) region, turning its focus on the vendor side and leaving some thoughts regarding the paybacks for the demand side (customer) in regard to a potential escalation on

the return on investment (ROI), adding managerial value to the academic and business communities interested in these topics.

3 Methodology

In the present paper, having the form of a case study from a Consumer Goods Company with global reach (client) in 2014/2015, the authors started by a critical analysis of the delivery shares and methodology of the project delivered by a third-party provider (vendor, German company from the software industry), relating to traditional and nearshoring practices, with a special focus on the hard numbers of the project. This study is based on a real options valuation (ROV), as the possibility to use a delivery model with balanced practices, compared to only traditional consulting or purely nearshoring delivery. On top, the satisfaction of the customer as well as some quality signs has been analyzed , all with data gathered via surveying. The data collected via the mentioned survey shave provided valuable inputs for a traditional ROI analysis, showing an impact on the components of the costs. Finally, the authors considered and analyzed an exercise of lessons learned from this specific project—this exercise consisted in a gathering of opinions and lessons learned from 30 % of the team from the customer (demand). Having these findings at hand, some thoughts from the authors and some recommendations are left for the reader.

4 SAP Implementation Project on a Global Consumer Goods Company

The project considered in this study had the timeline as the major challenge, since it could not be moved. Still, in a highly ambitious customer, the team from the German vendor was able to implement a solid but easy to use solution that will, without a doubt, help the customer in increasing its competitive advantage. With more than 2500 individuals suffering a direct impact on their activities, the solution aims to provide a platform for transparency, collaboration, system simplicity, and standardization, improving the speed from the ideation phase of a product up to its launch to market. Such objectives acted as the beginning of a large business transformation program, with activities related to the implementation of the solution, reengineering of the business processes, training, and OCM (organizational change management). This study will focus only on the solution implementation project from the vendor perspective. As already stated before in this paper, the same authors already published a similar study based only on a training project. The implementation project started in January 2014 and ended in March 2015, with the first successful Go-Live in February 2015. During these 15 months, we can consider

	2014												2015		
	J.14	F.14	M.14	A.14	M.14	J.14	Jl.14	A.14	S.14	O.14	N.14	D.14	J.15	F.15	M.15
Project Setup	█														
Design		▓	▓	▓	▓										
Project review / prioritization		░	░	░											
Final topic deliverables			░	░											
Build						▓	▓	▓	▓						
Development / customization						░	░	░							
Unit testing (UT)								░	░						
Testing										▓	▓				
FIT testing										░	░				
User Acceptance testing											░	░			
Final Preparation													▓	▓	
Regression testing													░		
Cut-over														░	
Wave 0 Go-Live														★	
Post Go-Live Support															█

Fig. 1 Project plan in high-level view

six different phases: (1) project setup, (2) design, (3) build, (4) testing, (5) final preparation, and (6) Post Go-live support. These phases are represented in a high-level plan in Fig. 1.

Through the program, 2500+ days were deployed by the German vendor with more than 30 resources, from 5 countries, and with 7 nationalities participating actively on the activities.

5 Results from the Implementation Project

From a resource point of view, not considering the methodology used and only looking at the high-level phases of the overall program, we can acknowledge the below shares (average) of resources from the German vendor delivering activities on the project:

- Phase of Project Preparation: 5 resources (1 of nearshore and 4 traditional)
- Phase of Design: 15 resources (4 nearshore and 11 traditional)
- Phase of Build: 19 resources (7 nearshore and 12 traditional)
- Phase of Testing: 17 resources (7 nearshore and 10 traditional)
- Phase of Final Preparation: 11 resources (3 nearshore and 8 traditional)
- Phase of Post Go-Live support: 8 resources (3 nearshore and 5 traditional)

It should be considered that not all worked on a full time regime from the list above. The project had a clear and solid governance structure and started by predicting 37.9 % of activities delivered with nearshoring practices (being 31.6 % onsite and 68.4 % remote), complemented by 62.1 % of the activities delivered with traditional consulting (79.6 % of the activities were planned to be onsite and 20.4 %

remote). At the completion of the program, the delivery with nearshoring practices had a shorter participation than initially forecasted—the reason is that other specific activities were needed on the project during its course, with a very high demand for skills and knowledge of state-of-the-art solutions that few resources on the market have. By the end of the project, we could confirm that 32.4 % of the activities that the vendor delivered were using nearshoring practices, with 33.8 % of activities performed on premises and 66.2 % remote. If we consider the other type of delivery—traditional consulting—we can verify 67.6 % of the tasks, with an average of 45.5 % remote and 54.5 % on premise. It is important to highlight that most of the activities delivered onsite by resources on a nearshore model were activities related to the management of the project and activities related to the development of the solution, helping to have a close relation with the customer (no relevant architectural or advisory activities were performed for the customer on this project, but it is important to raise that this does not mean that the activities performed by the resources on a nearshoring model were less experienced or less able to perform these activities). If we analyze the shares of delivery further, cross-checking it with the phases of the project, it is easy to validate that there wasn't any phase in which the delivery using nearshoring practices had a greater participation than the delivery on a traditional way. Interesting to see that the phases where nearshoring resources had a bigger share were the phase of project preparation and the end of the design phase. It has to be noted that during the project preparation phase, only a small team was onboard, and the only resource on nearshoring delivery was a project manager, laying ground for further nearshore participation. This practice was further regarded as a good practice for the usage of resources on a nearshoring delivery mode. Moreover, during the last 3 months of the phase of design, we can validate that the percentage of nearshore participation was also high—it has to be highlighted that the resources were onboard for some training activities and knowledge transfer for a smoother build phase, as well as for some preparation for the building activities. The same exact resources continued on the project, but more consultants on a traditional model were onboard or asked for more effort per month (becoming almost full time) for the build phase, lowering the nearshore share during the build phase. This fact also had impact on the lower overall nearshore share than initially estimated, as already stated in this paper. Table 1 presented the percentages of nearshoring and traditional participation on this project, from preparation to support.

Considering just the financial piece of the project, which is one of the most relevant pieces of this study, the authors could verify that the services delivered on a nearshore model had an overall cost of 14.6 % of the budget allocated to consulting services, while the services delivered on a traditional model consumed a total of 85.4 % of the overall consulting budget. Going further with this exercise, from a total cost perspective, the costs related to travel and expenses are very relevant since they are obviously higher with the consultants that were delivering services on a nearshoring basis, especially because of travel and some specific Swiss legal/fiscal requests—still, adding these costs to the analysis, we can verify that the total cost of services delivered by nearshore took 16.6 % of the budget, while services

Table 1 Timeline perspective with the shares of delivery

Shares per delivery	Prep	Design				Build				Test			Final prep		Supp	Total
	Jan	Feb	Mar	Apr	Mai	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Nearshore	37.9	23.1	19.1	22.1	41.6	38.2	41.6	31.5	32.5	27.7	31.0	30.4	35.8	25.2	32.7	32.4
Traditional	62.0	76.9	80.9	77.9	58.4	61.8	58.4	68.5	67.5	72.3	69.0	69.6	64.2	74.8	67.3	67.6

Table 2 Shares of costs per mode of delivery

Services delivery model	Days delivered (%)	Consulting costs (%)	Total project costs (%)
Nearshore delivery	32.4	14.6	16.6
Traditional delivery	67.6	85.4	83.4

Table 3 Delivery considering the budget

Delivery model	Budget
Full nearshore project	X
Current setup	227.3 % of X
Full traditional project	297.5 % of X

delivered on traditional basis took a total of 83.4 % of the budget. Table 2 represents these figures.

For this analysis to be fully transparent, it is our duty to also mention that the average level of experience of the resources deployed on this project on a traditional model is, on average, higher than the resources sourced from nearshoring—this fact means more expensive rates for the project budget, as well as for the final customer. In order to not compromise this study, we must take the analysis further and make a similar scenario analysis, comparing the equivalent experience level from the resources (from the same company). Having this in mind, we could verify a 24 %/76 %, as opposed to the numbers presented before. Using these figures, instead of the ones specific to this case study, but considering the current case of shares usage, we can draft three main options of resource deployment—a scenario with only resources from nearshoring deployed (a), the shares used on this project (b), and a scenario with only resources from a traditional model (c). Running the analysis of these scenarios and cross-checking the results with the project at hand, leaving the travel costs out of it since the remote and onsite shares might be variable in other projects, we are able to verify that an engagement delivered only with nearshore practices (a) would only take 43.9 % of the total budget of this case study (b). Considering another possibility, an engagement only with traditional resource deployment practices (c) would need 130.9 % of the overall budget of this case study (b). Table 3 shows all these scenarios, showing the differences between the possibilities of resource deployments.

During the project there was also an effort made by the team and author to understand the overall contentment of the customer, being this regarded as a very good indicator of the quality of the services. This data was collected via surveying, based on a scale Likert type with five levels, with the objective of understanding how the consultants were seen by their counterparts in the customer—in this case, mark 1 was the lowest possible result and 5 the best possible result. We analyzed the data collected from the vendor side and the customer side, with regard to the consultants on the engagement from this study. The data was collected in two different occasions during 2014 for the solution implementation project (one midyear review and one final year review, with the same survey)—considering this data the authors could verify that the average grade of activities related to the management of the engagement is 4.6, while the average grade of the resource

Table 4 Feedback from the customer as a satisfaction indicator

Customer Feedback	Nearshore	Average
Project management activities	4.9	4.6
Overall team	4.9	4.8
Would you engage again with this consultant?	"yes" to all	"yes" to all

deployed using nearshoring practices is 4.9. It has to be noted that the lower grade of these activities deployed using a traditional practice might be related to the higher contact with the customer—with more exposure to the demand and with several tough decisions to communicate, the project manager from the local market had suffered in some aspects of the survey, with absolutely no connection to the quality of the activities delivered in this engagement. Considering the rest of the team that did not had any responsibilities related to management, the average grade is 4.8, opposed to the average grade of the resources deployed using nearshoring practices that was 4.9. It is also important to add that when the customer was asked if he would purchase the services of the same resource in another time, the answer was constantly "yes," for the resources on a nearshoring model and for a resource on a traditional model. Table 4 shows the grades of the resources from nearshoring as well as the average grades, suggesting that from a customer perspective, the perception of quality is the same for the resources on both delivery models.

6 Lessons Learned from a Vendor Perspective on the Implementation Project

When the project was successfully delivered, within the defined timeline and budget, an exercise of lessons learned was done internally to the customer, in which more than 30 % of the team participated. With this exercise the authors could validate the project success as well as the customer satisfaction and could also identify several different challenging situations and opportunities for improvement. This lessons learned exercise focused on four main areas: (1) What was good? What should we keep? (2) What could have been improved? (3) What were the main challenges? (4) What was missing? What have we learned? From this exercise, technical considerations with no relevance for a study on the delivery setup are being disregarded, since no value is directly added to the study at hand. Considering the first area, it was an overall impression that the main good things on the project that should be kept on further initiatives are (1) very good team spirit and culture, translating in a very healthy communication, collaboration, and overall mood; (2) clear governance model with a very good commitment from top management level, with the right delivery setup; (3) ability to have some budget flexibility whenever required due to the competitive setup of activities; and (4) right project environment with different project locations used whenever convenient regarding the project phases. Regarding the second area, all the participants agreed in some

topics to be improved, namely, (1) better role and responsibility definition, avoiding misunderstandings, and aligning from the start the right resource to the right task; (2) better positioning of the vendor on the overall program, with the ability to focus on topics outside of the IT sphere; and (3) lighter and leaner communication avoiding very bureaucratic and heavy processes. Although this project is considered as a tremendous success, all participants in this exercise agreed that it was also a very challenging one, with several difficulties not easy to overcome, namely, (1) very aggressive timeline and very high customer expectations; (2) very hard to get the right resources, for the right tasks, with the right skills, due to the specifics of the project; (3) very mature customer, with very heavy internal IT procedures/practices; and (4) constant change of organization after each phase from the customer side, with some friction on early stages. Finally, (1) a clearer business case, (2) clearer handover and knowledge transfer rules, and (3) more training investments and increased knowledge sharing between team members to faster increase resource autonomy on specific tasks were identified by the team as missing during the project. An overview of these considerations is detailed on Table 5.

With this data collected directly from the customer, it is interesting to confirm that there were no challenges identified on the engagement that are directly related to the practices of nearshoring. In fact, the good communication and very good mood that were verified on the project indicate that no negative impact can be

Table 5 Lessons learned from the vendor side

Area	Topics identified
What was good? What should we keep?	(1) Very good team spirit and culture, translating in a very healthy communication, collaboration, and overall mood (2) Clear governance model, good commitment from top management level, and right delivery model (3) Ability to have some budget flexibility whenever required due to the competitive setup of activities (4) Right project environment with different project locations used whenever convenient regarding the project phases
What could have been improved?	(1) Better role and responsibility definition, avoiding misunderstandings and aligning from the start the right resource to the right task (2) Better positioning of the vendor on the overall program, with ability to focus on topics outside of the IT sphere (3) Lighter and leaner communication avoiding very heavy processes
Which were the main challenges?	(1) Very aggressive timeline and very high customer expectations (2) Hard to get the right resources due to the specifics of the project (3) Very mature customer, with very heavy internal IT procedures/practices (4) Constant change of organization after each phase from the customer side
What was missing? What have we learned?	(1) Clearer business case (2) Clearer handover and knowledge transfer rules (3) Training investments and increased knowledge sharing between team members should have been increased

pinpointed to cultural aspects, several times associated with outsourcing activities, nor resistance to "foreigners" on a traditionally closed market—this is actually one of the risks that were considered during the project preparation phase, aligned with the suggestion of Stetten et al. (2010, p. 9) that "the particular aspect of intolerance towards foreigners (as an aspect of Human Orientation) leads to both insufficient and emotionally laden informal communication which in turn, among others, affects the risk of the nearshored task not being accomplished in time."

To close the analysis section, the findings related to the overall engagement are also interesting—nearshoring resources actually played a key role in providing quick responses to several of the challenging situations that the project faced, since the nearshore center used in this project was able to provide in a very fast manner several experienced resources to the project. This is due to the size of the nearshore organization that has a regional team, as well as solid internal practices of knowledge sharing. This was especially important in this case study since, as already mentioned before, the timeline was the major constraint—meaning that the resource sourcing processes needed to be very agile and fast, avoiding negative impacts on the project.

7   Main Findings and Analysis of the Results

Having in mind the full study above and after gathering feedbacks of several of the main key players of the program in informal interviews (total of five, from both sides of the project—customer and vendor) and also considering the lessons learned exercise performed, the authors can leave some thoughts about the usage of proximity offshoring delivery in such type of projects.

Starting by analyzing the financials, this study suggests that if the activities, the markets, and the type/organization of the program are carefully considered, the usage of nearshoring practices can unlock several benefits, highly raising the return on investment of the engagement. Even on a simple traditional ROI analysis, we can estimate a positive impact on the costs. It should be noted that this type of good results is also dependent on the maturity level of the customer, as well as on their permeability to such innovative practices that have a considerable share of remote activities.

From a service quality perspective, in this case accessed from the customer satisfaction regarding the consultants delivering the services, the study clearly suggests that no impact on the quality was felt by the vendor team or by the customer side—on the contrary. In reality it suggests that the resources deployed using nearshoring on this engagement delivered in a very consistent way when compared to the ones on a traditional mode, exceeding the expectations of the customer in the following areas: technical knowledge and skills, knowledge of the business at hand, and soft skills and excellence on their operations. Having this in mind, and in line with the previous comment, if the activities, the markets, and the type/organization of the program are carefully considered, the usage of nearshoring

practices can bring extensive benefits, without any impact on the satisfaction of the customer or the quality of the deliverables. In this case it is also important to highlight the importance of a careful management of the team considering in advance any risk related to the remoteness of work or to any eventual cultural gap. Additionally, the team from the vendor side did not identify any issue during the project from the nearshore delivery, as suggested by the good communication, collaboration, and mood from the lessons learned exercise.

As stated on the previous consideration, on activities with nearshoring participation, a diligent management of the team is very important—meaning that an analysis of the project management skills from the traditional resource as well as from the nearshore resource is highly important for this study. In this case, it was first a valuable lesson learned that having a project manager from the nearshore organization brought benefits to the teams of the customer and of the vendor since this resource was able to have a closer connection with the rest of the resources working on a nearshore model (especially when there were remote activities) as well as with the nearshore organization. It is obviously important to acknowledge that having also a resource from the local market, on a traditional model, was a key factor for the success of the project, especially because he brought local knowledge about the customer and the market, which was very valuable to the overall activities. Additionally, the participation of traditional technical and functional consulting on the project was also very valuable, providing expert insights on the industry/solution and specifics of the local market and culture. The authors consider that this study suggests that when using proximity offshoring practices, resources from the local market, engaged on a traditional way, are essential to bring local market expertise and industry-specific knowledge. They can also play a key role in reducing even more any eventual cultural gap that could be felt between the resources from the nearshore organization and the final customer. This case study suggests that there can actually be no cultural gap, as per the "What went well? What should we keep?" area of the lessons learned exercise.

Considering the overall business transformation program, both the teams (client/vendor) were also an important key in turning this initiative into a success—they were able to ultimately print a very good agility during the program, being able to adapt quickly to challenging situations, and were also able to collaborate in a very smooth and healthy way, overcoming any issue related to the remoteness of activities and overcoming any eventual cultural gap with the resources from the nearshore organization. Obviously, this result would not have been possible with the commitment from top management from the customer and vendors, being integrally dedicated to the success of the business transformation program. This full commitment sets, without a doubt, this business transformation program as an assumed benchmark in the market, with this being one of the most important success factors of the full initiative. This clearly goes against the suggestions (Uhl et al. 2013) that in most big companies undertaking large business transformation projects, there is still a strong tendency for separation and a lack of integration between different departments or lack of collaboration between employees from different organizations. To be noted, this pledge for success from

top management and c-level executives also played a key role on a project using an engagement from a nearshore organization. As a final analysis of the overall business transformation program, it might be beneficial to also have a representative of the nearshore organization on the executive committees, bridging even more the resources and activities.

8   Conclusion

Setting itself as a benchmark in the industry, the IT implementation project of this large business transformation program can be considered a success story considering the quality of the solution delivered and the high customer satisfaction. This study suggests that the usage of proximity offshoring services on an IT implementation project, comprising activities such as project preparation, support (full life cycle of a project), and a business transformation program can be seen as a success. Analyzing further the results, we can also confirm that services delivered on a nearshore model, if planned, delivered, and managed closely, counting with the full commitment from top management from the client and the vendors, can increase significantly the competitive advantage, from a client and vendor perspective—it can bring valuable savings to the engagement, raising the return on investment without the decrease on quality or the increase on risks of the project; this fact is not only important for the projects at hand but also to maintain a healthy and sustainable relation with the customers since, in the Swiss market (in which this engagement took place), it has been identified by Weber et al. (2003) that 70 % of the companies would engage in another project with outsourcing but only 56 % would keep the same vendor. We can identify several reasons for changing vendors: too expensive, poor service and poor communications, and not enough return on investment. As a summary, if deployed and managed properly, exactly the same tasks on IT implementation projects can be deployed by resources from a nearshore organization, without decreasing the quality of the services, without increasing the risks of the project, and with considerable savings, leading to a maximized return on investment (ROI). On this case study, there was actually no identified impact on the quality of the services and on the quality of the delivered solution that can be linked to the usage of proximity offshoring practices. Additionally, the cultural gap that is frequently pointed to traditional offshoring activities (in distant locations) was not felt in this case study by the rest of the vendor team nor by the customer. Regardless, the authors still feel obligated to recommend to take creative approaches to increase the collaboration for the teams, helping on the overall communication, as well as to take some investments in training that might be needed for the resources in order to avoid any risk that might endanger the activities of the engagement.

It is also important for the reader to be aware that from a literature review, one can confirm that there are not much research on the subject available. It would for sure be valuable for the academic community to have more case studies and bigger

data sets. It should be noted that the present paper has as a basis a pilot program—it would be very interesting for the overall academic community to have studies in line with this one with larger sets of implementation projects. The authors would also like to point out that the benefits related to the return on investment mentioned in this case study have a very close link to the scope and configuration of the project—if we change any of the variables of this engagement, the benefits might suffer variances, with possible impacts on both sides of the engagement (client and vendor). The cultural side of these types of engagement should also be present for future research, with focus on the maturity of the client and vendor for such programs. Additionally, many of the publications found focus only on traditional offshoring practices (farshoring) with no regard to the distance dimension. On another front, more research activities that focus on the vendor would for sure add value to the academic community since most research is centered on the demand point of view—as pointed out by Wiener et al. (2010), there are not many studies that have examined supply-side aspects, especially in Europe, suggesting that there are several opportunities for future research. As a closing note, there is not much literature on the subject that do not focus on IT services, although it is already suggested by Guedes and Pereira (2015) that the same benefits are not limited to coding or debugging activities—value can be added by using proximity offshoring practices in competence and training management activities, value engineering initiatives, or organizational change management projects. It would still be interesting to open the scope of the research focusing on services provided by nearshore organizations on other types of activities such as professional advisory services or management consulting.

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The Identification of Crisis Manager Skills by Using Saaty's Method

Marie Mikušová and Andrea Čopíková

Abstract The paper presents the skills and abilities of a crisis manager, which microbusiness owners identified, and evaluation of their significance for the performance of this function. The overview of abilities and skills was generated based on brainwriting. Created mind map depicts the ideas into three levels. Hypothesis determined at the start of the research, that the requirements identified by the owners of microbusinesses will be in accordance with the requirements already formulated in the literature, was not rejected. The respondents used Saaty's method for pairwise comparisons of identified skills. After the evaluation of Saaty's matrices modified on the basis of comprehensive results, the identified requirements for becoming a crisis manager of a microbusiness were evaluated. Managerial skills were appreciated in most of the groups. On the second level, they are crucial for the performance of the function resilience, independent problem solving, flexibility, and perfect financial management. Based on empirical findings and in cooperation with experts from crisis management, the model of skills required for the performance of a crisis manager was developed.

Keywords Crisis manager • Microbusiness • Model • Skill • Saaty's method

1 Introduction

The variability of a crisis manager functions is still growing. Despite this diversity, activities of crisis managers are united by one factor. This factor is the effort of crisis managers for quick and effective end of the crisis. The termination of the crisis may be both a business continuity and closure of a business itself.

Who will take the role of a "trouble shooter"? Businesses and especially small businesses probably will not have the finance for the services of external professional crisis manager. In this case, they must use internal human resources, e.g., managers with strong managerial experience.

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A common problem faced by a number of businesses is a misunderstanding of crisis planning as competitiveness advantage. The relationships between crisis management and standard management in "normal" times should be emphasied and attention must be given to the inclusion of crisis management to strategic management (Bazsová and Křížová 2011). Small businesses and microbusinesses in particular face a number of other issues that large enterprises do not have. They are usually undercapitalized. Lack of resources concerns not only financial resources but also the necessary experts. Managers are overloaded with operational tasks; they have no time for self-education. The vulnerable position of small and especially microbusinesses and their endeavor to understand the threat from potential crises were an impulse for a research project, one of the outputs of which is this paper.

2 Research Objectives

There are databases of job descriptions to characterize different functions. But there is no created comprehensive, methodical summary of the requirements for the crisis manager function. This lack of methodological requirements and focus on microbusiness has been a challenge for the formulation of a research objective.

The objective of the research is to determine what skills and abilities microbusiness owners require from crisis managers and use the findings for the creation of a model of microbusiness crisis manager skills and abilities (i.e., competencies). Simultaneously the evaluation of the significance of identified skills and abilities for becoming a crisis manager of a microbusiness is the second objective. The results will be also used for the assessment of hypothesis: the requirements (skills, abilities, i.e., competencies) identified by the owners of microbusinesses will be in accordance with the requirements already formulated in the literature. To accomplish these objectives, it was necessary to carry out empirical research on a representative sample of businesses, process the data, and perform their interpretation. By the induction of literary research results and empirical survey skills and abilities, model of crisis manager focusing on microbusiness was designed.

3 The Issue of Research

3.1 The Relationship of Small Businesses to the Crisis: Literature Review

All of the mentioned studies focus on small- or medium-sized enterprises (SME). In accordance with the Recommendation 2003/361/EC, the European Commission

defines small- and medium-sized firms as follows: a small firm has a fewer than 50 employees and a turnover/balance sheet total of no greater than ten million euros. A medium-sized firm has between 51 and 250 employees and a turnover no greater than 50 million euros or a balance sheet total of not more than 43 million euros (Commission Recommendation 2003/361/EC).

There is not a much attention devoted to research's area of small- and medium-size organization's readiness for crises; it can be considered as an opportunity. Small business is an area open to research with practically usable results. The results should support the owners of small businesses to encourage them to learning and sharing ideas. The relative absence of researching crises management in small organizations is pointed out by some researchers. This is the conclusion of Herbane (2010), too. His research is focused on understanding the risk, acquiring experiences from crises, and an existence of supporting systems. He came to a conclusion that from the view of small companies, it is necessary to make an effort in both: in research, public awareness and support.

Frequent under-capitalization has among other issues resulted in a lack of resources, including human resources with the required professions. This also concerns the crisis management and crisis prevention. Despite this, the research of Yiannaki (2012) provides interesting findings. Yiannaki (2012) considers as the condition of long-term survival of small businesses in Romania and Cyprus, among others, the level of fulfilling social responsibility obligation. Hamplova and Provaznikova (2016) focused on finding out how small businessmen deal with the main economic issues connected with the assessment of their company performance and the related liquidity. The importance that the owners of small- and medium-sized businesses attribute to the criteria measuring and evaluating the company performance, the liquidity, and the profit distribution is already the subject of crisis management. The handling of management, decision-making, planning, etc. relates to the use of tools and methods (Svobodova 2016). In many small businesses, there are big gaps in these managerial abilities.

Extensive research for the identification of elements that influence crises preparation and bankruptcy was carried out by Hilliard et al. (2011). They identified the most frequent elements like the acceptance of decision to prepare for crises, recognition of specific risk or threat's existence, and strong belief that this decision is correct. Other elements include regional place of business, customer's requirements to implement crises management, duration of crises event, and awareness about activities and knowledge in the area of crises management in other organizations. Crisis planning in small businesses is a topic of research of Spillan and Hough (2003). The results of their study indicate that small- and medium-size organizations devote very little attention to preparation for crises even in a situation that they have experienced crises already. The same conclusion was reached in the research of Mikušová (2013). Ligthelm (2011) focused on the identification of principal reasons for small business survival and sustainability. His analysis identified the human factor in small businesses and specifically entrepreneurial actions and business management skills as the strongest predictors of small business

survival. Businesses portraying these characteristics should be the focus of small business support strategies.

Another study (Herbane 2013) focuses on the managers of British SMEs and their perceptions of threat, impact, and the ability to crisis planning. Managers in his study associate formal crisis management planning with multifaceted understanding of the longer-term impacts of a crisis, but according to Herbane (2013), they have a lower degree of formalization in their crisis plans. Mikušová (2013) focuses on *microbusinesses* in Czech. Microbusinesses are defined as enterprises which employ fewer than ten persons and whose annual turnover or annual balance sheet total does not exceed two million euros (Commission Recommendation 2003/ 361/EC). She found that managers regarded prevention as important part of organization management. Despite the fact that the preparation of precautionary measures is complicated especially by lack of human and financial resources, they deal with the prevention even though only on the basis of a threat they have already experienced. From the questionnaire, it follows that organizations know about threatening effects, and quite well, probably intuitively (e.g., their behavior toward their employees and surroundings), they have created conditions for coping with crises. Factor analysis confirmed two strategies of defense against the crisis. The first strategy envisages the creation of crisis plans and teams. The second strategy forms the behavior of microbusinesses toward employees and surroundings so that they are loyal even in the times of crisis. Mikušová (2013) has come to the conclusion that microbusinesses try to identify conditions for their survival, but they do not put the crisis into relation with strategic management, and prevention is not considered a feature of competitiveness.

There are a number of defensive mechanisms by which small businesses justify their passivity toward crisis prevention. Some managers claim that they are too busy and they do not have enough time to take care of crisis planning in advance. In addition to that, they argue that today's problems are so complicated and time demanding and that there is no any time left to plan for future uncertainty (Caponigro 2000). Many small organizations think that "there are no crisis in our area of business" or "our company is well managed and we will be able to deal with crises even without a plan" (Caponigro 2000). According to Mitroff et al. (1989), there are organizations which believe that they are protected from crises and suppose that crises happen only to others. Other small organizations believe that the insurance is sufficient, and so it is not necessary to prepare for a crisis (Booth 1993).

3.2 Terminology

In order to correct formulation and interpretation of research results, it is necessary to define the following terms.

3.2.1 Skills and Abilities

Abilities are prerequisites for performing the study and professional, theoretical, and practical activities of individual. They are such capacitive personality characteristics that determine the successful execution of human activities, from qualitative, quantitative, timing, and power terms (Kohoutek 2002). Abilities cannot be reduced only to the area of the intellect, perception, and motor. The concept must be extended to the field of emotional and volitional. Abilities are largely inherited and congenital. However, they are developed during upbringing, training, education, and self-education. The innate dispositions are the core of abilities. The concept of *skill* indicates the abilities developed by practice. Skill is the disposition to correct, quick, and effective execution of specific activities using appropriate method, which is obtained by learning (Kohoutek 2002). Skills in contrast to the ability can be divided more subtly, such as reading, writing, communication, computer skills, and more (Vivarelli 2013). Both terms are part of the term of competence.

According to Mikušová and Čopíková (2015), *competencies* can be defined as a set of desirable characteristics, experience, knowledge, abilities, skills, motivation, attitudes, and personal qualities for a given activity or position. Various criteria can be used for monitoring of competence, i.e., skills and abilities. For example, Hroník (2006) lists those as social-psychological competence, problem-solving competence, interpersonal competence, and self-management competence. The type of job and the skills required for its performance are another criterion (Horváthová and Kashi 2015).

In this paper, the personality of the crisis manager is monitored from three points of view. The crisis manager is regarded as an expert in his profession, and his managerial skills and communication and interpersonal skills are evaluated. So, for this paper, the specific profile of the crisis manager position was created. This position is understood as the combination of categories: technical (skills and abilities related to the position of crisis manager, e.g., budgeting, information collection and analysis, making decision, etc.), managerial (skills and abilities that contribute to excellent performance in the role of a manager, e.g., conflict resolution, coaching, and more), and interpersonal (effective communication and building positive relationships with others; negotiation, presentation skills, etc.).

3.2.2 Skills and Abilities of a Crisis Manager

Organizations should not rely solely on the assistance of external consultants. Wooten and James (2008) point out the importance of human resources development for the creation of the capacity of the organization to manage the activities of crisis management. According to Frýbert (1995), a crisis manager needs professional and life experience in managing emergency situations. Knowledge of the organization and its surroundings, its threats and opportunities, its strengths and weaknesses, its possibilities, and the available resources for the rescue of the

organization are the underlying requirements for the function of the crisis manager. According to a technical point of view, it can be said that a crisis manager must know methods and techniques especially in the field of cost management, change management, performance improvement, or financial management (Fotr et al. 2006). In the different phases of the crisis, the knowledge of organizational management, process management, or strategic management is required. A crisis manager must have generalization abilities and needs to learn to structure complex problems, use deduction, and benefit from synergy effects (Holsti 2002).

It can be stated that crisis managers must have strong personalities. They must feel good in terms of rapid change and respond to changes dynamically (CSO's Role in Times of Uncertainty 2014). The crisis manager is not "a lone wolf." Very dangerous in extreme situations may be monopolizing, not sharing or showing a lack of interest in gaining new knowledge (Lerbinger 2012). While collaborating with others, a manager is confident to make his/her own decisions. Truthfulness, consistency, and trustworthiness are important values expected of a manager (Mitroff et al. 1989). Employees follow a manager to whom they trust (Topper and Lagadec 2013).

A good crisis manager has good communication skills (Fink 2013). Most managers are aware of the negative consequences associated with organizational crisis and understand the importance of communication as part of reactive crisis strategy Wooten and James (2008). Also management skills are essential, as is clear from the previous text. Throughout a crisis, the ability to time management or conflict management is the advantage. Not only rational and intellectual skills of crisis manager are required. The crisis manager position must also include the management of emotional elements of human behavior (Lalonde and Roux-Dufort 2013). This involves the ability to create an emotionally supportive environment, control one's own negative feelings, and calm emotions and situations. Gmelch (1982) focused on mental resilience as crucial to a crisis manager's work. In association with this problem, Margolis and Stoltz (2010) identified aids that managers can use to analyze critical events in order to move forward. Managers can proceed in steps from the taking of control over events, the extent to which the course of events can be affected, to the extent of actual damage and the duration of symptoms. The outlined requirements correspond with the application of four points defined in the synthesis of requirements established by Miller (1987). These are strategy, leadership, ability to structure problems, and knowledge of the environment.

4   Methodology

Here the research process and the methods used in the research are described.

Table 1 The structure of respondents

Number of respondents	350
Number of employees	5–10 (65 %)
Annual return	≤5 mil. CZK (200 000 €) (72 %)
Business operates in services/production	Service (64 %)
Business operates in the market (number of years)	5–10 years (73 %)
Owner holds a high executive position	82 %

4.1 Research Process

The article is based on the results of a research conducted in the fall of 2015 and connects to the research conducted a year earlier. Managers of microbusinesses were chosen as the respondents. It was no surprise that in most cases they were also the owners of business. The participants were selected randomly from all Czech regions. Three hundred fifty respondents took part in the pilot survey (Table 1). All participants indicated that their business had been facing a very serious problem but not threatening to the existence of the business itself as yet.

The competencies (skills and abilities) required for the position of a crisis manager were identified using brainwriting. Respondents did not have any theoretical knowledge of crisis management and such were not familiar with the requirements for skills, abilities, and knowledge of a crisis manager as outlined at the beginning of this article. The respondents electronically submitted a summary of their proposals describing their views on crisis manager skills and abilities. They were asked to aggregate their proposals into three groups: managerial, interpersonal, and technical skills and abilities. These groups are considered as the core of skills and abilities, i.e., the first level. Proposals of skills and abilities within each group are considered as the second level.

Relevance of each perception/proposal was filtered by the researcher in collaboration with experts from the crisis management branch. For further processing, most frequently identified skills and abilities were selected. A list of this aggregated summary was forwarded to all the participants for further comments, additions, or exclusions. On this basis, the third level of requirements has been created. This level is graphically captured, too (Fig. 1). Next evaluation of this level elements for the model is, however, not relevant.

The next step is to evaluate the significance of individual skills and abilities in the first and second levels. To fulfill this task, Saaty's method was used. Pairwise comparison showed the distribution of weights of individual skills and abilities. The obtained values were corrected in cooperation with experts from crisis and human management and transferred to the scale of 1–4. The value of 1 means the slightest significance and the value of 4 the highest significance of skill or ability to perform the duties of a crisis manager. Thus, a base of the model of skills and abilities required for the post of a crisis manager was created. For each identified skill or ability, five levels were defined and described. Level 1 presents the lowest requirements on the skill; level 5 means excellent performance of the skill. To complete
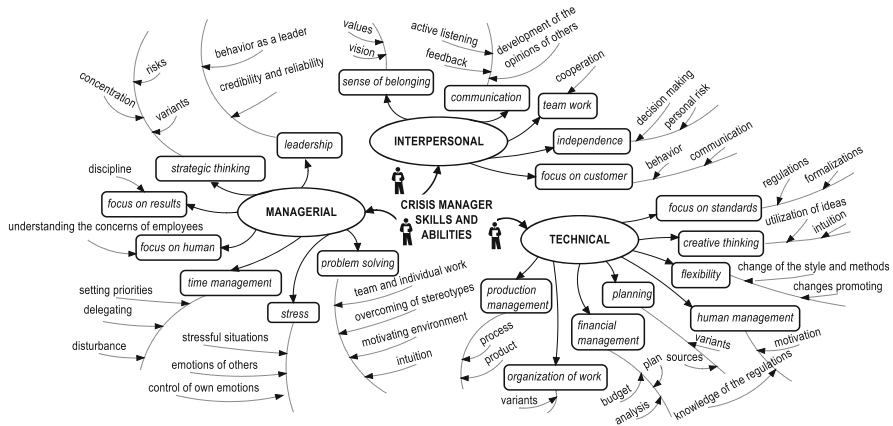
Fig. 1 Mind map

the model, it was necessary to assign to each skill the required level from 1 to 5. Even this final part was carried out in cooperation with the respondents.

4.2 Brainwriting

The "brainwriting method" was preferred to "brainstorming" for the identification of competencies. Brainwriting is an alternative method to brainstorming that tries to encourage a more uniform participation within a group. This group-structured technique is aimed at aiding innovation processes by stimulating creativity (Rohrbach 1969). Like brainstorming, it is designed to generate lots of ideas in a short time. The grounding of this technique is the belief that the success of an idea generation process is determined by the degree of contribution and integration to each other's suggestions, and specifically it is meant to overcome the possible creativity barriers brought up by issues such as interpersonal conflicts, different cultural backgrounds, and reasons of intellectual properties (Heslin 2009). For organizational reasons (different regions, a large number of respondents), the method was modified.

4.3 Mind Map

Mind map, sometimes mental map, is a method that helps to systematize and organize information. It also helps to add new information to existing structures. It is a method that supports a two-way process, i.e., getting existing information and experience stored in the brain out and, conversely, "to receive" further information inside—all this by using graphic processing (Buzan and Buzan 1996). Mind map

works with one central word/concept/term, which extends while looking for different semantic contents and connotations of the word. It is therefore a kind of a grape of information associated with the central word/term. The theoretical concept behind the use of mind maps is that the human brain does not work linearly or horizontally. Information processing in the desktop and interrelations is substantially more efficient. A mind map is a graphical method that facilitates these processes. Mind maps are widely used, e.g., in the planning or solving problems in project management.

4.4 Saaty's Method of Determining Weights

Saaty's method was used for the treatment of obtained information. In this method, all the pairs are compared, and the evaluation criteria are stored in the so-called Saaty's matrix $\mathbf{S} = (s_{ij})$, where $i, j = 1, 2, \ldots, n$. The elements of the matrix are interpreted as the estimates of the proportion of i-th weights (w_i) and the j-th (w_j) criteria (Saaty 2008):

$$s_{ij} \approx \frac{w_i}{w_j}; i, j = 1, 2, \ldots, n \qquad (1)$$

$s_{ij} \in \{1/9; 1/8; 1/7; 1/6; 1/5; 1/4; 1/3; 1/2; 1; 2; 3; 4; 5; 6; 7; 8; 9\}$

The comparison between criteria specifies the extent of the preference, which is expressed as a certain number of points from the selected scale. The comparison determines whether one criterion is preferred to another but also to what extent. Saaty recommends the use of the nine-point scale (Table 2).

The odd stages are described: one point means that the criteria are equally important, three points mean that the first criterion is moderately more important

Table 2 Scale of importance for comparison pair

Verbal rating	Numeric rating	Reciprocal (decimal)
Extreme importance	9	1/9 (0.111)
Very strong to extremely	8	1/8 (0.125)
Very strong importance	7	1/7 (0.143)
Strongly to very strong	6	1/6 (0.167)
Strong importance	5	1/5 (0.200)
Moderately to strong	4	1/4 (0.250)
Moderate importance	3	1/3 (0.333)
Equally to moderately	2	1/2 (0.500)
Equal importance	1	1 (1.000)

Source: Saaty and Vargas (2012)

than the second one (experience and judgment slightly favor one activity over another), five points mean strong importance, seven points mean very strong importance, and up to nine points means that the first criterion is absolutely (extremely) more important than the second criterion (Saaty and Vargas 2012). Saaty's matrix **S** is a square matrix of $n \times n$ (number of criteria), for whose elements s the relationship is valid:

$$s_{ij} = \frac{1}{s_{ji}}; \; i,j = 1, 2, \ldots, n \tag{2}$$

Thus, the matrix **S** is reciprocal.

Before calculating the importance of criteria, it is necessary to verify that the specified matrix of paired comparisons is consistent. A consistent matrix means, e.g., the decision maker says a criterion i is equally important as another criterion j (so the comparison matrix will contain value of $s_{ij} = 1 = s_{ji}$), and the criterion j is absolutely more important than a criterion w ($s_{jw} = 9$; $s_{wj} = 1/9$); then the criterion i should also be absolutely more important than the criterion w ($s_{iw} = 9$; $s_{wi} = 1/9$). Unfortunately, the decision maker is often unable to express consistent preferences in cases of several criteria (Randová and Krajňák 2013). Then, Saaty's method measures the inconsistency of the pairwise comparison matrix and sets a consistency threshold which should not be exceeded. The degree of consistency can be assessed in different ways; one of them is the consistency index (CI) defined as follows:

$$CI = \frac{(\lambda_{max} - n)}{(n - 1)} \tag{3}$$

where λ_{max} is the largest eigenvalue of the matrix **S** and n is the number of criteria.

Knowing the consistency index, the next question is how to use this index. Saaty proposed to use this index by comparing it with the appropriate one. The appropriate consistency index is called random consistency index (RI). Saaty randomly generated the reciprocal matrix using a scale {1/9; 1/8; 1/7; 1/6; 1/5; 1/4; 1/3; 1/2; 1; 2; 3; 4; 5; 6; 7; 8; 9} and got the random consistency index to see if it is about 10 % or less. The average random consistency index of sample size 500 matrices is shown in the table below (Table 3).

The comparison between consistency index (CI) and random consistency index (RI) or in formula

Table 3 Random consistency index (RI)

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

Notes: n—number of criteria
Source: Saaty and Vargas (2012)

$$CR = \frac{CI}{RI} \tag{4}$$

is called consistency ratio (CR).

The matrix **S** is sufficiently consistent if the consistency ratio $CR \leq 0.1$. Calculation of significance from Saaty's matrix can be done in several ways (Staňková 2014). The default (Saaty's) procedure is based on calculating the eigenvector matrix **v** in accordance with the following formula:

$$\mathbf{S} \times \mathbf{v} = \lambda_{\max} \times \mathbf{v} \tag{5}$$

where $\lambda_{\max}$ is the largest eigenvalue of the matrix **S**.

One of the simpler frequently used methods is the determination of weights using a weighted geometric average of decision matrix **S** rows. By normalizing these averages, we get approximate importance of criteria w_i, by the following formula:

$$w_i = \frac{\left[\prod_{j=1}^{n} s_{ij}\right]^{\frac{1}{n}}}{\sum_{i=1}^{n} \left[\prod_{j=1}^{n} s_{ij}\right]^{\frac{1}{n}} i,j = 1, 2 \ldots, n} \tag{6}$$

where n is number of criteria and s are the elements of Saaty's matrix **S**, where $s_{ii} = 1$, $s_{ij} = 1/s_{ji}$, and $s_{ij} \in \{1/9; 1/8; 1/7; 1/6; 1/5; 1/4; 1/3; 1/2; 1; 2; 3; 4; 5; 6; 7; 8; 9\}$.

5   Results and Comments

5.1   What Skills and Abilities Microbusiness Owners Require of Crisis Managers?

With the adaptation of the respondents' comments, mind map characterized relationships, and connections between identified skills and abilities were created (Fig. 1). Skills and abilities are aggregated into three groups (the first level): managerial, interpersonal, and technical. Classification of individual skills and abilities into groups is the following (the second level). Managerial skills and abilities are leadership, strategic thinking, focus on result, focus on human, time management, resilience, and problem solving. Interpersonal ones are the sense of belonging, communication, teamwork, independence, and focus on customer. Technical skills and abilities are focused on standards, creative thinking, flexibility, human management, product management, finance management, planning, and work organization. The third level is also captured. For example, in the frame of "strategic thinking" (second level), there are variants, risks, systemic, concentration, and permanence because simplicity and clarity were no longer working with the third level.

5.2 The Evaluation of the Significance of Identified Skills and Abilities

The respondents assessed groups of skills and abilities at the first and second level using Saaty's method to determine which skills and abilities are the most valuable to ensure successful performance of the crisis manager. Since this is a frequency problem, *median* was used for the final matrix creation. The following text focuses on the results obtained from these final matrices presented in graphical form, too.

5.2.1 Paired Comparisons of the First Level of Skills and Abilities

Saaty's final matrix is presented in Table 4.

It is evident that respondents highly appreciated technical skills and abilities (that contribute to outstanding performance in the role of professional crisis manager), which reached the level of significance of 0.5396 (53.96 %). What is striking is the low evaluation of interpersonal competencies (i.e., the skills related to communication and relationships) with a weight of 0.1634 (16.34 %).

For better clarity, the distribution of weights is captured graphically (Fig. 2).

5.2.2 Paired Comparison of the Second Level of Skills and Abilities

Skills and abilities at the second level are captured in the following Saaty's final matrices (Tables 5, 6, and 7) and figures (Figs. 3, 4, and 5).

Managerial Skills and Abilities

Paired comparisons of the second level of skills and abilities—*managerial*—are presented in Table 5.

The graphical presentation of the distribution of weights is follows (Fig. 3).

The respondents were in agreement that problem-solving skills are essential at times of crisis (38.33 %) (Fig. 3). At the same time, the respondents were aware of the need for psychological resilience of a crisis manager as well as focusing on output (results). To be a charismatic leader is an advantage in crisis situation. Strategic thinking, on the other hand, was rated low (5.49 %). Apparently this is due to the fact that in times of crisis it is necessary to be able to make short-term decisions promptly. However, even at such times, it is dangerous to underestimate or ignore long-term strategic decisions. When creating a model based on the discussions with experts from management roles, a higher ranking was given to this skill.

Table 4 First level of skills and abilities—paired comparisons

Matrix S	Managerial	Interpersonal	Technical	Geomean	Weight w	$S \times w$	$(S \times w)_i/w_i$
Managerial	1	2	1/2	1.0000	29.70	0.8936	3.0087
Interpersonal	1/2	1	1/3	0.5503	16.34	0.4918	3.0098
Technical	2	3	1	1.8171	53.96	1.6238	3.0093
				3.3674	100.00	$\lambda_{max}=$	3.0092
				RI=	0.580	CI=	0.0046
				N=	3	CR=	0.0079

Source: Own processing

Notes: geomean = geometric mean, λ_{max} = the largest eigenvalue of the matrix **S**, RI = random index, N = number of criteria, CI = consistency index, CR = consistency ratio (≤0.1), w = Saaty's weight vector, w_i = i-th element of vector w (weight of i-th criteria in %)

Fig. 2 First level of skills
and abilities. *Source*: Own
processing

managerial,
29.70%

technical,
53.96%

interpersonal,
16.34%
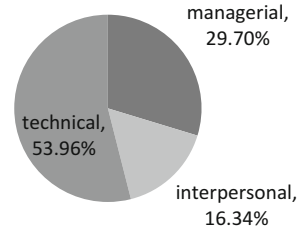
Table 5 Managerial skills and abilities—paired comparisons

S	a	b	c	d	e	f	g	Geomean	Weight w	S × w	(S × w)ᵢ/wᵢ
a	1	2	1	5	3	1/4	1/7	1.0099	10.65	0.8315	7.8103
b	1/2	1	1/6	2	2	1/4	1/8	0.5210	5.49	0.4123	7.5067
c	1	6	1	3	3	1	1/2	1.6013	16.88	1.2617	7.4745
d	1/5	1/2	1/3	1	1/2	1/5	1/5	0.3518	3.71	0.2843	7.6677
e	1/3	1/2	1/3	2	1	1/3	1/5	0.4962	5.23	0.3881	7.4187
f	4	4	1	5	3	1	1/3	1.8701	19.71	1.4816	7.5153
g	7	8	2	5	5	3	1	3.6359	38.33	2.9439	7.6806
								9.4862	100.00	$\lambda_{max}=$	7.5820
								RI=	1.320	CI=	0.0970
								N=	7	CR=	0.0735

Source: Own processing
a—Leadership
b—Strategic thinking
c—Focus on output
d—Focus on human
e—Time management
f—Resilience
g—Problem solving
Notes: geomean = geometric mean, $\lambda_{max}=$ the largest eigenvalue of the matrix **S**, RI = random index, N = number of criteria, CI = consistency index, CR = consistency ratio (≤ 0.1), w = Saaty's weight vector, w_i = i-th element of vector w (weight of i-th criteria in %)

Interpersonal Skills and Abilities

Paired comparisons of the second level of skills and abilities—*interpersonal*—are presented in Table 6.

The graphical presentation of the distribution of weights followings (Fig. 4).

In order to communicate, one cannot be afraid to accept and take responsibility for independent decisions as pointed out by the respondents as one of the most important interpersonal skills (47.84 %) (Fig. 4). They also recognized that saving the company is not in the hands of individuals but in those of the whole team. A crisis manager must be able and willing to create a team of experts in order to rescue the company and utilize and support their abilities. The interests of customers are placed in the background (only 4.19 %).

Table 6 Interpersonal skills and abilities—paired comparisons

S	a	b	c	d	e	Geomean	Weight w	$S \times w$	$(S \times w)_i/w_i$
a	1	1/2	1	1/7	4	0.7784	11.63	0.6410	5.5097
b	2	1	1/2	1/3	3	1.0000	14.95	0.7743	5.1806
c	1	2	1	1/2	6	1.4310	21.39	1.1199	5.2361
d	7	3	2	1	8	3.2009	47.84	2.5043	5.2346
e	1/4	1/3	1/6	1/8	1	0.2805	4.19	0.2163	5.1589
						6.6907	100.00	$\lambda_{max}=$	5.2640
						RI=	1.120	CI=	0.0660
						N=	5	CR=	0.0589

Source: Own processing
a—Sense of belonging
b—Communication
c—Teamwork
d—Independence
e—Focus on customer
Notes: geomean = geometric mean, λ_{max} = the largest eigenvalue of the matrix **S**, RI = random index, N = number of criteria, CI = consistency index, CR = consistency ratio (≤ 0.1), w = Saaty's weight vector, w_i = i-th element of vector w (weight of i-th criteria in %)

Table 7 Technical skills and abilities—paired comparisons

S	a	b	c	d	e	f	g	h	Geomean	Weight w	$S \times w$	$(S \times w)_i/w_i$
a	1	1/5	1/4	1	2	1/9	1/2	1	0.5225	4.67	0.3908	8.3623
b	5	1	1	5	4	1/8	3	5	1.9236	17.20	1.5083	8.7674
c	4	1	1	5	4	1/3	4	3	2.0566	18.39	1.5050	8.1825
d	1	1/5	1/5	1	1	1/5	1/3	1	0.4767	4.26	0.3595	8.4324
e	1/2	1/4	1/4	1	1	1/4	1	1/2	0.5000	4.47	0.3932	8.7928
f	9	8	3	5	4	1	7	4	4.3185	38.62	3.8322	9.9224
g	2	1/3	1/4	3	1	1/7	1	2	0.7841	7.01	0.6019	8.5837
h	1	1/5	1/3	1	2	1/4	1/2	1	0.5994	5.36	0.4597	8.5759
									11.1814	100.00	$\lambda_{max}=$	8.7024
									RI=	1.410	CI=	0.1003
									N=	8	CR=	0.0712

Source: Own processing
a—Focus on standards
b—Creative thinking
c—Flexibility
d—Human management
e—Product management
f—Finance management
g—Planning
h—Work organization
Notes: geomean = geometric mean, λ_{max} = the largest eigenvalue of the matrix **S**, RI = random index, N = number of criteria, CI = consistency index, CR = consistency ratio (≤ 0.1), w = Saaty's weight vector, w_i = i-th element of vector w (weight of i-th criteria in %)
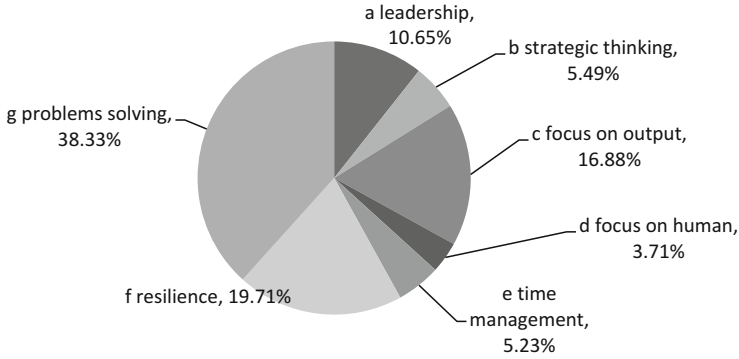
Fig. 3 Managerial skills and abilities. *Source*: Own processing
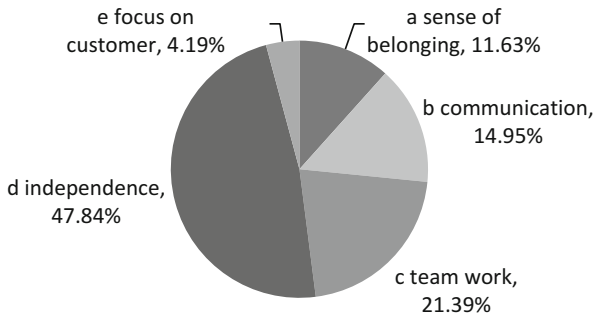
Fig. 4 Interpersonal skills and abilities. *Source*: Own processing
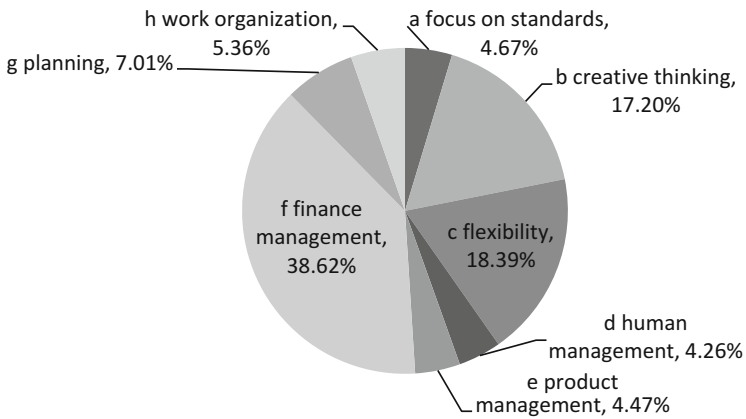
Fig. 5 Technical skills and abilities. *Source*: Own processing

Technical Skills and Abilities

Paired comparisons of the second level of skills and abilities—*technical*—are presented in Table 7.

The graphical presentation of the distribution of weights follows (Fig. 5).

Financial management is clearly the first one among technical skills (38.62 %) (Fig. 5). Creative thinking and flexibility are in the second place. Smaller importance attributed to planning could have stemmed from the same reason as the evaluation of strategic thinking in the group of managerial competencies. Other factors have very similar evaluation.

6 The Assessment of Hypothesis

The aim was to determine what requirements on the crisis manager will be identified by microbusiness managers and owners. The formulation of the hypothesis was based on the assumption that these managers do not have theoretical knowledge from the area of crisis management, but often from the management area in general. However, managers feel the threat by the crisis and solve current situation intuitively and ad hoc.

For not/confirmation or not/rejection of hypothesis, two sets of information about the requirements for the performance of the function of a crisis manager were compared. The first set is the set of proposals of microbusiness managers which are captured in mind map. The opinions of researchers were collected in the second set. Based on the comparison, it can be stated that the requirements (skills, abilities, i.e., competencies) identified by the owners of microbusinesses will be in accordance with the requirements already formulated in the literature.

Therefore, it can be argued that, although these managers do not have theoretical knowledge, their experiences and intuition, which are presented in their proposals in mind map, do not deviate from already formulated and tested requirements. However, differences in how the significance of individual skills and abilities is assessed by managers and crisis management experts are evident (Fig. 6). Respondents rate the importance of individual skills and abilities as a percentage using Saaty's method (previous chapter). These values were converted using expert estimation into four levels, where level 1 is the least importance and level 4 is the highest level of importance (see next chapter).

Both groups (respondents and experts) are agreed in assessment of focus on result (outputs), focus on human, resilience, problem solving, independence, focus on customer, focus on standards, management of human, product, and finance, which is half of issues.

Managers (respondents) significantly underestimate the significance of managerial skill "strategic management." Other differences in assessment are not so extreme. For the model of skills and abilities, corrected values (i.e., the assessment of crisis management experts) were used.
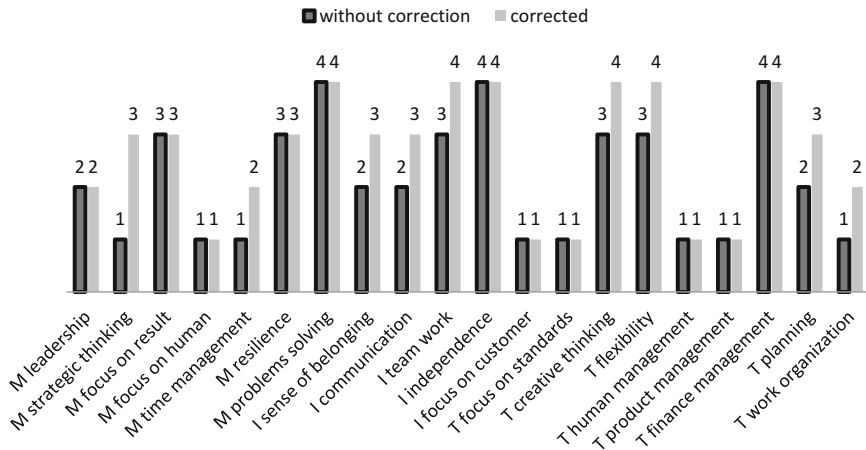
M = managerial skills and abilities
I = interpersonal skills and abilities
T = technical skills and abilities
without correction = assessment of micro business managers
corrected = assessment of crisis management experts

Fig. 6 Skills and abilities—comparison of their significance. *Source*: Own processing. M = managerial skills and abilities, I = interpersonal skills and abilities, T = technical skills and abilities, without correction = assessment of microbusiness managers, corrected = assessment of crisis management experts

7 The Model of Skills and Abilities

The next step was to determine the degree of importance that individual skills and abilities have for effective performance of crisis manager work (see previous chapter). Ordinal scale was used. Grade 1 means a high marginal significance in order to achieve excellent performance level, and grade 4 indicates that the skill or ability is crucial for achieving excellent level of performance (see Appendix 1, column *I*—importance of skills and abilities).

The definition of the levels of individual skills has been followed. It means describing the properties of skills based on the level of personal development. Five levels (ordinal scale) have been determined for the purpose of this research. Level 1 characterizes a weak level of skill or ability, level 3 represents middle level, and level 5 characterizes excellent value (see Appendix 2). Also, there have been assigned target values to the individual skills. These indicate the expected characteristics of skills or abilities for the job position. The highest level is not always required.

The scale of the importance of skills, levels of skill, and target values has been recommended on the basis of consultations with the respondents and experts in the field of crisis and human management (see Appendix 1, column *T*—target value). The proposed model is shown in Appendix 1. Due to the extensiveness of the

model, here are just examples of observable behaviors for selected skills and abilities. In Appendix 2, examples of description of the levels for the skills "strategic thinking," "communication," and "flexibility" are presented.

8 The Comparison of the Significance of Skills and Abilities

Now the evaluation of the significance of skills and abilities to perform the function of a crisis manager of a microbusiness will be presented. Source data are taken from Appendix 1, column *I*—importance of skills and abilities. The abilities or skills with critical importance for achievement of excellent performance of crisis manager work reach the fourth grade. Skills with marginal importance are graded by one degree (Fig. 7).

Evaluated skills and abilities can be sorted into clusters. Clusters will be created according to the grades of skills' and abilities' significance (Fig. 8).

C1: Cluster 1 (abilities and skills crucial to the excellent performance of a crisis manager): 4 grades

Managerial (problem solving), interpersonal (teamwork, independence), and technical (creative thinking, flexibility, financial management)

C2: Cluster 2 (skills and abilities very important for the excellent performance of a crisis manager): 3 grades

Managerial (strategic thinking, focus on results, resilience), interpersonal (sense of belonging, communication), and technical (planning)
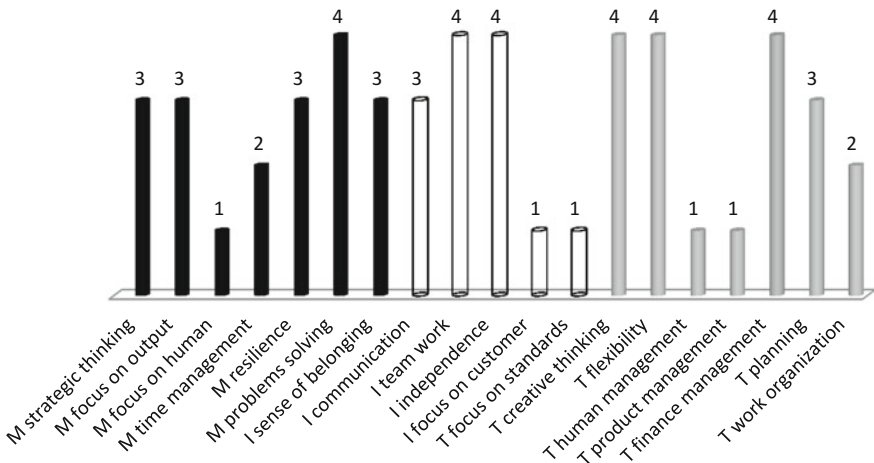
M = managerial skills and abilities
I = interpersonal skills and abilities
T = technical skills and abilities

Fig. 7 Significance of skills and abilities. *Source*: Own processing. M = managerial skills and abilities, I = interpersonal skills and abilities, T = technical skills and abilities

CLUSTER 1	
Managerial	problem-solving
Interpersonal	team work
	independence
Technical	creative thinking
	flexibility
	financial management

CLUSTER 2	
Managerial	leadership
	time management
Interpersonal	
Technical	work organization

crisis manager skills and abilities

CLUSTER 3	
Managerial	strategic thinking
	focus on results
	resilience
Interpersonal	sense of belonging
	communication
Technical	planning

CLUSTER 4	
Managerial	focus on human
Interpersonal	focus on customer
Technical	focus on standards
	human management
	product/service management

Fig. 8 Clusters of skills and abilities

C3: Cluster 3 (skills and abilities less significant for the excellent performance of a crisis manager): 2 grades

Managerial (leadership, time management) interpersonal (none), and technical (work organization)

C4: Cluster 4 (skills and abilities of marginal significance for the excellent performance): 1 grade

Managerial (focus on human), interpersonal (focus on customer), and technical (focus on standards, human management, product/service management)

Technical skills and abilities as a group on the first level are the most valued (also see Fig. 2). Regarding the skills of the second level, microbusiness owners mostly appreciated the ability to solve problems, ability to independently decide, ability to flexibly adapt to the situation, and ability to master financial management. Compliance with standards and respect for the customer within the identified requirements for a crisis manager are considered the least important for his excellent performance.

9   Conclusions

The presented crisis manager model is based on the survey's participants' actual requirements and emphasizes internal qualities of individuals as a result of their personal development. In addition to professional qualifications, the range of experience, knowledge, attitudes, and personality characteristics must also be used.

Based on the created mind maps, the acceptance of the hypothesis that the requirements identified by the owners of microbusinesses will be in line with the already formulated and presented requirements in the literature can be stated. At the same time, the underestimation of the importance of some key skills is evident. The

suggested model fills a gap in the system of database of competencies for various job positions. It also may become a useful tool especially for managers of microbusinesses but not only for them.

Appendix 1: Model of Skills and Abilities for the Position of a Crisis Manager

Skills and abilities (competencies) of a crisis manager of microbusiness				
Skills and abilities		Examples of observable behavior	T	I
Managerial	Leadership	• Assumes responsibility for group performance even in case of failure • Analyzes successful and unsuccessful performance and proposes measures • Seeks to ensure that all team members understand and identify with the group goal • Leads by example • Acts like a leader, not avoiding complex challenges • Credibility and reliability • Gives space and the opportunity to others to take responsibility for subtasks	4	2
	Strategic thinking	• Able to cooperate in development of a strategy • Forward thinking • Able to assess in advance possible internal and external factors affecting business • Ability to think in a broader context is limited	3	3
	Focus on results (outputs)	• Maintains discipline in the team but does not avoid criticism • The end result is more important than the welfare of colleagues	3	3
	Focus on human	• Understands concerns of colleagues • Well-being at the workplace is crucial	2	1
	Time management	• Able to prioritize and delegate activities • Maintains an overview of own workload and knows how to say no • Able to estimate which tasks are suitable to be passed on • Able to obtain timely and accurate information	3	2
	Resilience	• Consistent performer even under extremely difficult conditions • Has realistic approach to stressful situations • Able to induce change in order to achieve a more effective result	5	3

Skills and abilities (competencies) of a crisis manager of microbusiness				
Skills and abilities		Examples of observable behavior	T	I
		• Able to overcome obstacles by analyzing situations, looking for alternatives, and choosing the best solution • Provides support to others in stressful situations • Able to control own emotions even in highly stressful situations and handle the emotions of others • Self-confident		
	Problem solving	• Able to work individually or as part of a team • Able to project manage • Relies on intuition based on own experience • Creative thinker • Creates a stimulating environment for problem solving • Able to create standards that prevent problems • Able to overcome prejudices and stereotypes of thinking	5	4
Interpersonal	Sense of belonging	• Understands and supports the values and culture of the organization and takes ownership for it • Familiar with the vision and strategy of the organization	4	3
	Communication	• Formulating ideas in written and oral form is very good • Actively listens to others • Reasonable assertiveness is natural for him • Able to present before the group • Able to open the communication • Supports communication of others • Accepts and develops the opinions of others • Able to cause constructive conflict • Requires feedback	4	3
	Teamwork	• Possesses natural charisma, emanates authority • Appreciates the progress of others and enjoys their success • Promotes cooperation as the preferred working style • Able to work in multicultural teams	5	4
	Independence	• Able to make decisions promptly and flexibly • Able to handle unexpected situations and estimate and apply own strengths • Seeks help if necessary • Able to obtain necessary data and resources • Able to judge personal risk and not afraid to take it if necessary	5	4
	Focus on customer	• Wishes to satisfy customers and their basic needs • Is friendly and approachable • Good interaction and empathy skills toward customers • Anticipates and identifies the needs of customers	2	1

Skills and abilities (competencies) of a crisis manager of microbusiness				
Skills and abilities		Examples of observable behavior	T	I
Technical	Focus on standards	• Familiar with the company's rules • Attention to detail with final error-free results	3	1
	Creative thinking	• Able to prepare and implement new projects through business strategic thinking and intuition allowing for an excellent starting position in a competitive environment • Able to utilize and appreciate the thoughts and ideas of others • Systematically works with risks and is able to evaluate and minimize them	5	4
	Flexibility	• Actively promotes changes and takes responsibility for them • Initiator of new ideas, innovative, and creative thinker • Challenges stereotypes and established procedures • Selects styles and methods of work suitable with regard to the bigger picture • Continuously develops and expands own knowledge and skills	5	4
	Human management	• Familiar with labor legislation and able to give advice to others on it • Natural motivator to others	3	1
	Product/service management	• Familiar with production processes and the organization of work in all workstations • Familiar with products offered by the company	3	1
	Finance management	• Able to control budget spending via keeping to the plan • Comes up with proposals to achieve higher profitability • Suggests measures and adjustments to the budget in case of deviation • Analyzes cost and its impact on all parts of the business and financial plans • Discusses suggestions and changes in plans with management	5	4
	Planning	• Able to short- and long-term plan in accordance with the surrounding area • Consistent performer • Able to prioritize and apply oneself accordingly creates variants of plans • Plans for resources and time necessary in advance • Evaluates the outcomes of projects	3	3
	Work organization	• Plans activities with regard to urgency • Able to distinguish urgent from important • If necessary, creates variants of plans • Able to organize own activities and performance and combine them with those of others	2	2

Source: Own processing
T—target value (1–5)
I—importance of skill or ability (1–4)
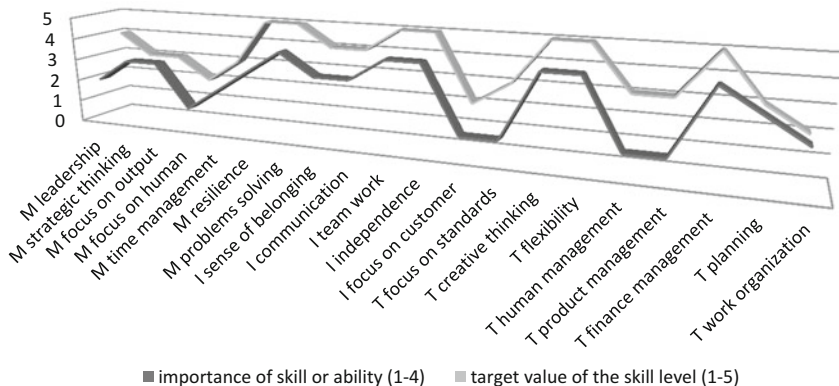
■ importance of skill or ability (1-4)　　■ target value of the skill level (1-5)

M = managerial skills and abilities, I = interpersonal skills and abilities, T = technical skills and abilities

Fig. 9 Skills and abilities—line of their importance and target value. *Source*: Own processing. M = managerial skills and abilities, I = interpersonal skills and abilities, T = technical skills and abilities

The column values "*T*" (target value) and "*I*" (important of skill or ability) are depicted graphically (Fig. 9).

Appendix 2 Description of Levels of Selected Skills

Skill or Ability: Managerial—Strategic Thinking— *Description of Levels 1–5*

1	• No strategic thinking • Not able to assess in advance the possible internal and external factors affecting business • Plans only operatively
2	• Needs to control and surveillance while working on development of a strategy • Able to assess in advance possible internal and external factors affecting business in a simple situation
3	• Able to cooperate in development of a strategy • Forward thinking • Able to assess in advance the possible internal and external factors affecting business • Ability to think in a broader context is limited
4	• Strategic thinking • Anticipates and considers the broader context • Able to independently create development strategy • Business spirit
5	• Strategic thinking • Creates and communicates to others a clear vision and strategy • Anticipates and considers the problems in a broad context across specializations • Understands the complex interrelations • Establishes and maintains running systems, tools, and measures that promote appropriate strategy

Source: Own processing

Skill or Ability: Interpersonal—Communication— *Description of Levels 1–5*

1	• Formulating ideas, especially written, is difficult for him • Does not listen to others • Passes the information to others only on request's • Response to unexpected situations cannot be predicted
2	• In normal situations, formulates ideas clearly and understandably in both oral and written forms • Listens to others without much difficulty • Shares information • Responds adequately to the situation • Communication is not always convincing
3	• Formulates ideas clearly and understandably in both oral and written forms • Listens to others • Assertively responding to the situation • Can attract others with his speech • Tolerates the opinions of others
4	• Formulating ideas in written and oral form is very good • Actively listens to others • Reasonable assertiveness is natural for him • Able to present before the group • Able to open the communication • Supports communication of others • Accepts and develops the opinions of others • Able to cause constructive conflict • Requires feedback
5	• Formulating ideas in written and oral form is excellent • Practices active listening, without exception, in all circumstances • Able to present on the big forum and able to convince others • Able to get real opinions from others and interact with them • Able to benefit from constructive conflict • Able to work with feedback • Communicates with other cultures

Source: Own processing

Skill or Ability: Technical—Flexibility—*Description of Levels 1–5*

1	• Difficulty coping with changes • Needs time for the adoption of new ideas and initiatives • Stereotypes play an important role • Needs examples and models • Dependents on the stability of the working environment and procedures • The ability to transfer attention between tasks is limited
2	• Accepts gradual changes • Needs time for the adoption of new ideas and initiatives • Able to gradually overcome stereotypes • Able to carry attention among fewer tasks • Stability of the working environment and procedures is still important for him
3	• Changes do not represent stress and are accepted without problems • Able to adopt new ideas • Able to overcome stereotypes, not preclude new methods and procedures • Adapts to a new work environment and tasks • Able to learn new things and procedures
4	• Welcomes the changes, seeing the opportunity in them, seeks changes • Welcomes new ideas and suggestions, opened to anything new • Not afraid of the risk of the unknown • Ready and willing to learn • Contributes by his suggestions • Able to respond in unexpected situations and improvise
5	• Actively promotes changes and takes responsibility for them • Initiator of new ideas, innovative, and creative thinker • Challenges stereotypes and established procedures • Selects styles and methods of work suitable with regard to the bigger picture • Continuously develops and expands own knowledge and skills

Source: Own processing

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Learning by Negotiation: Stake and Salience in Implementing a Journal Management System

Özgün Imre

Abstract This research investigates how an international academic journal implements a new journal management system to overcome their knowledge management issues. By adopting a case study approach, the stakeholders involved within the project are identified, and their salience for the organization is mapped. By providing an account of how these stakeholders negotiated each other, the case highlights how these negotiations are learning processes, showing that learning process is not a conflict-free process. The case also shows that the stakeholder salience changes throughout the project, thus raising the importance of viewing these negotiations as learning platforms rather than just arenas of power struggles, to use them as opportunities to identify possible future stakeholders.

Keywords Organizational learning • Information systems • Stakeholders • Negotiation • Academic publishing

1 Introduction

The number of academic outlets in a variety of disciplines has increased in recent years (Larsen and von Ins 2010), resulting in an increased competition in the industry. This competition is not an easy one, as the new journals have to attract good papers/authors, be able to process these papers and add value to them, and then get visibility in the industry to spread the word of their existence—three actions that have taken the established journals years to hone.

Information technology (IT) has played an important role in this increase of outlets: IT has enabled access to information and people that otherwise would necessitate a bigger amount of resources and opened up distribution channels that did not exist before. Similarly, IT solutions exist that offer help for these newly established journals to better compete with the existing journals by providing tools for knowledge and case management. However, as Carr (2003) argued, using IT is not an automatic way to gain competitive advantage. Though IT has enabled the

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new journals to enter into the market, there are no barriers for the established journals to use the same IT solutions. Thus for IT solutions to be of help to the organization, they have to be adopted and used in a manner that would create a unique combination that is not easily imitated by others. Creation of such a combination often means that the organization has to go through a learning process.

However, this learning process necessitates the participation of various stakeholders, not just a core group in the organization. The different stakeholders usually have different expectations and directions they want the projects to go. This presents the challenge if one wants to sustain a level of cooperation so that the organization can continue to function. It is this learning process that contains multiple stakeholders that motivates this paper. Following the critique that organizational learning is not conflict-free (see: Contu and Willmott 2003), this paper identifies the stakeholders involved with an information system (IS) implementation in a small academic journal. By highlighting the salience and stake of the stakeholders in such setting, the paper sketches the interaction among the stakeholders, aiming to provide an account of how a small academic journal makes an investment in an IS by showing how such investments are tied to learning processes.

Following this brief introduction, the paper continues with Sect. 2 providing a short literature review on organizational learning drawing mainly from IS research, followed by Sect. 3 in which stakeholder theory is briefly discussed. Research approach is discussed in Sect. 4, followed by two sections presenting the case and providing an analysis. Section 7 closes the paper with some conclusions and implications.

2   Learning and IS

The issues related to learning and organizational learning are not new to the IS researchers. There are many potential benefits associated with IS implementations, often associated with benefits through standardization, automation, and centralization. However, as Orlikowski and Robey (1991) note, introduction of IS in an organization often means that an organizational change will take place. It is these changes that Brynjolfsson and Hitt (2000) argue would result in gains from the IT investments, and to be able to cope with these changes, organizational learning is necessary (Robey and Sahay 1996; Gregor et al. 2006).

One obvious choice to learn is by formal learning. However, formal learning is just one way and, as Lave and Wenger (1991) argue, not necessarily how learning is done in practice. They argue that learning is situated in everyday practice and that learning takes place by observation and imitation and by socializing within their communities. IS researchers have similarly recognized the value of learning by participation (Robey et al. 2000). As the review by Robey et al. (2000) shows, there are myriad of factors that are important in successful implementation, but as

Wastell (1999) notes, learning by participation is essential for the success of IS development and implementation.

This learning process means involvement of different stakeholders. Within the developer-user context, the need for effective communication and understanding what the other party wants from the IS has been recognized for a long time (Boland 1978; Wastell 1999). The political use of e-mails as a "rebellion" against top managers resulted in the project of introducing e-mails in a university setting deemed as unsuccessful, showing that though learning took place, stakeholders did not view the system in a similar fashion and that organizational politics play a role in learning (Romm et al. 1996). From a soft system methodology strain, a similar issue is taken by Westelius (2006) in which a large Swedish organization tries to implement web applications. Though the involved parties agreed that the web applications are important and the change took place, how they viewed the change and what they expected from it differed, e.g., the local clubs resisted the headquarters, arguing that the initiative is a tool for centralization. As can be seen, for the changes to be successfully implemented in the organization, different needs of stakeholders have to be accommodated, increasing the stress during the organizational change and IS development (Wastell and Newman 1993), and learning process of different stakeholders is argued to be critical to the success (Mathiassen and Pedersen 2005; Wastell 1999). Coupled with this issue of different stakeholders, and their different stakes, the automation provided by the IS and the probability of this leading to de-skilled workforce and loss of knowledge are also a concern touched in the literature that adds to the stress associated with change (see Orlikowski and Barley 2001).

The inclusion of the users to the development/implementation process might be a result of different ideals, as Bjerknes and Bratteteig (1995) argue: to acquire relevant knowledge, to reduce resistance, and to increase workplace democracy. However, similar to the criticism raised by Contu and Willmott (2003), Mengiste and Aanestad (2013) argue that though the issues related to learning and participation can be found in the literature, power relations and how they affect the learning is not taken into consideration often. As Romm et al. (1996) argue, even the mention of the power relations itself is usually taken as a detrimental factor. The issue of power and learning can be looked from a negotiated order perspective, a concept used by Anselm Strauss to highlight how the social order is achieved (Strauss 1978). In Strauss' works, every social order is a negotiated order, and this order is temporally bound. Drawing from their work in hospital wards, Strauss et al. (1964, p. 142) argue that to achieve this social order the different actors have to negotiate and hammer out their own "line of action in relation to the team as a whole and to the operational philosophy that came to predominate the ward." The achieved order is a quasi-stable one that will be negotiated again as the circumstances change. To achieve the order, once again, "various issues are debated, negotiated, fought out, forced and manipulated by representatives" of the participants (Strauss 1991, p. 239). Following this, Mengiste and Aanestad (2013) argue that such negotiations result in learning, where actors negotiate their various needs and wants. These different parties engage with each other over an issue, resulting in

a process that will lead them to perceive the issue from various perspectives, as well as give them an opportunity to reflect on their own needs and wants. Such negotiations, as Mengiste and Aanestad (2013) argue, can help to see the learning process in a more situated analysis, showing that the arguments of organizational learning being a conflict-free process might not actually hold true.

Following this brief literature review that argues for the inclusion of different stakeholders in the learning process, the next section provides a brief account of stakeholder theory (for a comprehensive review, see Lindgren 2013), before providing the case that highlights the salience and stakes of the stakeholders.

3 Stakeholder Theory

Stakeholder theory has its roots in private sector, with interest to managing both internal (employees, managers, etc.) and external stakeholders (users, government, shareholders). Freeman's (1984) seminal work that incorporated stakeholders to the strategic management is widely quoted in various disciplines. Following earlier research, e.g., Jones (1980) who argued that being a stakeholder is more than just ownership, Freeman (1984) defines stakeholders as "any group or individual who can affect or is affected by the achievement of the organization's objectives." Stakeholder theory, by making the stakeholders and their stakes visible, aims to make the managers consciously engage with the questions of their responsibility to the stakeholders and the organizations' purpose (Freeman 2010). Donaldson and Preston (1995) build on the stakeholder theory, categorizing stakeholder theory into normative, descriptive, or instrumental strains, with normative strain engaging with issues of how the organization should be governed with respect to stakeholders—whom the organization is morally obliged toward—with the descriptive strain engaging with issues of how to identify the stakeholders and their salience. Instrumental strain, drawing from the other strains, deals with issues of how to manage the stakeholders and how this management impacts on organizations' objectives (Flak et al. 2008; Hendry 2001).

To identify the stakeholders, as well as their salience, one framework widely used in the literature is provided by Mitchell et al. (1997). In their work, three relationship attributes are added to the stakeholder theory to highlight the salience of the stakeholders. By not only identifying stakeholders but also their salience, this improved stakeholder theory can then highlight to the managers a way of prioritizing different stakeholder claims. In short, three attributes are assigned to the stakeholders in Mitchell et al.'s (1997) framework: power, urgency, and legitimacy. A stakeholder may possess the power to influence the organization. Stakeholders might also perceive that they have a legitimate influence on the organization. Similarly, some stakeholders might feel that their relationship is time sensitive and a delay is unacceptable, claiming urgency. Arguing against the idea that these attributes are distinct from each other, Mitchell et al. (1997) claim that they overlap, and thus looking at these overlaps is important to identify stakeholder salience. The

idea that these attributes work together is explained in their words "power gains authority through legitimacy, and it gains exercise through urgency [. . .] legitimacy gains rights through power and voice through urgency [. . .] in combination with legitimacy, urgency promotes access to decision-making channels, and in combination with power, it encourages one-sided stakeholder action" (Mitchell et al. 1997, pp. 869–870).

Following this typology, Scholl (2004) argues that identifying these stakeholders and their salience is one step toward managing them, and such an analysis should be complemented by also identifying the needs of the stakeholders. These needs, caution Flak et al. (2008), should also be conceptualized as potentially conflictual among the stakeholders and not just between stakeholders and the organization. Not taking such potential conflict then might result in an insufficient analysis, where the stakeholders might not be engaged to the full extent. From another strain, stakeholder analysis is criticized as more often than not the ability of the stakeholders to move among the classifications is forgotten. Stakeholders, as well as the organizations, have changing needs; thus, their placements in any typology can change as time progresses. As Tennert and Schroeder (1999, p. 19) argue, "any stakeholder at any time can move in or out of a different classification," similar to the arguments discussed about negotiated order, that such an order is temporally bound.

4   Research Approach and Setting

For the purposes of this study, a single case study design was employed. As the aim of the study is to highlight the stakeholders and their salience during an IS implementation and the consequent learning process of an organization, the study has longitudinal elements that makes single case study design appropriate (Yin 2009). Another reason that motivated such a design stemmed from the fact that one of the editors of Business Journal works at the same institution as the author, providing ease of access to the case setting. This ease of access, as well as the aim to show how the stakeholder relations were managed, further cemented the use of single case design, which as Siggelkow (2007) argues has the strong potential of displaying dynamic processes.

The study followed an interpretivist approach (Walsham 1995, 2006) and was informed by the principles laid out by Klein and Myers (1999). As such the study makes no claims of being objective in the positivist sense. As the construction of meaning between the author and the editors resulted in several iterations of interpretation, the understanding of the case has changed for both parties. Similarly, the interpretation of the case has changed as new data was incorporated into the study. Both of these issues mirror two of the principles laid out by Klein and Myers (1999), and as such deviates from the objective research espoused in the positivist tradition.

The data for the study was collected via qualitative semi-structured interviews as well as observations. The easy access to one of the editors has made it possible to

see how the editors engaged with each other as well as other stakeholders as challenges arose during work. More importantly, such access made it possible to see how the editor participated and negotiated with other parties in informal settings, for example, in a coffee room talk. The notes taken during the observations were later on rewritten and used for the analysis. For the interviews, three out of the five editors were interviewed, with the interviews averaging one hour. The interviews were digitally recorded and were summarized. To further clarify some issues that came up during the interviews and observations, follow-up interviews were conducted. These follow-up interviews led to an iterative process of creating a full picture by using pars of the accounts provided. The follow-up interviews also provided an opportunity for the editors to check how their accounts were interpreted by the author, giving them the chance to clarify their accounts, as well as to see the Business Journal in a new setting.

5   Business Journal

Business Journal was founded 5 years ago by a group of colleagues that at that time were working at the same university. This group of would-be editors has decided to establish a journal that has studies of emerging markets as its main focus, with emphasis on empirically grounded papers. Following their own disciplines, they situated the Journal in Business Studies and Economics, and the Journal has been posed as a venue for studies from varying sectors and backgrounds and was able to attract papers ranging from macrolevel studies—oil prices and stock exchange—to microlevel studies, concerning value making in a journal.

   The role of the IT/IS for the running of the Journal was not something that was consciously touched upon in a strategic manner when the Journal was founded. The role of the IT/IS—and how the editorial team treated it—has evolved through time. For the sake of this study, two episodes relating to the IT/IS decisions taken by the editorial team are presented. It should be noted that while these episodes might seem as two distinct points in time, the decisions taken at the first phase depend on previous decisions, just as the latter episode depends upon the first. Similarly, as the study is focused on the IS decisions, the activities of stakeholders that are not pertinent to this focus are not discussed here.

5.1   Cloud System

The first episode of concern was the decision to supplement the journal management with a cloud system. As mentioned, Business Journal was founded by a group of colleagues, who at that time were working at the same university. One of the main reasons for establishing the journal was a reaction against the established system. As they were starting their academic careers, they felt that they were not

getting the support that is needed from their environment. The system argued for publishing more, but at the same time, it was set up in a way that favored senior faculty that has already published papers. In addition to this dissatisfaction of their working environment, general dissent was found among the editorial team as well as their young colleagues that the "gatekeepers" of the publishing industry were, for one reason or another, against them. One way to solve this issue was to set up their own journal.

Most of the tasks the editorial team did in these early days were supported by informal ways: having face-to-face meetings when there are problems, discussing it at one of the rooms, and having a chat over coffee. They relied on e-mails to communicate with authors/reviewers and each other as well as keep track of the submission process. As the Journal began to grow, however, the number of submissions to track increased. The editors began to have difficulties in keeping track of who was involved with a submitted paper and what the progress of the paper was within the review process. The editors kept track of what they had done—and perhaps, more importantly, why they made a particular decision—mostly in an uncodified, implicit manner, further aggravating this knowledge management "mess."

The unconscious adoption of e-mail for Business Journal turned out not to be enough for the editorial team as the Journal grew. Around this time, the cloud services, like Dropbox and Google Drive, were gaining more visibility and acceptance, and one of the editors put the issue on the table. If they were using such a service, they would be able to see the process of the papers in "real time" and see who is involved with the paper.

Though the team has agreed that a cloud system can help them, the decision to use "which one" was not that clear and resulted in a negotiation phase within the editorial team. Should they have a full package, where everything can be settled by using the tools the system provided like Google Drive, or should they adopt a service like Dropbox that will be used to store the resulting documents of the tools the editors already use?

During this time, editorial team asked their university for help. Though some of these cloud services were free, the issue of security of the cloud was also a concern. The editors would benefit from moving some part of the work involved to the cloud service, which would mean that an external party would be hosting the information gathered in the Journal. Aside from the issues related to potential downtime or loss of the stored documents, this meant that the author's contributions have to be secured in such a way that there won't be a breach of confidentiality. This resulted in selecting a well-known provider for the service, rather than the one offered by one of the universities that one of the editors was affiliated with.

Another aspect of asking for help from the university was to see if they could use the university resources to host the Journal. The editorial team was expecting that they would get some backing from the university, as they felt establishing Business Journal fell within the university's call for increased internationalization and visibility. However, the response they got from the university was that it was not

possible for the university to provide support, as the Journal was not a university project.

Most of the issues related to the cloud service were internal to the working of the Business Journal. However, as mentioned before, this negotiation phase is linked to the organizational learning. The cloud system also made them realize that though the solution provided helped to solve some of the issues they faced, other issues persisted. In this manner, going from e-mails to the cloud enabled the editors to see the Journal from different angles and resulted in consolidation of what needs to be done for the next step. The use of spreadsheets and what information needed to be put there showed a reflection of the experiences of the editors as "editors" as well as "managers." As the editing of the submissions progressed, the more managerial tasks of keeping track of the process began to take precedence, resulting in the editors trying to balance their quest for good academic papers that fit Business Journal, with adopting work processes to a system so that they could follow the submission. This internal process was opened up to more external forces when the editorial team decided that they needed to supplement the cloud system with a more formal solution.

5.2   Toward a Journal Management System

As previously mentioned, the learning process is an ongoing one, and as the Journal evolved, the need for a more capable IS becomes apparent. Though the cloud system complimented the e-mail communication, the editors still kept most of their knowledge implicit. The new cloud system enabled them to see if the copyright notice was there, but that presupposed that somebody would put it there. Thus while using Google Drive has complemented the e-mails, it only offered ad hoc support. This resulted in another round of negotiations about what to do, and the editors decided that a more formal IS was needed.

The cloud system, as the editors realized, was not providing much of a support to the team. Editor 1 related to this problem as a continuity issue. She argued that if one of the editors left the journal, the newcomers would have a hard time to decipher what is in the cloud service. She argued that especially with the voluntary nature of the work, and with all the other pressures they face in their work lives, they were not able to have a concrete way of establishing a system that would enable them to "pass on the torch" to newcomers. In her own words, "We needed to have a system that I can rely on and understand as a newcomer that hasn't worked with this journal before" (Editor 1).

One part of the negotiations for the journal management system was the formal request of the editors to have backing of their universities. They felt that if they had such backing, it might provide them with more legitimacy. Being hosted by the university, even if the Journal is not recognized as affiliated with it, would make the readership wider. Similar ideas were expressed in earlier stages too, but they were not as consciously sketched out. However, when one of the editors met with the

university representatives, the answer they got was not what they expected. The editors thought that by establishing the Journal they were implicitly helping the visibility of the universities they are employed at. Similar to this, they thought being an editor also fulfilled the call for increased internationalization. The editorial team thought that as Business Journal continued to be published during the time passed when they first asked for help, they would have a better case this time. The answer that was given to them was that since this was not a university project, the university cannot back Business Journal.

One direct result of this rejection was to go for an informal cooperation, with the IT department of the university. In the talks with the IT department, they had discussions about the systems that the editors had heard about and if the IT personnel had an idea about what might be suitable. These brief negotiations helped the team to realize that they might be able to find a suitable solution, where the IT personnel's knowledge would be used to match the systems to the requirements of the editors. Unfortunately, these helpful instances occurred only when the parties could arrange a time to meet. As the Journal was not a university project, the help the IT departments would give had to be on voluntary basis. However informal, through these negotiations, the editorial team was not only learning about the IT/IS component of their work system but also learned about the whole process of publishing.

Learning from their experience with the cloud, and realizing that just a change of IT/IS might not be enough, the editors also decided to sit down and discuss what the job entails and what parts the IT/IS can help solve. This resulted, once again, in a series of brief negotiations among the editors. The process of short-listing the journal management systems with the help of IT department, the issues about simplicity, and how in the future the system would look like were discussed. The editors that had experience from using such systems for other work, e.g., as a conference chair, were more willing to adopt a system they thought would benefit them and have the functionalities needed. This was countered by the idea that this might mean increased financial costs: the already existing setup was near free, so any additional system of this magnitude would mean significant increase.

Another factor contributing to moving to a formal IS solution was increased competition. Some time ago, one of the editors has realized that a new journal with a very similar name and similar scope and aim had been established. This increased competition was introduced to the concerns they had to address and made them aware that now they had to think about how the IS would be seen from the outsiders. By employing some of the journal management systems, they would be able to have a system that would be used not for the internal demands of the editors and reviewers but would also be able to present a unified, corporate face to the authors and readers. In this stage, the editorial team used their experience as an author, reviewer, and reader to reflect on what they think is needed to satisfy various needs of these parties.

6   A Brief Analysis

Following the case description above, this section revisits the case and highlights the issues using the stakeholder theory, following Mitchell et al.'s (1997) typology to map their attributes: power, legitimacy, and urgency. For the sake of simplicity, the case has not focused on the individual parts that the editors played in the process; thus, in the analysis they are treated as a group. However, it should be noted—as with the other stakeholders—that this does not mean that the editorial team and their decisions were conflict-free and only had one voice. As such, the stakeholder salience and needs presented in Table 1 below should be taken as the argument that was accepted/reflected by the organization the most, not the only one.

At the initial stages, as mentioned before, there were not so many stakeholders in the project. The decision to change the IT/IS in the journal was done by the initiative of the editorial team, the dominant internal stakeholder. Some members of the editorial team were more active in pushing the issues than the others. They also incorporated some of the ideas that were coming from other perspectives, for example, when one of the editors mentioned that the issues they were discussing were more of a managerial issue than an editorial issue. This also shows that the stakeholders, though stable to some extent, are still fluid entities.

The stake of the editorial team is perhaps the easiest to identify: as they were the ones that established the journal, they have a legitimate stake as well as power over the conduct of business. As mentioned the creation of the Journal was, though reactionary, also a career move for them as well as a part of their professional commitment; thus, they also have urgency. The university, similar to editorial team, is also easy to map in the framework and was a formal external stakeholder in both episodes. Their main attribute was their formal power that can be used for the project. Their rejection to help the Journal has limited what can be analyzed in this power relationship, aside from saying that the editorial team argued that their help could have been beneficial, both in terms of helping with IT/IS issues and creating more credibility for the Journal as a whole. Similarly, asking the university for help also highlights that they can be construed as to have a legitimate stake in the project. Another interesting issue related to this stakeholder is the attempt of the editorial team to ask for a second time for help, arguing that their track record can be used as a proof that backing the Journal won't be a fruitless project for the university. This indicates that such factual proof of their continued existence could be leveraged as a power related bargaining tool, the track record of the journal, as argued by the editors, strengthened their hand. From another perspective, the rejection of the university can be constructed as a time-related issue; though from the perspective of the editors time was a critical source, the university had other options to pursue. Though these negotiations have failed in engaging the university, the editorial team benefited in realizing how to position themselves in case of further negotiations with the university as well by consciously attempting to engage others in the project.

Table 1 Stakeholder salience and stake in journal management system

Stakeholder	Stakeholder type	Salience	Stake
Editors	Editorial team/owner	Power: strong Legitimacy: strong Urgency: strong	Initiators and owners of the project, tied to the overall success of the Journal, which is seen as a career step by some editors. High emotional involvement to see the project through a standardized, able knowledge management tool for better management of the Journal work system is needed
University	Public organization	Power: strong Legitimacy: low/medium Urgency: low	Has mandate of becoming more international, but doesn't see Business Journal as a strategic resource to achieve that—thus has low urgency The second round of negotiations showed it is still powerful, but has lost legitimacy due to rejections
IT department	Department of the University	Power: low Legitimacy: strong Urgency: low	Was approached by the editors after the university rejected them. Has high technical legitimacy, but does not have a mandate to help the editors and only does it voluntarily. Mostly tied up with other day-to-day activities
Authors	Implicated actor	Power: low/medium Legitimacy: medium Urgency: low/medium	Not involved with the negotiations, however appropriated by the experiences of the editors from their roles as authors. Seeing the Journal as a career step, thus preferring a more formal IS that issues can be tracked Though no complaints were received about issues connected to IT, the threat posed by new journals was discussed through the authors choosing a journal that is supported by a more professional looking IS, thus adding urgency
Readers	Implicated actor	Power: low Legitimacy: medium Urgency: low	Similar to the authors, however, as they do not actively engage with the system to the extent of authors or reviewers, have low urgency and power
Reviewers	Implicated actor	Power: low Legitimacy: medium Urgency: low	Similar to the readers, though they use the system, the editors argued that their engagement with the system is not as close when compared to the authors, and thus they have low power and urgency
Academia/publishing industry	Implicated actor	Power: low Legitimacy: medium Urgency: low	This stakeholder is an amalgamation of the other organizations that exist within the same institutional setting of the Journal; thus, they have a legitimate stake. However, as editors argued, the effect of these stakeholders is more to lay the ground rules than to actively engage. Their power is mostly channeled through the authors and readers, and when compared with the general institutional pressures, the Journal and IS have no urgency for this stakeholder

The rejection of the university resulted in the inclusion of another stakeholder into the picture, the IT department. When compared with the university, they lack the formal power, but as the issue brought up by the editorial team was more of technical nature, they can be constructed as the stakeholder that has legitimacy, through their technical knowledge. Consequently, the help of the IT department to provide opinions about the existing solutions helped the editorial team in two ways. On the more visible level, this resulted in a quicker short-listing of the potential IT/IS solutions. They were able to get an idea about some of the management systems in quick format that would necessitate deeper analysis otherwise. From another angle, such talks with the IT department made the editorial team consciously reflect on what work processes the Journal has, and how to map them to a system, providing them with insight about the work system around the Journal.

Aside from these visible stakeholders, the project also incorporated some implicated actors, like authors and readers, as well as through the mention of other journal, the general academia, and publishing industry. These implicated actors all had a sense of level of legitimacy when seen from the editors' point of view. They produce the Journal for the readers, and they use the input from the readers to do that. They also exist within the general academia and publishing industry; thus, they need to comply with the general ways of doing business within these communities. However, though all these actors legitimately have a relationship with the Journal, they had varying levels of power or urgency. For both of these, the interviews with the editors showed that the authors had more urgency and power and readers more power than the general academia or publishing industry. This can be linked to the editors also having roles as authors and readers for other academic publishing, thus being able to see the Journal from these different points of views. While Business Journal and the editors fall within the general academia and publishing industry, the push for a change in the organization and, thus, the investment in a new IS system was mostly through the arguments of what the editors would like to see as an author/reviewer in the Journal.

While this last group of stakeholders was not present, the negotiations that the editorial order had to incorporate the needs/wants of these stakeholders were not dissimilar to other negotiations held. As some of the arguments raised by the editors came from the other roles they play, the editors had to reconcile their editorial and managerial views of what the Journal and its work system should look like. IS in this sense brought the editors—and via them several stakeholders—and showed their differences regarding the Journal and the IS.

7   Conclusions

In this paper, a small international journal, its decision to implement an IS was analyzed. By employing a single case study design, the aim was to highlight how such an investment decision occurs through identifying the stakeholders and their

salience in such a project. The case has shown that these multiple stakeholders are involved, with varying levels of salience.

These various stakeholders diverged from each other not only through their salience but also their stakes with the projects. The case has also shown how these two are interconnected: though the university had power, it did not have an urgency to get involved with the IS project or the Journal overall, as it had other venues that it can pursue. Similarly, though the IT department had the high legitimacy due to their technical expertise in the area, as the Journal's IS system only played a small role in their daily life—and as their help was only on voluntary basis—they did not have the urgency or power to affect how the decision process played out.

In addition to this link with salience and interest, the case also showed that the salience of the stakeholders should not be taken for granted but are fluid and dynamic, prone to change as the circumstances change. At the initial phases of the project, IT department was not a stakeholder; it was only considered when the university rejected the editorial team. The editorial team also thought that their power to negotiate with the university had improved when they decided to ask for the university's help the second time, arguing that they can use the track record as a proof of Journal's value. The second-time rejection in turn made them lower the legitimacy that the university has regarding the project. By showing this dynamic relationship among the stakeholders and how their salience and stake can change, the case has provided an insight of how the stakeholder theory can reveal this dynamism.

All these negotiations resulted in various episodes of learning: by negotiating with these stakeholders that had different interests, the editors were able to understand their own work practices and what they want to achieve. By incorporating various perspectives about the Journal, they were able to map what they wanted from the IS as well as reflect how they worked with the existing systems. Some of these negotiations involved more subtle differences and power relations—like when editors incorporated what an author wants from such a system—to more obvious differences when they negotiated with the university.

These results can be used to derive some implications. From a theoretical point of view, this case has shown how the learning process should not be taken as a conflict-free process and how different stakeholders can move along the different classifications. This is a reminder that power struggles should not be taken as something negative—constraining—but also be conceptualized as an enabler of learning and change. Related to this enabling power, in line with the situated learning literature, looking at this power in situated contexts can prove useful to identify how these power struggles occur. One way to achieve this is to look at how the negotiations around the projects occur and detail how the involved parties negotiate as well as why these power struggles work the way they do. Though this paper has shown a part of the dynamism involved within the case by employing a dynamic view of stakeholder theory, another aspect of dynamism—how and why the people negotiate their stances within a stakeholder group, as well as against other stakeholders—might necessitate the use of other theoretical strains. Anselm Strauss' previously mentioned "negotiated order" might prove beneficial in such an

endeavor, as the negotiations and how they are shaped up through the interactions of the actors are the focus of that theoretical lens.

From a more practical point of view, the case can be taken as a suggestion to focus on these negotiations and how to enable them to be open to discussion. As the case has shown, rejection of a stakeholder led to involvement of another stakeholder, thus to a new phase of organizational learning. This highlights the importance of cultivating a culture where different viewpoints can be expressed and new opportunities can be realized, as the desires and problems faced by the editorial team are also found in other parts of literature, for example, in enterprise resource planning projects. Without such an open culture, the editors might have missed the opportunity of cooperation with the IT department or not be able to incorporate ideas coming from an author point of view, highlighting how an oversight might also affect others going through similar investments.

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City Logistics: Is Deregulation the Answer?

Antonio Borghesi

Abstract Distribution of goods affects city congestion and air pollution; it also increases costs and reduces quality of life. City logistics are aimed at reducing the negative effects of distribution while supporting city development. Over the past two decades, many city logistics initiatives have failed in Italy and elsewhere in Europe. As many actors and stakeholders are involved in the complex organizational process of city logistics, it is important to investigate and understand the causes of these failures. This is the purpose of this article, which considers Italian experiences of city logistics. Evaluation of city logistics initiatives is necessary to ensure success in future implementation, to achieve sustainable urban freight transport development. Multi-agent systems (MAS) have been applied to evaluate different fields, such as supply chain, stock market, freight distribution, and traffic management. We conducted a review on city logistics projects in the main Italian cities with experience in these initiatives, in particular, in the case of failure. Our analysis considered the MAS, which utilizes multiple stakeholders' points of view with different effects to improve city logistics feasibility. The study considers Italian experiences in city logistics, but other countries may have different backgrounds and different situations. Therefore, predictions may be valid only for Italy and not in other contexts. Our perspective is quite original compared with the existing literature as it focuses on the failures of city logistics projects rather than best practices.

Keywords Urban freight distribution • Sustainability • Case study • Multi-agent system • City logistics • City logistics failure

1 Introduction

Private and public freight vehicles compete for the capacity of the city in transporting people and goods, causing congestion and environmental nuisances. For instance, it has been calculated that, in France, freight vehicles consume about

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30 % of the capacity and two-thirds of the parking spaces for delivery and pickup operations (Patier 2002); in the United States, they make up 10 % of the total vehicle kilometers traveled (Figliozzi 2007).

City logistics have been defined as "all coordinated measures comprising logistic collection and delivery activities of logistic service providers in urban areas that aim at the reduction or prevention of commercial traffic and its negative external effects" (BESTUFS 2002). Another definition is "the process for totally optimizing the logistics and transport activities by private companies in urban areas while considering the traffic environment, the traffic congestion and energy consumption within the framework of a market economy" (Taniguchi et al. 1999). All possible city logistics solutions can be categorized as weight and size regulations or time regulations (access time and loading time) (Browne et al. 2007).

There is no evidence of real, practical success in city logistics (van Rooijen and Quak 2010). Actually a suitable principle to apply is to view individual stakeholders and decisions as components of an integrated logistics system (Crainic et al. 2004). In a context with multiple actors and stakeholders from both public and private sectors, it has also been suggested that organizational theory on change management "can be used to shed light on the change processes leading to implementation of improved urban transport systems such as city logistics" (Gammelgaard 2015).

Stakeholders and actors have to be distinguished by the level of effect they have on urban transport, because actors have direct effects through their operations or regulations and stakeholders have indirect effects through their actions (Ballantyne et al. 2013). It seems that until now no one organizational model for collaboration between transport authorities, actors, and stakeholders has been developed.

It is useful to divide urban logistics into "distribution logistics," for retailers, wholesalers, and those who are engaged in public service (bars and restaurants), and "logistics supply," for industrial or artisanal producers of goods and the tertiary sector and producers of intangible services. It is also worthwhile distinguishing two types of logistics services: "own account transport" and "third-party transport." Other classifications include third-party logistics providers, fourth-party logistics providers, subcontractors, infrastructure providers, and logistics real estate operators (Maggi 2007).

Public authorities need to develop strategies to contain external costs caused by urban traffic. Residents have different points of view—as citizens and as consumers. Distribution centers, warehouses, transit points, or node cross-docking are tools for the urban distribution of goods. Night deliveries have also been considered as a solution (in the UK, by the Freight Transport Association, Noise Abatement Society, and Transport Department). Over the past decade, many "city logistics" projects have been developed in an experimental manner, but it can be observed that both in Italy and abroad, the results have been disappointing. Accordingly, it can be inferred that the performance of an "ex ante feasibility" approach is an important step toward a policy of logistics in a city. The measure that considered the cornerstone of an initiative of city logistics is no doubt the platform consolidation of flow coming from and to a city. This could be identified as an urban

distribution center (CDU) or logistics city center (LCC) or even an urban freight consolidation center. The European Union has funded over time several programs, including the Sustainable Urban and Regional Freight Flows (SURF), 1998; White Book, 2001; IDIOMA, 2001; City Freight; and BEST Urban Freight Solutions (BESTUFS), 2000–2008. It should be emphasized that these public resources on a few occasions have revealed to be "the balance" for the success or failure of these projects. Problems include (1) start-up capital, (2) high distribution costs in the initial phase, (3) no returns, (4) some operators are already efficient, (5) the breakeven point, and (6) lack of confidence (information).

Because of just-in-time (JIT), store inventory levels have shrunk, while the number of different products sold has increased. For these reasons, urban economies are more dependent on transport systems, with frequent and customized deliveries.

- Global supply chains. Global processes are imposing local forms of adaptation to ensure that freight is delivered in a timely and reliable fashion.
- Global freight distribution. Large terminals have become a fundamental interface between global distribution and city logistics.
- Urbanization. With globalization, the consumption of freight within cities has increased.
- Independent retailing. Urban areas have a notable variety of independent retail activities.
- Chain retailing. Chain retailing (affiliated to a common brand or franchised) have increased considerably. Most try to organize multinational sourcing strategies for mass retailers.
- Food deliveries. There is a need for a specialized form of urban distribution to supply outlets such as grocery stores and restaurants. Wholesale markets have an important role in supplying urban populations with perishable goods. However, the reliable transport of refrigerated goods is an important element of specialized distribution.
- Parcel and home deliveries. One of the effects of globalization is a significant growth in the movement of parcels. For this reason, large parcel carriers have established services covering the majority of the world's main commercial cities. The important growth of e-commerce is another reason for the increase in home deliveries.

Urban supply chains are also related to construction sites (urban infrastructure, roads, residences, offices, and retail spaces are constantly under construction), waste collection and disposal (activities generate a conspicuous quantity of waste to be collected and removed), and industrial and terminal haulage (cities are zones of production as well as gateways for the circulation of goods). In conclusion, there is a coexistence of globally oriented supply chains and traditional distribution.

We think that "city logistics" have to be set within logistics/supply chain management theory. According to the Council of Logistics Management (CSCMP), logistics is the process of planning, implementing, and controlling the effective and efficient flow of goods and services from the point of origin to the

point of consumption (see also Bowersox et al. 1986; Christopher 1992; Frankel et al. 2008). It includes the integrated planning, control, realization, and monitoring of all internal and network-wide material, parts, and product flow, including the necessary information flow and industrial and trading companies along the complete value-added chain (and product life cycle) for the purpose of conforming to customer requirements. Logistics management is part of customer service, because of its contribution to the level of service and to the total supply chain costs (La Londe and Zinszer 1976; Christopher 2005). A supply chain is "a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer" (Mentzer et al. 2002). According to Kaplan and Norton (2004), operating processes produce and deliver goods and services to customers; thus they are identified as supply chain management, encompassing the development and sustaining of supplier relationships (supplier relationship management), producing products and services (manufacturing management), distributing and delivering products and services to customers (logistics management including inventory management), and managing risks (supply chain risk management) (Gaudenzi and Borghesi 2006). City logistics also means determining the way to reach the customer using the least distribution space and where to establish supermarkets, hypermarkets, and commercial centers by choosing appropriate suburb areas and saving space using technological solutions (Borghesi et al. 1997). This implies that a combination of company initiatives and government policies is necessary in developing a sustainable urban freight system. Over recent decades, the trends of supply chain management have always involved pressure on cost and time delivery, in other words, "cheaper and faster," no matter whether the supply chain is internal or external, direct or extended, or domestic or global. The competition is now among supply chains and not among firms, and they win or lose according to the service level, which depends on time and cost. In order to obtain this goal, each supplier has to reach its customer in the fastest and cheapest way, no matter whether the customer is an intermediate, a retailer, or a final consumer. This principle is also valid for the "last mile," that is, the urban center. This is the real problem to face and is the reason that a supplier will accept, on a voluntary basis, being part of a city logistics project only if the cost of delivery or the time of delivery is lower using the city logistics than an autonomous system of distribution. Therefore, among the actors of urban distribution, the municipality only has the power to change the conditions of advantage in the decision-making process. However, in order to maintain equal competition among operators, the system needs to be supported in financial terms through public funds. For this reason, frequently, city logistics projects operate as long as there are funds or grants and then fail immediately after the money runs out.

2   Literature Review on Criticalities of City Logistics

The main stakeholders are waiting for each other to take action (Dablanc 2007). Public authorities, as those responsible for the public good, can introduce control over city logistics systems and stakeholders know this. Therefore, city logistics has the authority to regulate goods transport, but a change through actors' and stakeholders' free will is politically much more acceptable but hard to realize. In fact, change is in the hands of stakeholders such as end customers and private enterprises.

Many authors, such as Hesse (1995), have recommended stakeholder involvement in city logistics, but cities do not appear to be interested in this problem (Ballantyne et al. 2013; Lindholm and Browne 2013). Stakeholder involvement could very well be the way forward, as recently recommended by Gammelgaard (2015). They suggested using the approach of a longitudinal single case study (Pettigrew 1990; Flyvbjerg 2006) of the development of a specific city logistics project, Citylogistik-kbh, initiated by the city of Copenhagen and involving many stakeholders, applying change paradigms (Van de Ven and Huber 1990) and change management (Lewin 1997; Kotter 1995/2007).

Starting with the views of Banister (2008), participation is an essential part of a new transport planning paradigm, through collaboration and stakeholder involvement as their primary topic (see also Dablanc et al. (2011) report on the Paris region). Hesse (2013) confirmed this observation. Stathopoulos et al. (2012) have considered stakeholder reactions in the city of Rome. According to Martinsen et al. (2012), stakeholders are not often involved in city logistics project planning.

Some cities engaged in the issue, such as London and Paris, have started to work with urban freight transport in different ways (see, e.g., Browne et al. 2007). A sustainable urban freight transport system should fulfill the following objectives (Behrends et al. 2008):

- Ensures that accessibility to the transport system is offered to all categories of freight transport
- Reduces air pollution, greenhouse gas emissions, waste, and noise to levels without negative effects on the health of the citizens or nature
- Improves the resource and energy efficiency and cost-effectiveness of the transportation of goods, taking into account the external costs
- Enhances the attractiveness and quality of the urban environment, by avoiding accidents and minimizing the use of land, without compromising the mobility of citizens

A pilot action was used to test whether the theory works in practice, and the final goal could be implemented on a full scale, and to determine how the action should, or should not, be performed (Lindholm 2010). The BESTUFS project (Egger and Egger 2001, p. 11) defined "best practice" measures or activities as those that contribute to urban goods transport and ideally lead to benefits for all actors involved. Browne et al. (2007), considering the experience of two of the largest

cities in Europe, Paris, and London, concluded that it is a political willingness, with stakeholder cooperation, to be more successful. Urban food strategies are deeply related to burgeoning public health costs (Morgan and Sonnino 2010). The actors involved in the urban food supply system are economic agents (e.g., producers, wholesalers, and retailers), public institutions (e.g., city and local governments, public food marketing boards, ministries of agriculture, ministries of transport), and private associations (e.g., traders, transporters, shop owners, and consumers) (Aragrande and Argenti 2001). According to Aragrande and Argenti (2001), the main players of the urban food distribution system can be grouped into three categories:

- Wholesalers. The operators are producers, assemblers, importers, wholesalers, processors, and service providers (credit, storage, information, and extension)
- Urban transport actors. These are carriers, shippers, third-party logistics providers, suppliers, producers, and customers, that is, food service owners and retailers
- Retailers and food services. The receivers of food products and fruit and vegetables are traditional or modern distribution outlets, alternative markets and flea markets, restaurants, hotels, cafés, and institutional and company cafeterias

Big cities need an enormous quantity of food and a freight transport system for its delivery. Therefore, policymakers, together with the community and supply chain actors, try to implement innovative projects for provisioning and distributing food (Thompson and Reimann 2007). Various actors at different levels create various networks and highly fragmented connections on both local and global scales (Morganti 2011).

In Italy, an example is the District of Pisa, which created a political space, involving the university, civil society, producers, retailers, and other food system actors. The "last mile" of the freight delivery journey is often the most expensive since economies of scale diminish. Deliveries often consist in a small number of parcels; for this reason, commercial vehicles operate below their capacity. There is pressure from the supply chain operators to reduce transport costs.

In conclusion, a successful introduction of city logistics policies requires the recognition and understanding of the different stakeholders and their problems (Puckett and Greaves 2009), because their objectives and interests are in conflict. To reduce the conflict, some measures are available: fiscal (market-based incentives), regulatory (command and control regulations), land use planning, infrastructural, new technologies and information and communications technology (ICT), and management. In this sense, Harker and Friesz (1986) confirm this, and Ogden (1992) also debates on the difficulty of freight behavioral analysis. Freight operators' behavior is to minimizing the cost of transportation (Danielis and Marcucci 2007). In the context of Rome, 57 % of loading operations are carried out while vehicles are illegally double-parked, while a third occur while parked on the roadside instead of the loading/unloading (l/u) bays (Filippi and Campagna 2008). Hotel, restaurant, and catering make up 71 % of all retailers in the limited

traffic zone (LTZ) area. For freight receivers, the main concern is the lack of l/u bays (36 %) and the overall difficulty of vehicle access to the historical center (33 %). For smaller craft businesses, the concern is the lack of adequate trolleys and lifting equipment for the unloading of goods (39 %). For this reason, consultation with both the general public and freight stakeholders is necessary, and for the same reason, city logistics is understood as a field of application for developing appropriate actor-based micromodels (de Jong and Ben-Akiva 2007; Hensher and Figliozzi 2007; Roorda et al. 2010; Wisetjindawat et al. 2005). Stakeholders have specific problems: (1) inefficiency of distribution system (lack of control of load factors and number of entrances), (2) fluidity of traffic (congestion), (3) l/u bays (lack of surveillance), (4) l/u bays (illegal parking), (5) l/u bays (illegal parking), (6) time windows (problem with unfair distribution of authorizations), (7) time windows (too many exemptions), (8) urban distribution centers and pickup points (placement and fees), and (9) annual fees (perceived as too high). A significant number of retailers would use the pickup point only if the costs were carried by the carrier, with latent conflict between the different types of agents: carriers appear to care little about the source of financing of distribution centers, whereas retailers see it as crucial. A portion of retailers would accept evening and even night deliveries. The conflicting needs of such elements as fluid displacement, parking spaces, and environmental conditions (Kitada 1992) and the usual clash of peak hours constitute a permanent source of inefficiencies and indicate the need for short-, medium-, and long-term planning. Some specific solutions benefit a certain group of stakeholders, but negatively affect others. Therefore, to resolve the conflict, evaluation methods such as those described in Keeney and Raiffa (1976) and Pearce and Nash (1981) can be applied. In order to minimize the conflict, a model such as ALF (Aires de Livraison du Futur, Next Generation Delivery Areas) can be used (Patier et al. 2014). A different scheme and an optimization methodology for reducing its overall cost were proposed by Cepolina and Farina (2015).

3   Methodology

The organizational form of a city logistics project is not predetermined: the first step is to examine what kinds of relations exist between the new organization and the entities from which it has arisen (Gammelgaard 2015). The municipality, the freight operators, the residents, the retailers, and the shippers all have different goals, to be arranged using a "dialectic approach." However, through a "teleological approach," all the actors and stakeholders are perceived to be part of the same system and therefore interdependent (Gammelgaard 2015). In the literature, the main stakeholders studied and discussed are the local authorities and their contacts with other stakeholders and actors (transport operators, retailers, trade organizations, and others that depend on freight transport) (Lindholm 2010). Goods movement represents between 20 and 30 % of vehicle kilometers (Dablanc 2007). Freight transport operations in cities represent only 10–18 % of vehicles but they account for 40 % of

air pollution and noise emissions. Cooperation and communication are essential. These two factors are the basis for many decisions, awareness, and knowledge in local authorities but also with other stakeholders. Urban areas require a deep knowledge, not only of the traffic and regulatory context but also the problems, perceptions, and operative constraints of the main stakeholders of the distribution chain (Stathopoulos et al. 2012). Active consultation among stakeholders is crucial to define more coherent and realistic city logistics policies. The city of Rome has been associated with severe congestion and a strong dependence on road transport for both passenger and freight movement; however, there is evidence of low externalization and innovation, mainly due to fragmentation of companies and cultural backwardness. For Rome, goods deliveries make up 6 % of traffic volumes (Filippi and Campagna 2008): 25,000 goods vehicle movements are carried out daily, of which 40 % is through traffic.

The measures to be considered can be classified as follows: fiscal (market-based incentives), regulatory (command and control regulations), land use planning, infrastructural, new technologies and ICT, and management. It is important to distinguish between private operators (retailers, wholesalers, or freight companies) and public ones (Visser et al. 1999). Since the decisions that generate the flow of goods in the urban area are generated by the private sector, policymakers have the task of facilitating or restraining these flows specifically or regulating the wider transport system (Harker and Friesz 1986). Typical public measures include pricing, licensing, and regulations, in line with the policy instruments listed above. However, the private entities are responsible for fine-tuning collaboration with their commercial partners, including in decisions on shared use of l/u facilities and adoption of new technologies or routines. To facilitate a successful introduction of city logistics policies, it is important to recognize and adequately understand the concerns of different stakeholders and their problem identification with respect to urban freight transportation (Puckett and Greaves 2009).

City logistics is a field of application for developing actor-based micromodels (de Jong and Ben-Akiva 2007; Hensher and Figliozzi 2007; Roorda et al. 2010; Wisetjindawat et al. 2005). Wisetjindawat et al. (2007) took into account interactions between freight actors on an urban scale and proposed a model for urban freight movement that considers the behavior of freight actors and their interactions in the supply chain. A model for managing urban traffic is also an objective for many other researchers (Crainic et al. 2004). In order to implement JIT in urban freight transport, a small but frequent delivery is preferred to a larger one (Chang et al. 2009; Storhagen and Hellberg 1987); one of the main reasons for the failure of city logistics projects is inadequate knowledge of the organization, decision power, and goals of different supply chains that operate inside the city.

4 Italian Experiences in City Logistics Projects and Findings

The main city logistics solutions experienced in Italian cities are restrictions on time and the weight of vehicles entering the city (see Table 1). The most common solution is LTZ, an area within the city center where vehicles are not allowed and access is controlled by electronic gates. The main examples are in Parma, Verona, and Milan. Ferrara has totally banned cars from entering the city center except for residents and people working in public services.

Another city logistics practice to rationalize traffic in urban areas is the establishment of specific loading points with time restrictions for loading and unloading goods. This is the situation in Rome and Milan, where goods may be loaded and unloaded at a specific time and exclusively in the assigned blue areas (Goggi 2002). However, an urban distribution center (UDC) outside the center is the preferred solution.

In Genoa, a hub, called "progetto M.E.R.Ci," was established by the Department of the Environment in 2003; it distributes all kinds of goods (except for fresh goods, pharmaceuticals, and newspapers) using low-impact vehicles. In Siena, a project (ALIFE) has been planned. However, the most successful case of a UDC is the Cityporto of Padua (established in 2004) and its adoption of low-impact vehicles. Parma has provided two kinds of solutions; transit points and ecological vehicles. A similar solution was adopted by the city of Verona with the Easy Shopping project (Spinedi 2008). In many cases, a fee for entering into certain streets of the city is fixed. The first Italian city to introduce this regulation was Genoa, in 2003. This system decreased traffic by 38 % (in the experimental period from March 2003 to August 2003) and 50 % of the people chose to use public transport. The experiment ended in 2004 because of a reduction in public funds, but now it may be implemented again. A similar case is in Milan, which was implemented in 2008. Changes are slow, and "none of the stakeholders are willing to make fast progress": whereas city governments expect business, logisticians are waiting for municipalities to initiate (and subsidize) new services (Dablanc 2006). The logistics decisions are based on supply chains; in particular, they depend on the behavior of consumers and firms. However, "first, goods movements are largely indifferent to the internal structure of cities. Second, urban policies regarding freight mobility are inefficient. And third, the provision of appropriate logistic services is slow in emerging despite growing needs in urban areas" (Dablanc 2006). Basically, between the terminals located on the urban fringes and the city centers, many freight flows circulate in conditions that are much more degraded than long distance trips.

Cityporto-consegne in città is an urban consolidation center (UCC) service operational in the urban area of Padua, Italy, managed by Interporto Padova S.p. A., a public-private partnership whose major stakeholders are the local public bodies (municipality, province, and chamber of commerce). The service has been operating since 2004. Cityporto performed about 100,000 deliveries in 2012 for 60 customers. The start-up (2004–2007) was supported by a grant from the City and

Table 1 Funds assigned for city logistics projects in 2007 (Euros)

N.	CITY	PROJECT	TOTAL COFINANCING (IN EUROx 1000)	PERCENTAGE (%)
1	ANCONA	CITY PORTS	91,416.67	1.86
2	BERGAMO	TRASPORTO MERCI CITTA VIVIBILE	305,053.33	6.22
3	CALTANISSETTA	PROGETTO D.U.M.—CITY LOGISTICS	110,558.00	2.25
4	FIRENZE	MERCI FIRENZE	80,675.00	1.65
5	FOGGIA	CITYLO' FOGGIA	297,823.75	6.07
6	GENOVA	SISTEMA INTEGRATO CENTRO DI GENOVA	438,909.17	8.95
7	LA SPEZIA	PROGETTO SIM—SPEZIA	151,220.00	3.08
8	LUCCA	LUSLIN	313,032.92	6.38
9	MILANO	MILANO "DA NODO DI TRAFFICO A DISTRETTO LOGISTICO"	717,000.00	14.62
10	PADOVA	CITY PORTO CONSGNE IN CITTA'	353,990.00	7.22
11	PALERMO	DI.ME.NO.	475,166.66	9.69
12	PARMA	ECOLOGISTIC	439,550.00	8.97
13	PIACENZA	STRATEGIA LOGISTICA URBANA	170,300.00	3.47
14	ROVIGO	ROVIGO ECO-DISTRIBUZIONE	176,234.67	3.59
15	SASSARI	SISTEMI TRASPORTO SOSTENIBILE MERCI	278,500.00	5.68
16	TORINO	VAN SHARING	127,968.75	2.61
17	VENEZIA	CITY LOGISTICS MESTRE	266,750.00	5.44
18	VICENZA	LOGISTIC CITY CENTER	110,831.67	2.26
	TOTAL		**4,904,980.59**	**100**

the Province of Padua and the local chamber of commerce. The success of this project is a result of a consultation process among stakeholders involved in the city logistics. The main barrier to overcome before its implementation was modifying the access and l/u rule in the city center.

The Cityporto model has been replicated in other Italian cities: Aosta, where Cityporto Aosta has been running since 2011; Modena, with Cityporto Modena in place since 2007; Como, with "Merci in Centro" operational with hybrid electric vehicles since 2009; and Brescia, where Eco-logistic Brescia has been operational since 2012 with three electric vans. Genoa's CDU is managed by a public-private partnership: Genova Eco-Distribuzione s.r.l., supported by the chamber of commerce and associations of freight operators, retailers, and artisans. There was a grant of 1.5 million euros from the Ministry of Environment to cover the start-up period. After a positive trend from the beginning until the end of 2003, there was a reduction of activity due to four main factors: quality of forwarding, erratic trends in deliveries, uncertainty about the future of the CDU, and no municipal regulations in favor of the center. One more element of criticality was the financial support for the project. Its suspension was expected at the end of 2003: in fact, it continued until September 2004 (Burlando 2003). An initiative based on exchangeable certificates was also promoted.

Rome: A large proportion of retailers will not use a pickup point unless the costs for running it are covered entirely by the carriers. The carriers prefer night deliveries, whereas retailers prefer day deliveries. Policy and planning of city logistics projects in Rome and worldwide require the implementation of multi-agent analysis. In conclusion, for Rome's situation the main elements are as follows: (1) a need to identify the point of view of various operators related mainly to l/u bays, time windows, and access fees; (2) the importance of behavioral factors such as extensive illegal use of time windows and l/u bays (making policies less effective); (3) shared support among stakeholders for the economic incentives to buy clean vehicles which increases the number of l/u bays and monitors l/u bays; and (4) no shared support for time windows and CDU measures. Many operators report the following issues: l/u bays (too few, illegal occupation, lack of surveillance, inadequate structure), time windows (too many exceptions in the current regulatory framework), and entrance fees (too high or in need of a different articulation according to vehicle categories).

Verona: The first city logistics project "Easy Shopping" was supported by the municipality, transport artisans association, national artisans association, and national retailers association. Fundamental was the financial support of the Veneto Region and Municipality of Verona. For many operators, the cost was higher than direct transport. Therefore, the warehouse had reduced space and it was far from the center. In 2011 a new city logistics project was established following a feasibility study in 2009 led by Zai (a public entity). At that time three other experiences in Padua, Vicenza, and Mestre were managed in a different way (respectively, public body, public-private partnership, and private). In the end for Verona, the same solution as that of Mestre was taken into consideration, and after a tender the

management of the city logistics was assigned to a private operator (Transconf), active as a transport operator in the fashion sector.

Vicenza: The municipality established the duty to use the LCC, even though there was a time window from 6 to 9:30 am for limited types of goods (perishable, medicines, and construction). Financial support from public bodies was essential for the start-up. About 50,000 deliveries were reached in 2010 but there was a significant drop in 2011, due to the default of one customer, who offered a new system based on the use of the bicycle as the delivery vehicle. Operators denounced the tolerant behavior of the municipality for the access permissions. Generally speaking, many stakeholders do not accept the substantial monopoly of the "last mile."

Padua: Padua received financial support from public bodies for the first 4 years of activity. The main elements of the city logistics project are stakeholder involvement, subscription on a voluntary basis, commitment of the municipality, business plan, management of the Interport of Padua, and gradual implementation.

Generally speaking, different cities undertook different approaches for their city logistics projects. For instance, Brescia followed a modular approach in collaboration with the stakeholders examining in depth a pilot city zone, designing new bays, improving accessibility to shops, and so on. In the beginning, Parma considered validating the existing platforms for different production chains; recently, they decided on a unique CDU. For Vicenza, see Table 2. Udine foresees a unique CDU, also using an existing platform for perishables. Taranto intends to build platforms and a regulatory system of the flows.

5   Conclusions

The Italian experience with city logistics projects proves that it is very difficult to implement a city logistics project without the immediate and total involvement of the various stakeholders who are affected by the project and that each supply chain has to realize the goal of reaching the customer faster and more cheaply than other supply chains with whom they are in competition. For this reason, a supplier will accept, on a voluntary basis, to be part of a city logistics project only if the cost of delivery or the time of delivery is lower using the city logistics than an autonomous system of distribution. However, this is possible by an administrative measure taken by the municipality in favor of the city logistics project through the monopoly of distribution inside the traffic limited zone to reduce the time of delivery or through financial support of the project to reduce the cost of delivery. For this reason, frequently, city logistics projects operate as long as there are funds or grants and then fail immediately when the money runs out. Due to this consideration, a question arises. What if, at the end, the easiest answer would be to come back to the past, that is, to have a deregulation to entry in the "limited traffic zone" (LTZ)? The criteria could be, for instance, to admit electric vehicles only, with limited dimensions and the possibility to stop and park in reserved bays.

Table 2 Italian experiences of city logistics with EU projects: City ports and MEROPE

CITY	EMILIA ROMAGNA REGION	PARTNER OF CITY PORTS	PARTNER OF MEROPE
BOLOGNA	X		
MODENA	X		X
PARMA	X	X	
REGGIO-EMILIA	X		
RAVENNA	X	X	
FERRARA	X		
RIMINI	X		
FORLI'	X		
PIACENZA	X		
CESENA	X		X
ROMA			X
GENOVA			X
FIRENZE			X
TARANTO		X	
BRESCIA		X	
VICENZA		X	
TERNI			X
ANCONA		X	
UDINE		X	
LUCCA			X
COSENZA			X
SIENA			X

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Whether the Employee Commitment to Implementation of the CRM System Contributes to Customer Loyalty? Empirical Analysis of a Successful CRM Implementation in the Auto Industry in Bosnia and Herzegovina

Aida Habul, Amila Pilav-Velić, and Amina Fejzić

Abstract This paper aims at exploring whether employee commitment to CRM implementation and their satisfaction is a prerequisite for customer satisfaction. We made an empirical analysis of successful implementation of the CRM system in one of the largest domestic consortium in BiH which is also one of the domestic pioneers in CRM implementation. In order to explore both sides of the coin, we investigated customer and employee satisfaction. The research was conducted via two online questionnaires designed for both groups of respondents. The final samples included 46 employees and 214 customers. The research findings indicate that the employees did not have any major problems in getting used to the new system (CRM system) or in communicating with customers. It is evident that the employees involved in the CRM implementation understand the process and that they are dedicated to the CRM success, but most of them (96 %) believe that a successful implementation would not be possible without external expert involvement. This indicates that a lack of vision, leadership, and training of employees often results in failed implementation. On the other hand, customers are satisfied with services and communication with employees during the sales and post-sales processes. However, regarding the customer loyalty, as many as 49 % of respondents said that they would not leave the company while 35 % might leave, whereas 17 % of the surveyed customers said that they intend to leave the company. These 35 % of customers should not be lost and it is essential to investigate the causes of customer reluctance. In this regard, we provided concrete recommendations.

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Keywords CRM system • CRM implementation • Customer loyalty • Auto industry

1 Introduction

Most existing studies indicate a 60–70 % failure rate in the CRM implementation (Dyche 2002). The common reasons for the failures are structural, given that implementation process involves a large number of functions and individuals. Hence, quality planning and well-organized implementation are essential. Additional obstacles can be the lack of understanding of the implementation process, including the lack of management commitment. Also, the CRM is often identified with the software, neglecting the fact that the business strategy aimed at improving relations with customers in terms of creating a long-term value for the company is also the strategy which should be understood and accepted by every employee. In this context, training of employees and increasing their satisfaction, including an adequate reward system, represent an important step to a successful CRM implementation. Precisely, our intention is to investigate whether employee commitment to implementation process and their engagement is crucial for a successful CRM implementation, as well as for customer satisfaction. Therefore, this paper provides empirical analysis of successful implementation of the CRM system in one of the largest national consortium in BiH (leader in vehicle sales) which is also one of the domestic pioneers in the CRM implementation. In order to explore both sides of the coin, we surveyed the customer and employee satisfaction. The research was conducted via two online questionnaires designed and tailored to both groups of respondents. The final samples included 46 employees and 214 customers.

The research findings determine the paper structure which is organized as follows. The theory background section provides the theoretical insight into the CRM implementation process, including the basic postulates of a successful and unsuccessful implementation. The CRM Implementation in Auto industry—ASA Group section provides empirical analysis of the CRM implementation in ASA group presenting all five stages in implementation process under the "Sure Step" methodology. Survey Research section discusses the survey research findings, including both employee and customer satisfaction surveys. Finally, Concluding Remarks section summarizes the main research results, offering concluding remarks.

2 Implementation of the CRM System

The CRM implementation is a demanding and complex initiative that involves full commitment and support of all stakeholders, particularly employees (Payne and Frow 2006). The essence of a successful implementation is in its initial definition and a clear business strategy, objectives and priorities, appropriate technology that can meet goals, and adjustment of organizational culture to changes that CRM brings. Definitely, the organizational culture is a decisive factor for a successful implementation of the CRM systems (Iriana and Buttle 2006). Therefore, it is necessary to consider the differences that CRM brings to the organization and its culture and prepare employees to the new circumstances.

Recent research findings indicate that 8–16 % of employees leave the company where the CRM is implemented within a period of 2 years. The most common reason is that they cannot adapt to new conditions and organizational climate that is totally oriented to customers. In this regard, the training of employees, increasing their satisfaction, including an adequate reward system, represents an important step to a successful CRM implementation.

Also, at the very beginning, the implementation process should be divided into several projects with clearly defined functions and objectives. The implementation process should be carried out by a special team, responsible for its success or failure (Greenberg 2001). Also, every CRM implementation is specific and unique, as every company has its own business strategy and priorities. This means that there is no unified model of successful CRM implementation. However, companies try to learn from experiences of others and apply the best practices, proven to lead to desired results. In line with this, our intention is to present an example of a successful CRM implementation in the largest private corporation in BiH, with considerable international reputation. But we first bring the features of a successful and unsuccessful CRM implementation.

2.1 Successful vs. Unsuccessful CRM Implementation

The basic feature of every CRM system is customer data collection in order to provide their satisfaction. Implementation of CRM provides an opportunity for employees to easily perform their activities and to establish better relationships with customers. In this context, customers should choose when and how they like to communicate (specific communication channel). Also, often in the CRM implementation process, companies do not take into account the needs and feedback of the CRM end users such as administrative and sales staff, sales and marketing managers, and so on. Different end-user groups have different needs and requests for data and specific reports. On the other hand, the implementation of the CRM system is deficient without professional and competent participants including

internal and external experts. Generally, software vendors and consultants provide an adequate support during the implementation process.

However, the most common reasons for the CRM implementation failure include:

- Lack of understanding and support from the employees. Customer-oriented strategy causes cultural changes in the company. It is very important that employees perceive all business operations and activities from the customer perspective (Shum et al. 2008).
- Communication—each employee mostly knows what information is needed and how they can be used (Özgener and İraz 2006).
- Poor leadership can cause a problem in implementation (Chen and Popovich 2003; Nguyen et al. 2007). Management needs to coordinate and emphasize the importance of clients in every project. It may happen that some proposed plans are not good for the client, so managers need to react and ask their teams for new solutions. Also, the management needs to take care of employees and their expectations and needs, because only satisfied employees lead to satisfied customers.
- Perception of the CRM implementation as a complex process is wrong. The CRM implementation process should be organized through several smaller projects, which can be easily controlled, yet which are big enough to involve different departments and groups.
- Too many implementations are guided by technology rather than by process or strategy itself (Foss et al. 2008). Companies are buying ready-made software solutions and expecting their business to be more effective. Also, it is expected that employees should change their routine activities and adapt to the newly implemented software solution. But the right way is to implement CRM technology which is compatible with the existing processes. The CRM implementation is more likely to succeed than fail when employees do not need to change their usual activities and behavior.

3 CRM Implementation in Auto Industry: ASA Group

This paper provides empirical analysis of the CRM implementation in domestic auto industry leader—ASA Group. The ASA Group is one of the first corporations in our country that implemented an integrated CRM system while continuously striving to improve communication with customers and hence serves as a good example on how the CRM theoretical foundations can be successfully implemented in practice. Also, this corporation has recognized a significant role of employees in the CRM implementation and has included employee training into each phase of the implementation process.

In fact, guided by the vision of a modern, innovative, and successful company that offers high-quality products and services to its customers, the ASA group was

established in late 1995. At the very beginning, there were only four employees engaged in car sales and rental. Today, the ASA Group is the leader in the national auto market (41.7 %) and the leading private business, which includes 20 different companies. Given that this Group has become one "big family" whose entities have different software solutions, there was a need for systems integration. In 2011, the ASA Group management decided to implement a unified CRM solution to increase profits through customer relationship management and to create a long-term relationship with them. The ASA Group is among the first companies in BiH that opted to implement the CRM business strategy. They faced great challenges, primarily due to the change of employee routine activities and the CRM integration into existing information systems in each company. The main objectives included creating a unique customer data base, supporting managerial decision-making, and providing more detailed information on customers including the strengthening of the ASA Group leadership position. Microsoft Dynamics CRM is evaluated as the most appropriate, as it was the easiest for integration into the existing accounting system (Microsoft Navision). As the most comprehensive approach to CRM implementation, the "Sure Step" methodology was applied, given that it includes project management, discipline, best practices, as well as software configuration and upgrade.

3.1 Analysis of "Sure Step" Methodology: Approach to CRM Implementation in ASA Group

The "Sure Step" methodology is a structured approach to the CRM implementation and includes five phases: analysis, design, development, deployment, and operation. This research is focused on the analysis of this approach to implementation process in two relevant sectors within the ASA group: sales and marketing sector.

3.1.1 Analysis Phase

In the first stage, a team responsible for the CRM implementation was created. It included six employees including the project manager, three business analysts, an expert for application development, a technical expert, and two engineers from Microsoft branch office in Sarajevo. Given the number of companies within the consortium, the most demanding process was to create a unified customer database. Although most companies were aware of the integration benefits in terms of simple records of customers and better communication with them, considerable efforts were made in order to change perception that "my clients" will become "our clients." Thus, a unified database with some 100,000 customers was created. Then, a development of sales and marketing modules tailored to specific requirements of employees was performed, aiming at facilitating the process automation.

In parallel, customer consents to use their personal data for marketing purposes were obtained. They were asked for prior permissions to receive e-mail messages including newsletters from the ASA group. However, given that the Group management board recognized employees as key drivers of the CRM implementation, this stage also included definition and design of their training on all aspects of the system.

3.1.2 Design Phase

In the design phase, significant improvements of sales and marketing modules were made. Specifically, recording applications were developed, enabling that all calls and meetings with customers are recorded as well as automated reminders such as birthday calls or e-mails for customers that facilitated interaction with customers, enhancing their experience.

3.1.3 Development Phase

In this phase, the "added values" of the CRM system were introduced, such as the method of payment, delivery time, delivery location, warranty options, and selling tips. Respecting the connection between both sales and marketing sectors, it is possible to organize sales campaigns for customers interested in a particular car or a model, or campaign for those who bought particular model in the last 5 years, etc. Namely, advanced search options allow employees to search for a customer based on any stored information such as name, address, etc. and to create offer adapted to customer types with different needs, habits, and preferences.

Sales staff training was provided through testing of individual software components within the integral system. Based on their feedback, the deficiencies identified were rectified, while additional adjustments were made in order to make the process as simple as possible.

3.1.4 Deployment Phase

In the deployment phase, the installation of Microsoft Dynamics solution was made. Different user interfaces were created such as those for sales reporting and analytics, visual display of data according to specific criteria, etc. Also, this enabled a complete adaptation of the user interface in line with specific requirements of each individual user, including a possibility of sharing data and files between users.

3.1.5   Operation Phase

In the last phase of CRM implementation, additional training of users was provided. Also, a consulting period was defined in terms of Microsoft development team support for the ASA Group employees in their adjustment to the new system. Although the CRM implementation in the ASA group can be evaluated as successful, it is not defined as a completed process, as it includes continuing improvements of the system.

4   Survey Research

The CRM implementation can be designated as successful only when the customers and employees as the end users perceive its benefits. Hence, the data were collected using a survey research method. Employees and customers were asked to respond to an online questionnaire (separated for each group of respondents) based on their experience and perceptions regarding the CRM implementation and the ASA Group. The following are the results.

4.1   *Employee Satisfaction Survey*

Given that any change in the existing organization and its culture requires the understanding and commitment of employees, our intention was to explore their attitudes, perceptions, and satisfaction in connection with the CRM implementation.

The survey included 46 employees, mostly from sales sector (33 %) and marketing (22 %). Also, the majority of respondents (96 %) confirmed the full commitment of management and the involvement of employees in the implementation process and expressed satisfaction with the implemented CRM system.

Considering the fact that most attempts at CRM implementation failed mainly because of the resistance of employees in terms of their adjustment to changes, as well as insufficient knowledge of the new system, this survey was aimed at exploring the acceptance of the implemented CRM system. The results show that as many as 41 % of respondents had no major difficulties adapting to the new CRM system, while 24 % of them stated that this was a difficult process (Fig. 1). However, most respondents (93 %) believe that the CRM system made their job much easier in terms of information collection, their dissemination and communication with clients.

Also, as many as 89 % of the surveyed employees believe that the CRM system is successfully implemented, but say that this would not be possible without management and employee commitment as well as the engagement of external
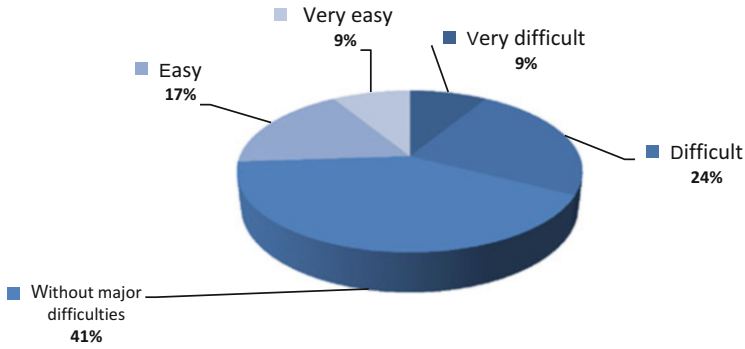
Fig. 1 Employee acceptance of the new CRM system
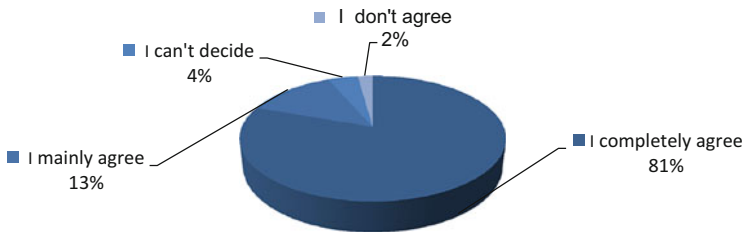
Fig. 2 The employees as crucial factor for a successful CRM implementation
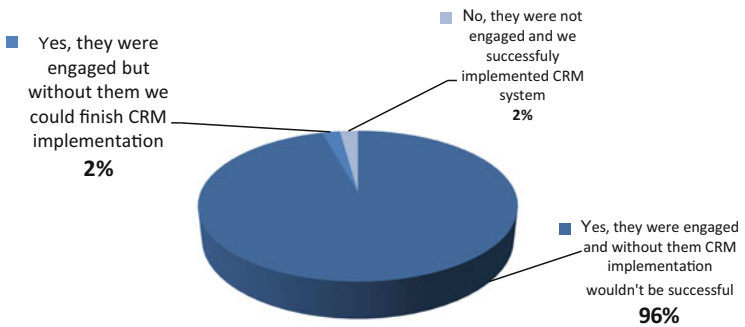
Fig. 3 External experts' role in the CRM implementation

experts (Figs. 2 and 3). This external expertise is mainly related to the creation of an adequate CRM solution and employee training. These ratios are visible from the following graphs.

An interesting result of the survey is that 85 % of respondents perceive the implemented CRM system as a source of company's differentiation and a boost to the competitive edge in terms of increased ability to identify the customer requirements and expectations.
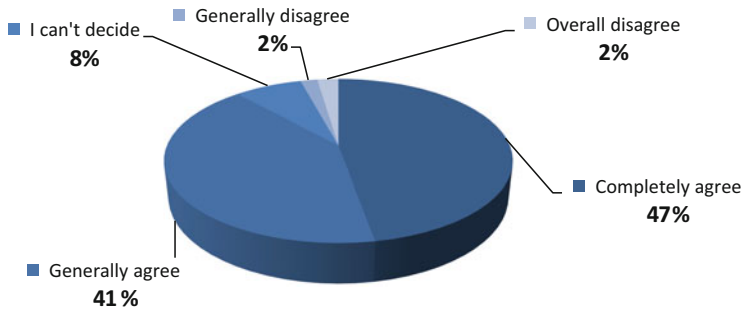
Fig. 4 Customer satisfaction with the overall service

4.2 Customer Satisfaction Survey

Since the customer satisfaction is crucial to building a long-term relationship and customer loyalty (Yang and Peterson 2004; Shankar et al. 2003), the customer satisfaction survey was conducted. The sample includes 214 respondents. Since the speed of responding to customer queries and requirements is one of the most important indicators of a successful CRM implementation (Antony 2006), most respondents (82 %) indicated their satisfaction with the friendly ASA Group sales staff, including the speed of response to their requests.

Also, a total of 79 % of respondents recognized the effects of a successful CRM implementation through the skills of the sales staff to recommend a product/service that fully meets their needs. Also as many as 88 % of respondents are satisfied with the overall service provided by the ASA group, including the car leasing offers, car insurance arrangements, and car service and maintenance (Fig. 4).

A total of 51 % of respondents are satisfied with after sales service, including the car service and maintenance, as well as with various forms of notifications for customers such as reminders about car registration or technical inspection, while 66 % of respondents feel confident they get the value for money, which is definitely one of the crucial factors to securing customer loyalty (Fig. 5).

On the other hand, regarding the customer loyalty, as much as 49 % of respondents said that they would not leave the company, while 35 % of them might leave and 17 % of the surveyed customers said that they intended to leave the company. These 35 % of customers should not be lost, and it is essential to investigate the causes of this customer reluctance. In this regard, we provided concrete recommendations.

5 Concluding Remarks

This paper aimed at contributing to a better understanding of employee role in a successful CRM implementation. We found that employee involvement and commitment to the CRM implementation do contribute to customer satisfaction.
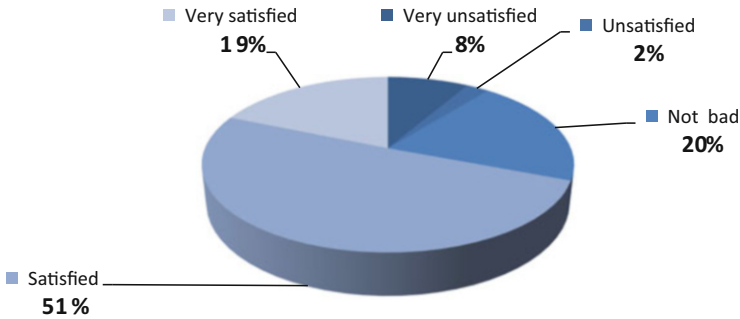
Fig. 5 Customer satisfaction and after sales services

Specifically, the development and training of employees, increasing of their satisfaction, including an adequate reward system, represents an important step to a successful CRM implementation. Effective employee communication is essential, and each employee in the company needs to know what information he/she needs and how to use them. Given that the CRM implementation brings significant changes to company culture, employees often need assistance in maximizing their readiness to change.

In this particular case, our research findings indicate that employees did not have any major hurdles in getting used to the CRM system or in communication with customers. It is evident that the employees understand the process of CRM implementation, but most of them (96 %) believe that a successful implementation would not be possible without the involvement of external experts. This indicates that the lack of vision, leadership, and training of employees very often results in a failed implementation. On the other hand, regarding customer loyalty, as many as 49 % of respondents said that they would not leave the company while 35 % of them might leave, and 17 % of the surveyed customers said that they intend to leave the company. These 35 % of customers should not be lost and it is essential to investigate the causes of the customer reluctance. In this regard, we recommend concrete improvements in the implemented CRM system such as introduction of customer loyalty metrics, automated and real-time reporting system, development of mobile CRM applications given their increased popularity and use, and improvements in sales strategies and processes, including the use of different tools such as the tablet to assist the sales and process and also a greater two-way interaction with customers.

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Analysis of the State and Dynamics of Chemical Industry in Russia

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Abstract The paper considers the factors causing change in the state of chemical production in the Russian Federation over the past 20 years. It analyzes the index of chemical production, import and export of products, state of the fixed assets and investments in the fixed capital, and financial performance of the industry. It also assesses the level of efficiency in the use of the fixed production assets and labor productivity. The state development programs of the chemical industry are considered in the paper. As a result, the main directions and trends in the industry were defined, and there was given a consideration of the measures of the branch industrial policy aimed at investment activity in the industry, import substitution, and implementation of an innovative development strategy of chemical industry.

Keywords Chemical industry • Output of products • Fixed asset value • Investments • Efficiency • Development strategy

1 Introduction

One of the major criteria to ensure innovative development in Russia, national competitiveness, growth in quality of life, and the development of innovative potential of the regions is the level of progress and the use of chemical industry products (Rodionov et al. 2014). At the present time, the government intends to create chemical and petrochemical clusters; in connection with this comes the need for analysis of the enterprises engaged in the industry to further the inclusion or exclusion from the cluster (Kudryavtseva 2015). The paper considers the factors of change in the state of chemical production in the Russian Federation over the last decades and analyzes the activity dynamics of one of the largest enterprises PJSC "Pigment." "Pigment" was founded in 1949 and is one of the largest chemical companies in the country. The enterprise is the only one to produce optical brighteners in Russia.

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The comparative dynamic analysis will identify development trends in the industrial branch, find out growth factors, and consider strategic development directions of the chemical industry in Russia, which can be the basis for development of the state branch investment program.

2 Major Trends in Chemical Production

The dynamics of chemical production (Fig. 1) has scarcely increased since 1992. Thus, in the period from 1992 to 2014, volumes of production increased only by 20 %. A slight stable growth of production volumes has been observed since 2002. In the crisis period (2008–2010), the volumes decreased insignificantly and recovered faster than many other branches of the Russian manufacturing sector. In 2010, the industry grew by 15 % in comparison with 2009, which is higher than the average for the manufacturing sector. Moreover, compared to the peak in 2007, the industry experienced increase in production by 4 %, while the whole manufacturing sector reduced production by 0.1 % during this period.

Analyzing the activities of the company over the past 10 years, we can conclude that in 2009–2010 "Pigment" restored production volumes and its position in the market. Besides, it repaid most of its loans. The enterprise returned to the pre-crisis level of production and sales indices, as well as modernization and production development indices.

The success of the Russian chemical industry in 2010 was preconditioned by many reasons, including the growing export demand for fertilizers in terms of rising prices for agricultural products, as well as deficiency of polymers in the domestic market due to the rising demand for plastic products on the part of various sectors of the Russian economy. The volume of deliveries of "Pigment" to far-abroad and neighboring countries in real terms increased by 18 % in 2010 comparing to the results in 2009.
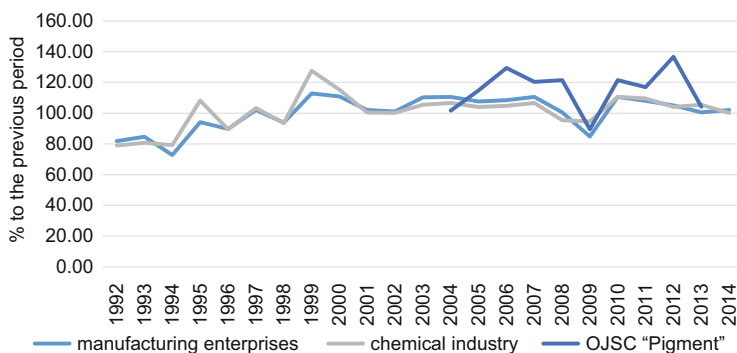
Fig. 1 The index of chemical production

The chemical industry, which grew at a rate higher than many sectors of the manufacturing industry complex in 2010, as it is shown in Fig. 1, in 2011 and 2012 worsened significantly the production dynamics. The industry's performance was influenced by several factors, such as weak external demand for chemical products, unstable external market conditions, and decreasing production of basic chemicals (The Russian union of industrialists and entrepreneurs 2015). 2013 is characterized by growth of production in the industry by 1.3 % in comparison with 2012, while the whole manufacturing sector reduced production by 4.6 % in this period. Taking into consideration that the Russian industry grew, in general, by only 0.4 %, the performance of the chemical branch can be considered as very good.

The index of chemical production in Russia at the end of 2014 was 100.1 %, in January–August 2014—101.3 %. Thus, the chemical industry in the last months of 2014 was actively slowing down, due to the economic and political situation in the country of those days, as well as because the competition on the part of foreign companies was getting stronger.

Comparing the state of the chemical industry in Russia and in European countries, we can conclude that the Russian chemical industry is at least twice times less developed than in the leading economic nations. The annual growth rate of the industry in Russia is not more than 0.9 %, while in the G-7 countries, China and some developing states, this index is not less than 4 %. The range of Russian chemical products is half as large as in the developed and many developing countries.

One of the main reasons for this situation is the growing shortage of raw materials and semifinished products, as well as high wearing of the equipment in the industry and problems related to human resources and scientific support of this branch. In general, according to the experts from the RIA analysis (Ria-rating 2013), there is a need for a comprehensive strategy for reindustrialization of the chemical industry in the Russian Federation, and, consequently, measures must be taken to stimulate production and export of advanced products made from chemical raw materials.

3   Export and Import of Chemical Products

In 2011 import and export of chemical products in monetary terms reached the record level, the dynamics of indices is presented in Fig. 2. The previous maximum amount of import, recorded in 2010, was exceeded by 22.8 %, while the maximum size of export, achieved in 2008 year, was exceeded only by 2.6 %. However, the growth rate of export was higher in relation to 2010 than the growth rate of import. Export in monetary terms increased by 27.9 % during the year. For this reason, in 2011 there was a reduction of import and export ratio in chemical products. However, this index is still much higher than the pre-crisis level.

During 2012 the index of import and export ratio of chemical products increased, and it continues to grow today (see Fig. 2). According to Federal State Statistics
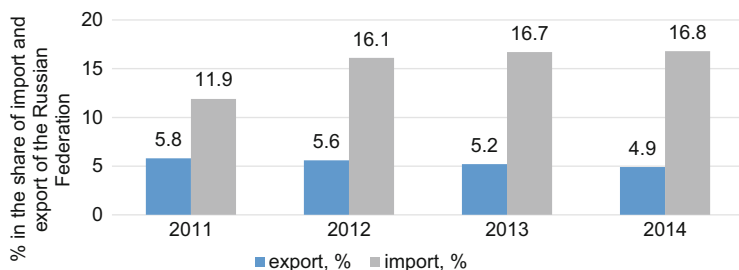
Fig. 2 Dynamics of export (%) and import (%) in the chemical industry of the Russian Federation
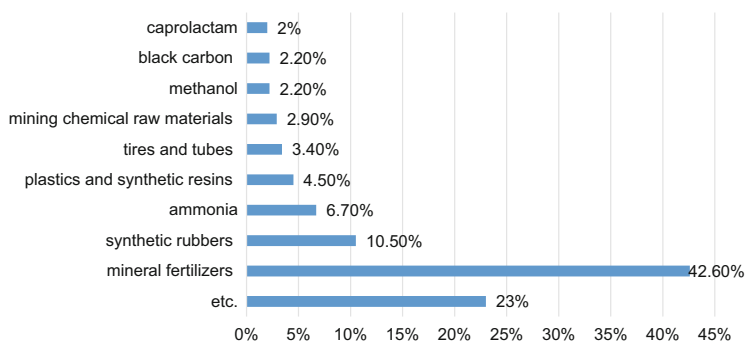
Fig. 3 The goods structure of chemical products exported from the Russian Federation

Service (2015), import includes high-tech conversion goods and raw materials for their production: basic and high-tech plastics, polymeric resins and goods made from them, paints and lacquers, chemical fibers and yarns, and special chemicals and reagents.

The largest share in the export structure (see Fig. 3) is still held by mineral fertilizers (42.6 %), synthetic rubbers (10.5 %), ammonia (6.7 %), plastics and synthetic resins (4.5 %), tires and tubes (3.4 %), mining chemical raw material (2.9 %), methanol, black carbon, caprolactam, etc.

The import structure (see Fig. 4) is characterized with supplies of final consumer products having the highest added value—up to 70 %. Despite the existing fundamental factors providing competitiveness in the global market, such as access to raw materials, unsaturated domestic market, and scientific achievements, the potential for development of the chemical industry in Russia is not realized to the full extent. Russia is up to four times falls behind in production of chemical products per capita in comparison with EU countries, particularly, Germany. Thus, the index of chemical production in Japan per capita is almost seven times higher than that of in Russia, which indicates that the use of chemicals (Ria-rating 2013) is not high enough in the domestic branches that consume the products of the chemical industry.
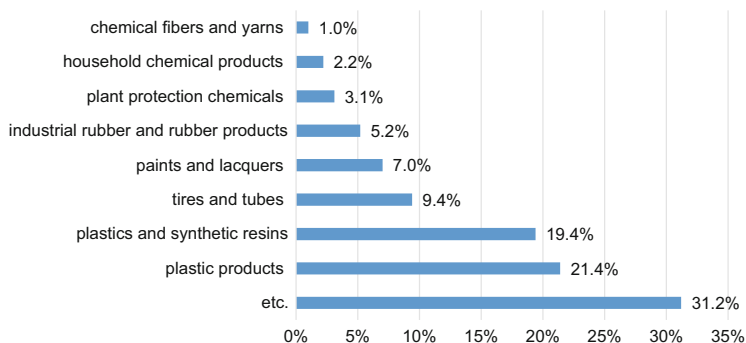
Fig. 4 The goods structure of chemical products imported to the Russian Federation

Thus, the main features of the chemical product market in Russia are the following:

- Low demand for the products of the chemical industry in the domestic market
- Export-oriented supply of basic raw materials
- Extremely low share of high-tech conversion products in the final goods production
- Orientation of import on the supply of final consumer goods

The chemical enterprise "Pigment" successfully exports its products to 18 - far-abroad and neighboring countries. The company has 2000 regular customers in Russia, the CIS countries, and abroad. The main consumers of the enterprises are companies from Italy, Holland, Germany, England, France, Ukraine, Belarus, Uzbekistan, and Kazakhstan.

The main types of export products are intermediates, pigments for the printing industry, optical brighteners and dyes, and textile auxiliaries. Thus, in 2010 the volume of supply to far-abroad and neighboring countries in physical terms increased by 18 % in comparison with the last year's results. In 2011 the volume of supply was 34 % higher than in 2010, and it continues to grow according to data from the site PJSC "Pigment."

By the end of 2014, export supply increased by 26 % compared to year 2013. More than 14 thousand tons of products for 800 million rubles were supplied to far-abroad and neighboring countries (PJSC "Pigment" 2014).

However, import of raw materials continues to play an essential role in the production of the enterprise. Today "Pigment" is the only producer in Russia and the CIS of organic pigments, sulfamic acid, rubber compound modifier, optical brighteners for synthetic detergents, and pulp and paper industry. In particular, it is in order to produce these very products that "Pigment" has to purchase raw materials in China and India, as neither Russia nor the neighboring countries have them. There has been no complex processing of raw materials with the production of intermediates for many years, which greatly complicates production of a number of goods in Russia. "Pigment" turned out to be one of the few

enterprises that has been able to maintain its direction and high-quality bar, holding its positions in the market. Despite the growth of import and export ratio rate of chemical products in the industry as a whole, the enterprise continues increasing export supply from year to year. Moreover, in connection with the crucial issue of import substitution, PJSC "Pigment," PJSC focuses on launching new products which can be used instead of imported goods by Russian producers.

4 Investment in the Chemical Industry

Analysis of investments in the chemical industry has shown that the volume of investments in fixed assets has been growing, since 2005 the volume of investments has increased from 56.8 billion rubles to 224.9 billion rubles in 2013 (see Table 1). However, the budget funds were no more than 8 % in 2012, and in 2013 the index dropped down to 3.2 %; the funds were mainly allocated from the regional budgets according to the development strategy of the chemical and petrochemical industry in Russia for the period up to 2015 (Ministry of Energy the Russian Federation 2008). This situation is preconditioned by the present strategy of chemical industry development till 2015, which implies just a small proportion of the federal budget funds. It is less than one percent of the federal budget (6.87 billion rubles for the entire period), including 4.8 billion rubles for research and development. A small proportion of investments, financed from the federal budget, is related to the concentration of a large part of the enterprises in holding company structures, which are able to ensure production development at the expense of their own and borrowed funds.

The enterprise "Pigment" is conducting an active investment policy. Annually the company invests money to modernize the energy system, as well as to increase production capacities for acrylic dispersions, which results in a positive effect. Investments can increase production and sales volumes. In monetary terms, these values exceeded 5.9 billion rubles in 2014, which is more than in the previous reporting period by almost 19 % (PJSC "Pigment" 2014).

The coefficient of fixed asset renewal in the industry grew by 3.3 % over 8 years, so the value of the coefficient in 2005 was 9.6 %, while the index in 2013 was up to 12.9 % (Federal State Statistics Service 2015). The coefficient of fixed asset retirement in the chemical industry in 2005 was 1 %; in 2010 the index dropped down to

Table 1 Investment in fixed capital

	2011, mln. RUR	%, to 2010	2012, mln. RUR	%, to 2011	2013, mln. RUR	%, to 2012
Chemical industry	162,600	1.44	212,300	1.31	224,900	1.06
"Pigment," PJSC	370	4.28	330	0.89	386	1.17

0.9 % and retains its value till 2013 (Ministry of Energy the Russian Federation 2008).

Both the industry and the enterprise pursue an active investment policy. The negative factor is low activity of the state in supporting the chemical production. Few companies are able to develop their activities, to ensure the timely update of funds at the expense of the own and borrowed funds. Thus, the current situation affects the overall performance in the sector and the low growth rate.

5 Analysis of Fixed Asset Efficiency

Analysis of the intensity and efficiency of the fixed production assets used by the enterprise and the whole industry has shown that the dynamics of the industry is significantly lower than the dynamics of the enterprise, as it is shown in Table 2.

Capital productivity in "Pigment" has grown over 10 years. The value of the index in 2013 exceeds the value in 2005 by 1.25. In 2009 (see Table 2) the index decreased by 0.53, compared to the previous year, but in 2010 it returned to the value of 2008. The most efficient use of basic production assets is observed in 2012.

However, since 2011 there has been reduction of effectiveness in the use of fixed assets in the industry, which indicates unsustainable exploitation or reducing level of fixed asset use, which does not allow accelerating production and reducing costs.

In the dynamics of fixed asset use, the company operates more effectively, increasing the volume of production, and, thanks to funds modernization, it manages to minimize costs and expand its range of manufactured goods.

6 Analysis of Using Labor Resources in the Chemical Industry

Average annual number of employees in the chemical industry decreased on average by 30 % over the period 2005–2013. A similar situation was true for the enterprise, as shown in Tables 3 and 4.

Chemists are experiencing an extreme shortage of qualified personnel, and when the problem aggravates, the status of higher chemical education continues to decline. Young professionals do not believe that the industry is effective.

Table 2 Analysis of the fixed production asset efficiency in the chemical industry and "Pigment," PJSC

		2005	2010	2011	2012	2013
Capital productivity	Chemical industry	2.15	2.26	2.51	2.35	2.02
	PJSC "Pigment"	2.86	3.79	3.17	4.35	4.11

Table 3 Changes in the number of workers

| | 2005 | 2013 | Changes | |
			Absolute, people	Relative, %
Chemical industry, people	563,000	390,200	−172,000	69.31
PJSC "Pigment," people	2434	1713	−717	70.38

Table 4 The analysis of labor productivity (thousands rubles)

	2010	2011	2012	2013
Annual output per worker	3307	4360	4876	4833
Chemical industry "Pigment"	1825	2106	2863	2955

The average number of the workers, employed in the industry in the period of 2011–2013, is 70.8 thousand people, and 83.3 thousand people left the industry. At the same time, the percentage of those who resigned averaged at 65.4 % in 2011–2013, but the percentage of the reduced workers decreased over this period from 6 to 4 %. It should be noted that the average actual working time of employees over the period 2005–2013 in the industry was reduced by 14 h, and in 2013 it was 1711 h.

Reduction of the number of workers in PJSC "Pigment" signifies introduction of high-tech equipment and increased productivity per worker. Thus, we can distinguish the following reasons for reducing the number of workers in the industry: lack of interest among young professionals, unattractive social protection, and low wages. However, in the enterprise "Pigment," reduction in the number of workers is accompanied by an increase in productivity per worker.

Thus, the results of factor analysis showed that in 2013 the increase in the number of workers by 17 people indicates an increase of only 48,674.68 thousand rubles output at the plant. A rise of annual output by 92.18 thousand rubles leads to a growth in production by 157,910.3 thousand rubles. A rise in the cost of the basic production assets by 115,693 thousand rubles also results in an increase in production by 503,173.2 thousand rubles, and reduction in efficient use of funds leads to a decline in the output by 296,588 thousand rubles.

In 2013 the number of workers in the industry reduced by 8 thousand people, which lead to reduction of output by 39015 million rubles, and the decrease in annual output by 43,53 million rubles brings reduction of output by 16,984.43 million rubles. This suggests that the output is more dependent on the number of workers rather than on a more intensive use of labor resources. Speaking about dependence of the output on the fixed assets and efficiency of their use in the industry, increasing costs of the basic production assets by 108,790 million rubles entails an increase in output by 255,492.94 million rubles, and a decrease in capital productivity by 0.33 leads to a reduction in the output by 311,492.94 million rubles. Therefore, to accelerate production rates and reduce production costs, it is necessary to raise the level of the fixed assets that are used.

The identified trend in development of the industry gives evidence of equipment modernization and process automation.
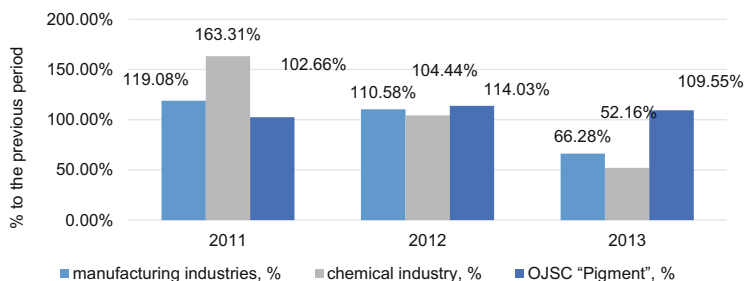
Fig. 5 Dynamics of the balance of profits and losses in the chemical industry in relation to the previous year

7   Profits in the Chemical Industry

In 2011 the balanced financial result of the chemical industry (profit minus losses) increased by 63.31 % up to 163.963 billion rubles, as shown in Fig. 5. The high level of demand contributed to a significant increase in profits in the industry. However, in the second half of the year, the demand dynamics particularly that of the external markets showed a slowdown in growth that had an impact on profitability (Volkov 2014).

In 2012 there was a decrease in the level of profitability in the industry by 58.88 %, compared to 2011 due to the negative dynamics of global prices for some industry products. Deterioration in the macro environment was reflected in the share of profitable enterprises, which decreased by 5–10 %.

In 2013, the balanced financial result in the chemical industry decreased by more than 52 %.

Analyzing the structure of the property of PJSC "Pigment" in 2011, 2012, and 2013, it should be noted that the balance sheet total increased by 2.66, 14.03, and 9.55 %, respectively. A significant increment was caused by a growing share of assets in 2012 (PJSC "Pigment" 2014). PJSC "Pigment" increases the economic efficiency of the production process, which results in a reduced duration of the production cycle of goods, lower production costs, better use of fixed assets, and increase in working capital turnover. Besides, efforts are made continuously to improve the range and quality of products, as well as the development of new ones. So, every year from 20 to 30 kinds of new goods are developed and launched.

Noting the general decline in profits both in the manufacturing industry and in the chemical industry, in particular, PJSC "Pigment" demonstrates strong financial results. It is preconditioned by increase in productivity, annually growing share of export, and due to retaining and strengthening the position in the market.

8 Conclusion

Analysis of the state and dynamics of the chemical industry has shown:

- Slight increase in production volumes in the industry, underdeveloped product range, and low level of production of chemical products per capita.
- Active growth in chemical products import, mainly with high added value in comparison with the slight increase in export.
- Investments' volume in the sector increases, which contributes to the renewal of the fixed assets; however, state investments are insignificant, no more than 10 % of all the investments.
- The industry has a growing productivity, while the number of employees and the efficiency of the fixed asset use reduces, which may be caused by the initial stages of the investment process in modernization of the equipment and automation of production, with investments not paying off yet.

The policy, conducted by the government in the second half of the twentieth century, led to replacement of domestic products with the foreign ones, which had a strong influence on development of the chemical industry and its competitiveness. The lack of support from the state and low demand for products made the industry unattractive for investments, and its share in GDP decreased significantly. In 2014 the problem of import substitution has become especially acute and solving the problem, faced by the state, will contribute to optimization of the country's resources and, as a consequence, to development of the industry and growing production rates.

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Tacit vs Explicit Knowledge Dichotomy: State-of-the-Art Review for Technology Transfer Purposes

Mikus Dubickis and Elīna Gaile-Sarkane

> *. . .we can know more than we can tell*
>
> Polanyi (1966, p. 4)

Abstract There is no consensus among scholars using and defining knowledge types and their interaction. Theoretical distinction between tacit and explicit knowledge has emerged. The tacit knowledge is positioned in contrast with the explicit knowledge as a result of this dichotomy. However, there are indications that every knowledge has both tacit and explicit elements that cannot exist one without the other—they are complementary and create synergy for the knowledge management. The aim of this paper is to explore relevance of knowledge distinction between the tacit and explicit knowledge for technology transfer purposes. Brief review of literature, draft discussion, and one-on-one interviews were performed in order to find the answer to the research question: Does distinction between tacit and explicit knowledge have place in the exploring of knowledge for technology transfer purposes? Content analysis was performed to process qualitative data that were collected through interviews. The research results show that the distinction between tacit and explicit knowledge is not suitable for technology transfer purposes. Knowledge consists of both tacit and explicit components. There is also an explanation for many contradictions in knowledge management studies exploring knowledge explicitness in this paper. The paper provides a better understanding of the issues related to tacit versus explicit knowledge dichotomy within technology transfer. There are theoretical implications as well as recommendations for future research in this study.

Keywords Tacit knowledge • Explicit knowledge • Technology transfer • Knowledge transfer • Knowledge management • Tacit knowing

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1 Introduction

Knowledge could be one of the most comprehensive phenomena to study. Within the knowledge studies, one can observe contradictions on most of the issues. There is no consensus among the scholars defining knowledge, types of knowledge, and their interaction. It does not matter which—either Plato's "Justified True Belief" within philosophy of knowledge or, very popular among knowledge management studies, Nonaka's and Takeuchi's (1995) model of organizational knowledge creation—is used as a basis for analysis. Ichikawa and Steup (2014) state that in spite the fact that attempts to analyze knowledge have received a considerable amount of attention; no analysis has been widely accepted. They argue that some contemporary epistemologists reject the assumption that knowledge is susceptible to analysis at all (Ichikawa and Steup 2014), therefore, making it a very challenging task. However, we are interested in knowledge as it has been widely used in technology transfer studies, especially if we are talking about explicitness of knowledge.

Polanyi (1958) with his book *Personal Knowledge: Towards a Post-Critical Philosophy* has been nominated as the introducer (Zhenhua 2003; BusinessDictionary, n.d.) or reintroducer (Hedesstrom and Whitley 2000) of tacit knowledge or more precisely tacit knowing concept. Nevertheless, according to the dictionaries (Dictionary.com Unabridged, n.d.; Online Etymology Dictionary, n. d.), concept of tacit for the first time was developed around the year 1600. Accordingly, the term has been already used for centuries and is nothing new, except the interpretations of the concept. It has been widely used after Polanyi (1958, 1966), who stated that people can know more than they are able to tell. He observed that conscious knowledge consists of elements that are not attainable for the focal awareness (Virtanen 2009) and attempted to avoid the absurdities of sheer objectivity and the assumption that science—or anything else—could be expressed in a value-free perfect language, which anyone could understand and no one would misunderstand (Ray 2009). While Nonaka and Takeuchi (1995) proposed that the tacit knowledge can be converted to explicit knowledge. They define tacit knowledge as personal knowledge embedded in individual experience and involves intangible factors such as personal belief, perspective, and value system (Nonaka and Takeuchi 1995). As a result the theoretical distinction between tacit and explicit knowledge has emerged and is widely used within knowledge management and technology transfer literature, positioning tacit knowledge in contrast with the explicit one. But this is not without criticism, for example, Li and Gao (2003) argue that Nonaka's and Takeuchi's understanding of the tacit knowledge actually differs from Polanyi's concept, while Meyer and Sugiyama (2006), on the basis of discussion, developed in their study to go further and propose three-dimensional knowledge codifiability models, placing implicit knowledge between the tacit and explicit. However, there are indications that every knowledge has both tacit and explicit elements, which cannot exist one without the other. They are complementary and create synergy for knowledge management. Jennex (2008, p. xxxix) states: "Rather, knowledge is a mix of tacit and explicit with the amount of explicitness

(only one dimension needs to be measured) varying with each user. This is the knowledge continuum where purely tacit and purely explicit form the end points with knowledge existing somewhere on the continuum between the two end points." As we are interested in knowledge for technology transfer purposes, the paper is focused on analysis whether the distinction between tacit versus explicit knowledge is suitable for the specified and further in the paper explained three dimensions of knowledge within technology transfer process. Also we will give an explanation for the reason why there are so many contradictions in knowledge management studies by exploring knowledge explicitness.

Technology transfer is a special and difficult type of communication process (Rogers et al. 2001) and emphasized as an important driver in innovation and the creation of sustainable growth (Allen and O'Shea 2014). Technology transfer as a challenging (Hossain 2012) and important task in a wider context has been approved within different fields of research (e.g., Mom et al. 2012; Dasgupta and Taneja 2011; Salin 2010; Morrissey and Almonacid 2005; Kneller 2001; Chobya et al. 1999; Grotz and Braun 1993) as well as in regulation and policy planning documents (Association of University Technology Managers, n.d.; European Commission 2010a, b). Similar to the studies of knowledge, concept of technology transfer is not easy to define. Sazali and Raduan (2011) in their review have gathered almost 30 different viewpoints of technology transfer. It is seen as an adoption of innovation made by another organization (Rogers 1962 cited in Sazali and Raduan 2011), an application of technology to a new use or user (Gee 1981 cited in Sazali and Raduan 2011). It is also defined as the transfer of a technology, technique, or knowledge that has been developed in one organization and then transferred to another where it is adopted and used (Melkers et al. 1993 cited in Phillips 2002). Current studies [for the past decades] on the technology transfer have connected technology directly with knowledge (Dunning 1994 cited in Sazali et al. 2012). Technology transfer in this paper is defined by the application of knowledge gained within the industry to the university. Since knowledge can take different roles within technology transfer, we will define three of them. According to the literature review done by Kumar et al. (1999), technology consists of two primary components: (1) a physical component which comprises of items such as products, tooling, equipments, blueprints, techniques, and processes and (2) the informational component which consists of know-how in management, marketing, production, quality control, reliability, skilled labor, and functional areas. In this study the focus is on the second component of **technology**, stated by Kumar et al. (1999) defining it **as knowledge to be transferred** and thus forming the first dimension of knowledge within technology transfer for our research. Three core objectives to achieve by the process of technology transfer, as argued by Hoffman and Girvan (1990, cited in Sazali et al. 2012), are: (1) the introduction of new techniques by means of investment of new plants, (2) the improvement of existing techniques, and (3) the generation of new knowledge. Accordingly, the third objective is used to define the second dimension of knowledge within technology transfer for our study—**knowledge as an outcome of technology transfer**.

And as the last but not the least dimension, we adopt **knowledge (know-how) as a tool for technology transfer**.

2   Methods

The aim of this paper is to explore relevance of tacit versus explicit knowledge dichotomy within the technology transfer. At first the literature review was done in order to explore current state of knowledge for technology transfer purposes. By inductive reasoning it was concluded that there are contradictions using knowledge dichotomy—tacit versus explicit knowledge. The literature review was followed by a draft discussion with six representatives (experts with at least 7-year practical work experience) from the university to make the focus of the research and limitations clearer. As the result of literature review and draft discussion with experts, the following research question was formulated: Does distinction between tacit and explicit knowledge have place in exploring knowledge for technology transfer purposes? Gill et al. (2008) argue that interviews and focus groups are the most common methods of data collection in qualitative research. Interviews are suggested instead of focus groups when (1) group/peer pressure would inhibit responses and cloud the meaning of results; (2) it is necessary to understand how attitudes and behaviors link together on an individual basis, and (3) stakeholders do not need to hear firsthand the opinions of participants (Frechtling et al. 2010) as it is in our case. The interviews are useful to study the phenomenon where detailed insights are required from individual participants (Gill et al. 2008); therefore, to find the answer to the research question, one-on-one interviews were chosen as qualitative data collection method. According to the results of research conducted by Griffin and Hauser (1991 cited in Griffin and Hauser 1992) as well as recommendations by Ulrich and Eppinger (2012) to conduct not fewer than 10 interviews, the authors performed 12 one-on-one interviews with experts involved in technology transfer by the means of practical knowledge application from the industry to university. Experts with at least 7 years of practical experience in the industry from different fields were included in the study. Content analysis of qualitative data by means of explanations of rates given by the experts was performed using NVivo software. To ensure validity of the findings, both authors of the paper coded data obtained from the interviews independently. Furthermore, the assigned codes were discussed, and finally the agreed groups of factors were presented through consensus.

3 Results

The interviewees were asked to evaluate transfer of technology by the means of their practical knowledge gained in the industry and applied to university. The previously defined three dimensions were used. The first question: If you think about knowledge as a technology to be transferred, please rate explicitness of that knowledge. Use scale of 100 points where 0 means completely tacit knowledge, but 100—completely explicit. You are able to choose any number from 0 to 100. The second question: If you think about knowledge as a tool for technology transfer, please rate explicitness of that knowledge. Use scale of 100 points where 0 means completely tacit knowledge, but 100—completely explicit. You are able to choose any number from 0 to 100. And the third question: If you think about knowledge as an outcome of technology transfer, please rate explicitness of that new knowledge. Use scale of 100 points where 0 means completely tacit knowledge, but 100— completely explicit. You are able to choose any number from 0 to 100. The rates given by interviewees are sorted in descending order (knowledge as technology to be transferred is used as the basis) by the means of knowledge explicitness. The results are shown in Fig. 1.

The results obtained show that there is no completely tacit or explicit knowledge presented. Knowledge within each dimension is rated as rather explicit (explicitness 51–100%) or as rather tacit knowledge (explicitness 0–50%). With a few exceptions, knowledge as a tool has been rated rather less explicit than knowledge as a technology, while knowledge as an outcome has been rated rather more explicit than knowledge to be transferred. Neuman (2007) states that the interpretive theorist attempts to discover the meaning of an event or practice by placing it
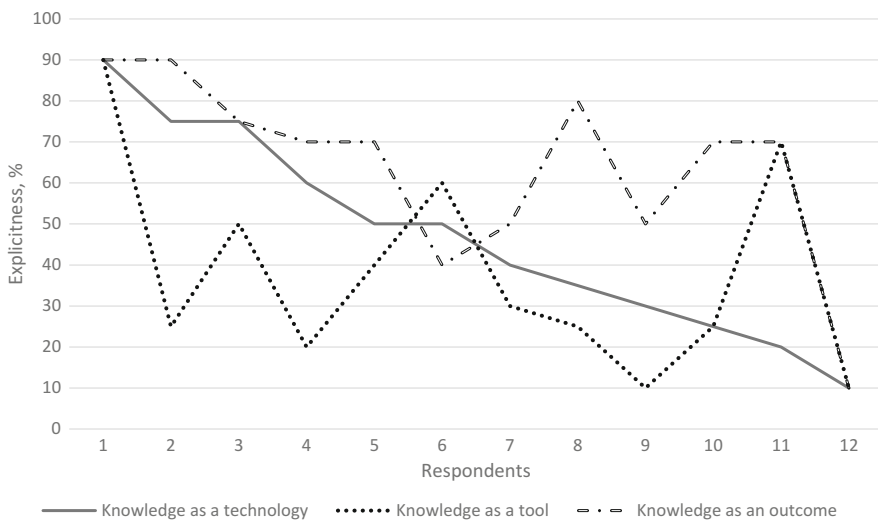
Fig. 1 Rates of knowledge explicitness by interviewees

Table 1 Determinant groups of factors affecting explicitness of knowledge

Dimension	Groups of factors
Knowledge as a technology	Amount of knowledge to be transferred
	Complexity of knowledge to be transferred
	Adequacy of knowledge to be transferred
	Capabilities of the transferor
	Use of knowledge on daily basis (by transferor)
	Transferor understanding of knowledge to be transferred
	Experience of transferor
	Tacit knowing
	Time to describe
	Process of the transfer
Knowledge as a tool	Personality traits of transferor
	Experience of transferor
	Ideas on how to appear by doing
	Time to describe
Knowledge as an outcome	Absorption capacity of transferee
	Interpretation of transferee
	Capabilities of the transferor
	Adequacy of the transfer process
	Adequacy of knowledge to be transferred
	Motivation
	Time to describe

within a specific social context. Therefore, to foster understanding, the explanation of rates given by the interviewees was asked and processed by content analysis. The groups of factors affecting technology transfer process by the means of knowledge application from the industry to university within the three dimensions defined in this paper are shown in Table 1.

Factors affecting explicitness of knowledge as a technology within technology transfer include amount, complexity, and adequacy of knowledge. The interviewees state: "It is impossible to remember and describe everything without relevant materials and ongoing process" and "Knowledge could be very complex for both the transferor and transferee." Explicitness of knowledge is also affected by everyday use of it: "This is a very tough task to describe knowledge if you are not using it on daily basis" as well as experience which allows describing knowledge more explicit and capabilities of transferor. Such capabilities include empathy and ability to go deeply into topic which is closely related to transferor understanding of knowledge. Also the process of transfer itself is pointed out as important factor— time allocated, resources, and other aspects may affect explicitness of knowledge. The tacit knowing formulated by Polanyi (1966) also represents the opinion of experts regarding explicitness of knowledge as a technology to be transferred. And finally such a simple argument that there is no time for making knowledge explicit also applies to both next dimensions as well. The second dimension representing knowledge as a tool also is affected by experience of transferor and time allocated for that. "I am using my experience gained through all my life and trying to do the best I can" stated by an expert representing personality traits of transferor. Also

important aspect affecting explicitness of knowledge as tool is that ideas on how to do things appear by doing them. Finally the factors represented in the third dimension are concentrated more on traits of the both main stakeholders involved in the process—the transferor and the transferee. Absorption capacity and the transferee interpretation of knowledge substantially may not only affect explicitness of knowledge but also the actual meaning of it. Also capabilities of the transferor and motivation of the both main stakeholders involved in the process affect the explicitness of knowledge. A Significant impact on explicitness of new knowledge makes adequacy of knowledge to be transferred as well as adequacy of the process as similar as in case of knowledge to be transferred which also makes sense. However, groups of the factors stated in the Table 1 are categorized neither by importance nor by other criteria, but grouped by dimensions defined for the purposes of this study.

4 Discussion

The theoretical problems of knowledge dichotomy—tacit versus explicit knowledge—have been actualized by Virtanen (2009, 2010), Puusa and Eerikainen (2010), Ray (2009), Zhenhua (2003), Davies (2001), Tsoukas (1996), and other scholars but not so often for technology transfer purposes. The studies rather examine opportunities to convert the tacit knowledge to explicit one (e.g., Nonaka and Takeuchi 1995). The results obtained in the study show that knowledge within technology transfer rather consist of both tacit and explicit knowledge regardless of the dimension taken. Considering the results of groups of factors affecting explicitness of knowledge, it can be confirmed that both parts of knowledge are complementary and make synergy. This statement is in line with Jennex (2008) and Tsoukas (1996), who argue that the tacit and explicit knowledge are mutually constituted—they should not be viewed as two separate types of knowledge. "Tacit knowledge is the necessary component of all knowledge" (Tsoukas 1996, p. 14). Therefore, the distinction between tacit and explicit knowledge is not suitable in exploring knowledge for technology transfer purposes. Also we can see that understanding of tacit knowing concept depends. We can observe huge differences evaluating similar piece of knowledge no matter whether it is practical experience of experts to be transferred, knowledge (know-how) as a tool, or new knowledge that appear as an outcome of the technology transfer process. Explanations given by the experts and grouped by the authors of the paper actually give the insight of reasons of such situation. For purposes of this paper, the factors affecting knowledge explicitness themselves are not as important as the fact that they show us how different can be the reasons what tacit knowledge makes tacit—experience, motivation, capabilities, personality traits, etc. What could be recognized as tacit by one person for the others can be quite explicit and the other way around.

"We are the subjects—not the objects—of our own experience," argues Hall (1979, p. 272 cited in Ray 2009). This statement as well as the results of this study

leads us to a discussion about contradictions exploring the distinction between tacit and explicit knowledge. Neuman (2007) argues that some fields of the study operate with multiple or competing paradigms, which seem to be relevant to the field studied in this paper. Part of the scientists are bothered, and they even believe having multiple paradigms hinders the growth of knowledge, states Neuman (2007). He points out that scientists see multiple paradigms as a sign of the immaturity or underdevelopment of the science in the social sciences, and some of them believe all social science researchers should embrace a single paradigm and stop using alternatives to it, while other social scientists accept the coexistence of multiple paradigms (Neuman 2007). Accordingly, it seems that we deal with coexistence of multiple paradigms studying knowledge and this is the way how diversity of approaches is applied. Thus, it is important to understand them and take into account. We believe that our observations will foster understanding about the phenomenon of knowledge dichotomy and will give ideas for scholars as well as encourage further discussions. However, as science in general is only part of the picture (University of California Museum of Paleontology 2015), the findings in this paper are limited according to its purpose and the methods used.

5 Conclusions

The concept of tacit has existed already for a long time, but widely it has been used after the Polanyi's theory of tacit knowing and the Nonaka's and Takeuchi's organizational knowledge creation theory. The widely used dichotomy of knowledge—tacit versus explicit knowledge—followed by contradictions bothered a number of scientists. These contradictions in this paper are explained as a result of different philosophical paradigms used by the scholars. Also the research results show that knowledge distinction between tacit and explicit is not suitable for technology transfer purposes. Knowledge rather consists of both tacit and explicit knowledge which are complementary and makes synergy. For successful technology transfer by the means of knowledge application, it is important that all stakeholders involved in the process have the same understanding of knowledge as well as its components; otherwise, knowledge recognized as explicit by one person may be tacit for another.

The factors affecting explicitness of knowledge (also technology transfer process) given in this paper are limited to the methods used and show perspective of one stakeholder (expert who takes the role of transferor) involved in the process of technology transfer. Opinions of other stakeholders would benefit for a broader view on factors determining the process, thereby making a recommendation for future research. However, this work unveils that for technology transfer purposes knowledge cannot be distinguished between tacit and explicit knowledge because knowledge rather consists of both tacit and explicit components. Also it depends on the experience of stakeholder's involved in the technology transfer process and

other factors. Exploration of these factors determining knowledge explicitness is another recommendation for future research.

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The Principles of Establishment of Investment Responsibility Centres

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Abstract The presented scientific research deals with establishment of investment responsibility centres. The research is aimed at identifying the principles of establishment of investment responsibility centres, development of the model of establishment of these centres and methodology of application of such model by scientific literature analysis. The research follows the method of decomposition, based on the analysis of scientific literature on establishment of responsibility centres and classification of responsibility centres and investments. The results of the analysis have been used for development of the model of establishment of investment responsibility centres and methodology of its practical application. Theoretical significance of the research is evidenced by the analysis and summarisation of attributes characteristic of responsibility centres and investments, as well as of the classification of responsibility centres and investments and their subsequent combination in the model of establishment of investment responsibility centres. In terms of practical applicability, the research and developed model are focused on strengthening of the liability for investments in business companies.

1 Introduction

Maintaining market position is crucial for any company in today's context of increasing competition. This requires an efficient enterprise management process, where all managers perform business-related tasks without any overlapping functions. All business units of a company shall follow the same path and work towards the same goal of improving performance of the company. The latter is difficult to achieve without any investment. One of the possible management optimisation methods is decentralisation of operations, i.e. breaking the operations down into

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smaller units referred to as the responsibility centres (RCs) in management accounting. This denomination reveals that one of the key features of the RCs and requirements is responsibility. Investment responsibility center (InvRC) is one of the types of RC.

InvRCs differ from other types of RC in that the former pursues results by proper choice, development and implementation of investment solutions rather than direct production or service provision. Performance results of an InvRC bring benefit to the entire company, which makes it highly difficult to evaluate performance of the InvRC. Companies may undertake investments of multiple types with different aims and objectives, different expected outcomes and efficiency. Establishment, operation of InvRC and evaluation thereof are therefore problematic both in scientific (in the sciences of management accounting and financial management) and in practical (implementation in a specific company) terms.

Investments that are inevitable in strategic management of a company are currently among the most popular research topics. The implications behind investments and their classification have been studied by Norvaisiene (2005), Rutkauskas and Stankevicius (2006), McConnell et al. (2009), Tomasevic and Mackevicius (2010), Inci (2011), Lian et al. (2011), Schuster (2011), Wilson (2014) and Saleem and Ahmed (2015).

Analysis of scientific literature evidences broad interest of researchers in establishment of RCs and their classification. These topics have been addressed by researchers Mackevicius (2003), Finkler et al. (2007), Sinha (2007), Kalcinskas (2007), Adrian and Romana (2009), Delaney and Whittington (2010), Hansen and Mowen (2013), Daft and Marcic (2011), Warren et al. (2014), Sahay (2013) and Urbonaite and Stonciuviene (2013). Nonetheless, research works by the listed researchers have covered InvRC only provisionally, without any deeper insight into the issues related to establishment of such centres or any consideration of the nature and diversity of investments. Therefore, establishment of InvRC has been chosen as an object of this research that also considers the links between classification of investments and RCs as well as the factors that determine their establishment. The research problem addressed by this study may be expressed by the following question: What factors and links between them determine the establishment of InvRC in a company?

The aim of this research is to identify the principles of establishment of investment responsibility centres by scientific literature analysis and develop the model of establishment of such responsibility centres and methodology of application of this model. The article consists of three parts. The first part issued the analysis of attributes characteristic of responsibility centres, as well as the analysis of classification of responsibility centres is done. The second part covers the analysis of characteristics and classification of investments. After the principles of establishment of investment responsibility centres are defined, the model of establishment of investment responsibility centres and methodology of their application in practice are presented in the third part of the paper. Finally, the conclusions and discussion are presented.

2 Investment Responsibility Centres in the System of Responsibility Centres

Scientific literature defines RCs as organisational units and corporate departments responsible for the operations delegated to them and intended to assist in implementation of projected goals of the company (Mackevicius 2003; Finkler et al. 2007; Hansen and Mowen 2013; Delaney and Whittington 2010; Daft and Marcic 2011). Researchers emphasise that any RC cannot function without a lead manager. According to Sahay (2013), the importance of individual managers' liability for decision-making becomes higher, if they hold financial liability in the form of revenue, cost, profit or other benefit, among other types of liability, depending on the nature of the RC.

Mackevicius (2003), Sinha (2007), Adrian and Romana (2009) and Urbonaite and Stonciuviene (2013) have suggested the principles to be followed in establishment of RCs. In general, the following principles of establishment of RCs could be pinpointed based on the mentioned scientific research:

- The principle of freedom, meaning that the lead manager(s) of RCs shall be provided with the freedom of action
- The principle of responsibility requiring the RC lead manager(s) to assume the delegated duties and personal liability for activity of the center
- The principle of subordination (control) that emphasises the importance of clearly established links between the RC and other centres, directions and forms of liability and control
- The principle of provision, processing and presentation of information implying that each RC must be allocated with a position in a common corporate system of data collection, processing, systematisation and submission to managers

In business practice, RCs differ in their sizes, goals, functions, areas of activities and responsibility as well as scope. As a result, researchers tend to classify RCs by certain attributes.

According to the areas of responsibility, Melumad et al. (1992), Eldenburg et al. (2004), Delaney and Whittington (2010) and Warren et al. (2014) have identified cost, profit and investment RCs. Mackevicius (2004), Finkler et al. (2007), Sinha (2007), Hansen and Mowen (2013), Lakis et al. (2010) and Sahay (2013) have also identified the fourth group of RCs—revenue RCs—according to the same attribute. The attribute of the areas of responsibility is the most important in the entire system of classification of RCs. Cost RC is allocated with the responsibility for the costs incurred, while revenue RC—for the revenue earned. Profit RC is responsible both for the revenue earned by it and for the costs incurred, meaning that setting up a profit RC is one of the key means of decentralisation of responsibility for the corporate profit.

Investment responsibility centres are responsible for the costs and results of investment processes. Sahay (2013) who has suggested that these centres are expected to control the costs, revenue and investment in order to achieve the

projected return on investment has developed the most accurate definition of InvRCs. A lead manager of an InvRC has the authority in making such important decisions as investments. That means that the powers delegated to him/her are similar to the ones held by the head of the company (Warren et al. 2014), as the former is responsible for profitability and return generated by investment-related decisions in the company (Kimmel et al. 2012).

Obreja (2008) and Goagara and Staiculescu (2009) argue that the responsibility of InvRCs is targeted towards the use of assets with the aim of achieving higher profitability of a company. This means that operations by these centres resemble the ones of profit RCs, except that the former are delegated with an additional task of investment-related decision-making (Sahay 2013) and the goal of increasing profitability of the company that depends not only on the sales but also on capital utilisation.

An InvRC cannot be established without corporate decentralisation. According to Warren et al. (2014), if a company has established a profit and/or investment RC, this creates the necessity of decentralisation of corporate operations in order to increase its management efficiency. InvRC covers the functions of marketing, production and service provision and controls what and how should be produced, i.e. the lead manager of the InvRC has more autonomy than lead managers of profit centres. These functions may be performed both on a company scale and within individual divisions by decentralisation of corporate operations, which means that the company or one of its divisions that is in charge of investments may perform the functions of an InvRC.

The following two tiers of establishment of InvRCs have been identified by the scientific literature analysis:

- The first tier that involves investment-related decision-making on a company scale
- The second tier that involves investment-related decision-making within separate segments of a company (divisions, departments, etc.) with benefit to the entire company

The presented concept of an InvRC is closely related to another attribute used in classification of RCs—classification according to the extent of liability (Grigore et al. 2010; Urbonaite and Stonciuviene 2013). Based on this attribute, RCs are grouped into general (covering the entire company) RCs and partial RCs that are liable for the results of the center only. Cost and revenue RCs are referred to as examples of partial RCs, while profit RCs and InvRCs are presented as examples of general RCs. However, considering the levels of liability discussed above, it must be noted that InvRCs may satisfy the requirements of both classification groups by their extent of liability. If an InvRC arranges and is responsible for investments common for the entire company, it satisfies the requirements of general RCs, whereas, if an InvRC that has formed in a division of a decentralised company primarily serves the goals of improving performance of one division (e.g. of a profit or cost RC), such InvRC is referred to as partial.

By their functions, RCs are grouped into basic and auxiliary. Mackevicius (2004) and Lakis et al. (2010) suggest that basic RCs are directly, whereas auxiliary RCs are indirectly related to production or provision of services. As a result, performance of basic RCs is directly linked to their internal processes. Auxiliary RCs are intended to serve basic centres and perform the function of assistants aimed at higher performance of basic RCs. Companies usually undertake investments to improve their overall performance, and there is hardly a company established with the single goal of implementing investments. This means that InvRCs should be attributed to auxiliary RCs by their functions.

By composition, RCs are grouped into simple and multiple. According to Kalcinskas (2007) and Urbonaite and Stonciuviene (2013), direct customer-contractor relationship has formed in simple RCs, whereas in multiple RCs, the link between a customer and a contractor is hierarchically consecutive, which could be explained as follows: a customer sets a task for the first contractor who, in turn, allocates this task to other contractors and becomes their customer. Such approach complies with the nature of profit, cost and revenue RCs. InvRCs, on the other hand, are intended to initiate investments of their respective companies or individual units, which means that InvRCs are contractors and usually comply with the attributes of simple RCs. The analysis of attributes and operations of InvRC has suggested that in companies that have delegated their investment management to one InvRC that, in turn, delegates the functions to units of the company or their InvRCs, the primary InvRC of the entire company belongs to the group of multiple RCs. If an InvRC of a company performs investment planning and implementation by itself, such InvRC belongs to the group of simple RCs.

By stability, Mackevicius (2004) and Lakis et al. (2010) have identified permanent and temporary RCs. Revenue and cost RCs usually are permanent, i.e. are formed to perform permanent operations in the company, while temporary RCs are set up when certain conditions emerge, such as mergers or divisions of companies. According to Urbonaite and Stonciuviene (2013), temporary RCs may be formed to implement investment project. Activity of such RCs is terminated upon the end of project implementation period. Based on this argumentation of RC classification according to stability, InvRCs should be considered as temporary RCs.

The following InvRC classification has been developed according to common attributes of RC classification, based on the analysis of scientific literature (Fig. 1).

The results of the study have suggested that establishment of InvRCs, their activity and classification are very complex compared to other forms of RC. The findings have helped form an original approach towards establishment of InvRC by identifying two operational levels of these centres. Depending on the operational level of these centres, they may be general or partial, simple or multiple or auxiliary or temporary. The research has suggested the conclusion that InvRCs should be formed only in view of the needs for investment and capacities of implementation in the company. Therefore, establishment of an InvRC should be inevitably linked to the types and nature of the undertaken investments.
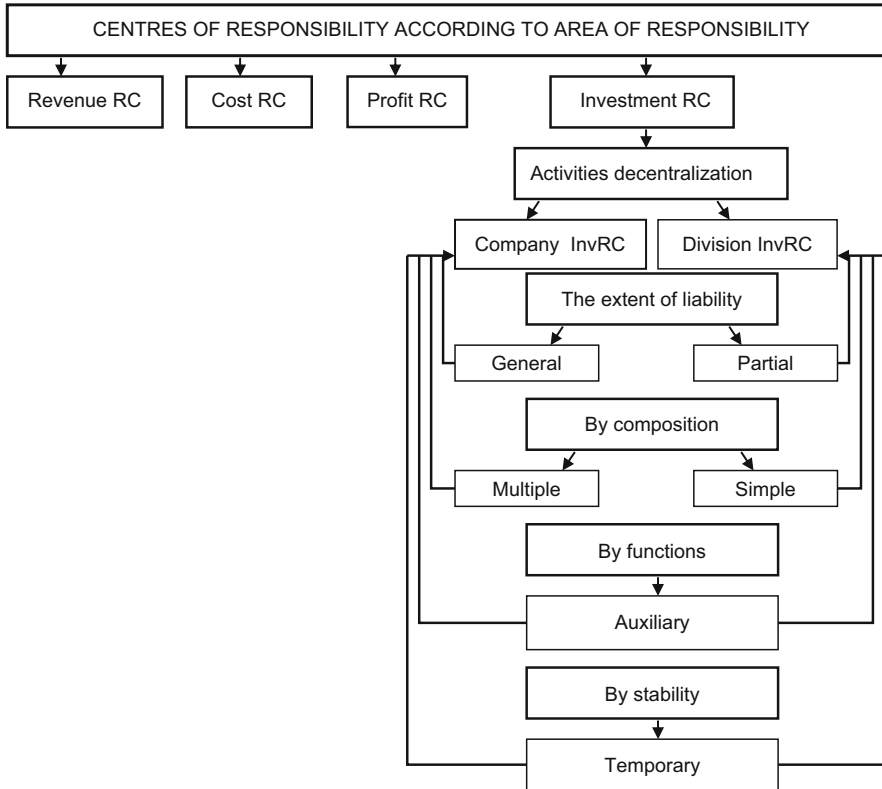
Fig. 1 InvRC classification according to common attributes of RC classification. *Source*: Melumad et al. (1992), Mackevicius (2004), Eldenburg et al. (2004),Finkler et al. (2007), Kalcinskas (2007), Sinha (2007), Adrian and Romana (2009), Delaney and Lakis et al. (2010), Grigore et al. (2010), Hansen and Mowen (2013), Warren et al. (2014), Sahay (2013) and Urbonaite and Stonciuviene (2013)

3 Types of Investments and Their Role in Establishment of Investment Responsibility Centres

Investments are funds and tangible, intangible and financial assets assessed in the manner prescribed by laws and other legal acts, invested in order to obtain profit and social result or to ensure the implementation of state functions (Law on Investments of Republic of Lithuania 1999). Tomasevic and Mackevicius (2010) argue that, when analysed from the position of a company, investments could be defined as input of capital (in various forms) in different objects of economic activity with the aim of generating profit or other economic or non-economic effect in future. Investment planning and investment-related decision-making are vitally important activities for an organisation. Companies may make decisions to invest for a number of different reasons, for example, expansion of production, increasing

the current market share, upgrading the internal processes in the organisation, etc. Almost any corporate operation requires investments, meaning that assessment of investments is important for daily operations (Schuster 2011).

For more comprehensive analysis of the implications of investments and their role in companies, review of the types of investments should be conducted by classification of investments according to the main classification attributes (Table 1). All types of investments are important for analysis of investments on a company scale, while the nature of investments depends on the activity of the company. It is important to choose appropriate types of investments to be implemented by the InvRCs, as these centres are tailored to the types of investments undertaken. As already discussed in this article, two tiers of InvRCs are possible, i.e. an InvRC on a company or division scale. If an InvRC arranges and holds liability for investments common for the entire company, such InvRC is a first tier and may implement all types of investments. If an InvRC has formed in corporate divisions of a company with decentralised management, this is a second-tier InvRC that primarily serves improvement of performance of one unit (e.g. profit RC or cost

Table 1 Types of investment by the main classification attributes

Investment classification attributes	Types of investments

1. By investment object	• Capital:
	  – Tangible
	  – Intangible
	• Financial
	• Social investments

2. By investment period	• Short term • Medium term • Long term
3. By investor's status	• State investments • Private investments • Foreign investments
4. By participation in investment process	• Direct • Indirect
5. By territorial attribute	• Investments inside a country • Investments abroad
6. By organisational form	• Investment project • Investment portfolio
7. By level of risk	• Zero risk • Low risk • Medium risk • High risk
8. By strategic nature	• Innovative • Diversified
9. By investment specifics	• Restoration investments • Rationalisation investments • Development investments

Source: Agar (2005), Norvaisiene (2005), McConnell et al. (2009), Tomasevic and Mackevicius (2010), Inci (2011), Tvaronavicius (2011), Rudyte and Buzinskiene (2013) and Wilson (2014)

RC). This means that second-tier centres are not able to implement all types of investments.

The following investment classification attributes are important in establishment of an InvRC in a company: investment object, period, organisational form, strategic nature, risk and investment specifics. The chosen classification attributes reflect the investments implemented inside the company. The remaining three attributes of investments—investor's status, participation in the investment process and territorial attribute—are more applicable to investments made outside the company.

According to the investment object, investments are grouped into capital (tangible and intangible) and financial investments. According to McConnell et al. (2009), Tomasevic and Mackevicius (2010) and Tvaronavicius (2011), tangible investments are the costs of acquisition of buildings, engineering structures, equipment and machinery as well as construction and renewal of other assets. According to Rudyte and Buzinskiene (2013), intangible investments are investments into intangible assets. Financial investments are investments into various financial instruments, usually securities for future revenue in the form of dividends, interest or revenue from sale of the acquired securities at higher price (Tomasevic and Mackevicius 2010). According to Wilson (2014), classification of investments by investment object must be expanded by adding the type of social investments. Wilson (2014) has suggested that social investments cover the investments that contribute to the creation of the welfare of society. A growing number of companies have become interested in investments that provide both social and financial benefits. Financial goals may cover both capital maintenance and higher return rate. Social goals are implemented to improve social-economic, social and environmental conditions. Social investments are carried out at lower financial return, but with the aim of generating greater social effect.

By investment period, investments are classified into short-term, medium-term and long-term investments. Agar (2005) has defined these investments as follows: short-term investments mean investment of capital for the maximum period of 1 year; medium-term investments mean investment for the period of 2–5 years; long-term investments mean investment of capital for over 5 years. Long-term investments may be of unlimited period.

In the case of analysis of investments by organisational forms, investment project must be considered. Project Management Institute (2004) defines an investment project as a temporary activity aimed at development and provision of a unique product or service. Norvaisiene (2005) has identified the following types of investment projects: projects on establishment of new companies; projects on production of new products and entrance into new markets; projects on expansion of activity and improvement of performance; projects on modernisation of production; projects on renewal of obsolete, damaged equipment; and projects on compliance with safety and environmental requirements.

InvRCs carry out different types of projects that increase profitability of a company. Activity of both first- and second-tier InvRCs must be directed towards this goal. Risk is another aspect important for profitability. By level of risk,

investments may be zero risk, low risk, medium risk or high risk. To generate higher return, investments of higher risk must be implemented.

By strategic nature, investments are grouped into innovative and diversified. According to Tomasevic and Mackevicius (2010) and Tvaronavicius (2011), innovative investments help maintain and improve the success potential of a company. Such investments determine the competitive ability of the company in the future. The most important are the innovative investments that are intended for development and introduction of new products and production technologies.

According to Rutkauskas and Stankevicius (2006), diversified investments mean introduction of various investment instruments into operations in order to increase the profit or reduce the risk of the activity and expand the area of current activity. Such investments are usually made in order to use the synergetic effect between old and new areas of activity, acquire new technologies or knowledge and undermine and reduce the risk (Tomasevic and Mackevicius 2010). Innovative investments are important in the establishment of first-tier InvRCs, as such investments are implemented on a company scale, while diversified investments may be implemented in an InvRC unit, where the company wishes to reduce the risk and implements a number of investment projects that complement the main activity of the company.

As mentioned above, investment specifics is an important investment classification attribute in assessment of the nature of investments in the company. Investment specifics should be considered in establishment of InvRCs both on a company and on a divisional tier. For example, replacement of obsolete equipment is performed by means of restoration investments and reduction of costs by rationalisation investments, while acquisition of new equipment, machinery, etc. is implemented by means of development investments.

4   The Model of Establishment of Investment Responsibility Centres

Two approaches have been taken in this study to analyse establishment of InvRCs: establishment of responsibility centres by emphasising the requirements of the centres and by looking at investments in terms of their quantity and variety. The above discussion on the attributes used in classification of RCs and investments has suggested the main principles of establishment of InvRCs. Establishment of InvRC has been analysed in the study from the position of a company, assuming that the investments are intended for internal needs of the company. This means that investments by using cleared funds of a company, for example, investments into securities, do not fall within the scope of this analysis. The results have been summarised in the model of establishment of InvRC (Fig. 2). The developed model reflects compatibility between factors of establishment of InvRCs. Investments may be planned, arranged and implemented by the company or its business units. As such,
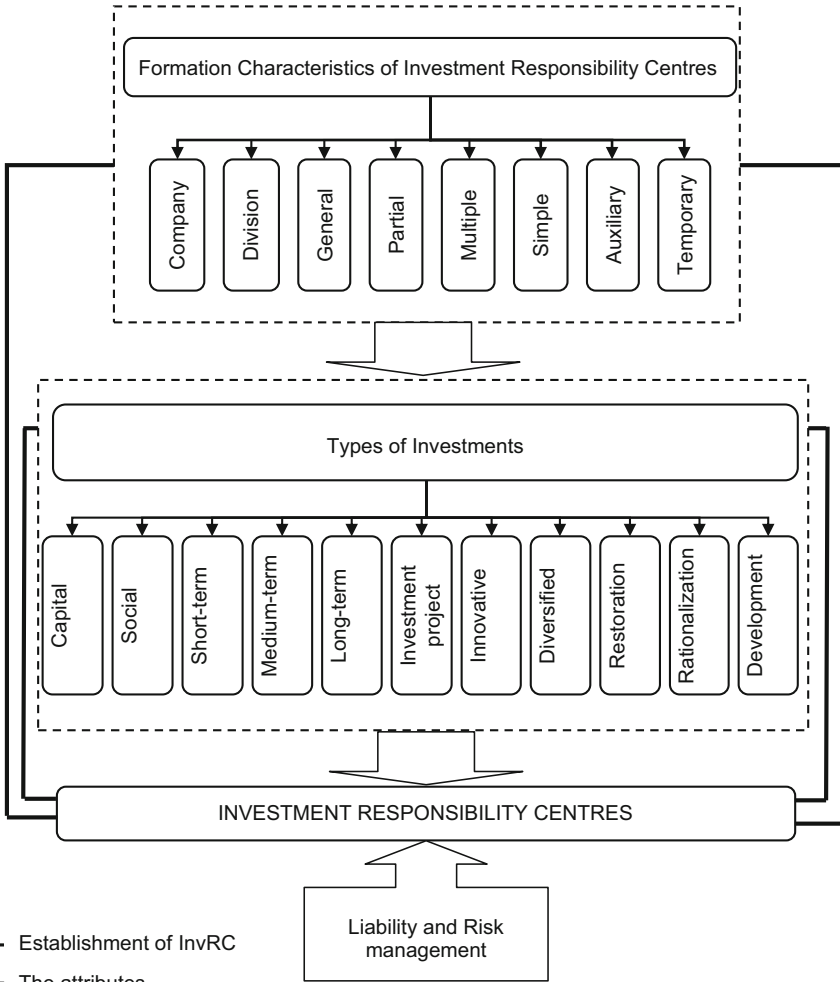
Fig. 2 Model of establishment of investment responsibility centres

InvRC may be formed on two tiers—company or division scale. The obvious ultimate goal of any investment is improvement of performance of the company, meaning that operations of InvRC centres on both tiers must be coordinated.

InvRCs formed on a company scale (first tier) may be general, multiple, simple, auxiliary and temporary, while InvRCs formed on a division scale (second tier) may be partial, simple, auxiliary and temporary. First-tier InvRCs satisfy the attributes of general RCs, as they are formed on a company scale for the common benefit of the entire company and not directed towards a specific activity of the company. InvRCs established in business units are intended for bottom-up improvement of performance of companies and usually serve one business unit without any powers

of responsibility delegation. As a result, these centres are attributed to partial InvRCs.

If a company has established a business unit with the main function of initiation of investments and their implementation by delegation to other, second-tier InvRCs, such centres may be attributed to multiple RCs. However, if a separate business unit has been formed for investments as discussed above but, the same as second-tier InvRCs, does not delegate any investment functions to other units, such business unit satisfies the attributes of a simple InvRC. This means that simple InvRCs may be formed both on a company and on a division scale.

In the analysis of establishment of InvRCs in industrial, service and commercial companies, it should be noted that such companies undertake investments for improvement of performance, i.e. investments are secondary activity of the company or its separate division. Therefore, all InvRCs are attributed to auxiliary RCs. Establishment of most of the InvRCs both on a company and on a unit scale is linked to project activity. InvRCs are usually established to implement a certain project. The results of the project are then used to improve performance of the company or its certain unit. Following this approach on InvRC establishment, such RCs are considered to be temporary.

The nature of projected and ongoing investments plays an important role in establishment of InvRCs. The model summarises classification of investments by various attributes. These investments may be implemented both on the first and second tiers. The principle of two tiers of InvRCs provides very clear distinction between which investments could be (and usually are) planned and implemented by a company and which investments are applicable on a division scale. In contrast to establishment of second-tier InvRCs, establishment of first-tier InvRCs may involve any type of investments. Divisional InvRCs may be formed to implement capital, short-term and medium-term investments, investment project and diversified, restoration, rationalisation, development and social investments.

Particular focus in establishment of InvRCs must be put on the liability and potential risk. Liability for the projected investments is assumed by the respective divisional lead manager. He/she is delegated with the right to make the decisions that would ensure the expected return. It is obvious that the higher the return expected, the higher the risk assumed. The result of the study is the developed model for companies implementing investments and seeking to strengthen the control over investment processes.

5 Conclusions and Discussion

InvRC is one of the types of RCs. These centres are formed in companies that develop investment projects or plan, arrange and implement investments in other organisational forms. Plenty of discussions on classification of investments have been published by various researchers (Mackevicius 2004; Lakis et al. 2010; Goagara and Staiculescu 2009; Grigore et al. 2010; Sahay 2013). The analysis of

the provided classification groups of RCs by the areas of responsibility has suggested that InvRC operations are the most complex. Only this type of RCs is delegated with liability for revenue, cost and profitability of assets.

Researchers also use other attributes for classification of RCs. It has been concluded during the research that the direction of activity of the projected InvRC should be identified during establishment, i.e. improvement of overall performance of the company directly or improvement of performance results of small divisional RCs of the company. Therefore, the two-tier approach has been used for further analysis of establishment of InvRCs. First-tier InvRCs are the centres that make investment-related decisions on a company scale, while second-tier InvRCs make investment-related decisions within separate segments of a company (divisions, departments, etc.) with benefit for the entire company. First-tier InvRCs may be general, multiple, simple, auxiliary and temporary, while second-tier InvRCs may be partial, simple, auxiliary and temporary.

Establishment of InvRCs is closely related to the types of investments. Classification of investments has been widely discussed in scientific literature. Considering the aims of this study, only the types of investments intended to satisfy internal needs of companies have been analysed. These, primarily, are the investments grouped into capital (tangible and intangible) and financial investments by investment object (McConnell et al. 2009; Tomasevic and Mackevicius 2010; Tvaronavicius 2011; Rudyte and Buzinskiene 2013). The classification of investments lacks popular types of investments intended to improve social and environmental conditions, contributing to the welfare of society (Wilson 2014); therefore, the group of social investments has been added to classification of investments by investment object.

Two-tier principle of establishment of InvRCs is also important in terms of classification of investments (identification of the types of investments). First-tier InvRCs may implement any types of investments. Second-tier InvRCs implement capital, short-term and medium-term investments, investment projects and diversified, restoration, rationalisation, development and social investments. It is, however, important to note that there are no strict boundaries regarding the types of investments implemented by InvRCs of a certain tier. There are also no mandatory requirements on compliance of a formed InvRC with certain attributes of establishment of RCs. InvRCs may be formed in a company based on their activity, strategic goals, the need for investments, the ongoing investment projects and other specific circumstances of the company or its division.

A prerequisite to be satisfied in establishment of InvRCs is liability for their activity. The lead manager of the division that is in charge of investments must assume this liability and the related risk. As a result of the research, InvRC establishment model covering the main principles of establishment of such centres has been developed. The limitation of the research lies in the theoretical nature of the model. Further research must focus on practical applicability of this model, choice of indicators for assessment of activity of the first- and second-tier InvRCs and analysis of relations between InvRCs and other RCs.

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New Challenges in External Environment and Business Strategy: The Case of Siberian Companies

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Abstract The paper deals with new trends in the development of strategic management theory in knowledge economy including transition from sector analysis to the analysis of business ecosystems; building strategic business networks; increasing the role of innovative entrepreneurship, given temporary competitive advantages and dynamic external environment; and a greater focus on a value factor as a key element of corporate strategy. Based on compilation of these trends, we propose an approach to strategy formulation with special emphasis on a balance between creating value for customers and maximizing value for the company. Real cases of the Russian companies were used to show that it is very important for any company to use a balanced approach aimed at creating stakeholder value.

1 Introduction

Strategic management is one of the dynamically developing fields of knowledge about a company and its market behavior. Over a half-century history of the development of strategic management theory, constant changes in views of the company strategy and approaches to its development have been driven by both changes in business conditions and the effect of new results obtained in other spheres of economics. In the era of innovative economy against the backdrop of increasing dynamism of external business environment, there is a pressing need for another modernization of strategic management concepts, systematization and synthesis of the obtained results, hypotheses, and problems, which is sure to stimulate further research in the sphere of theory and practice of strategic management at both state and company levels. The federal law "On strategic planning in

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the Russian Federation" adopted in 2014 gives greater urgency to this subject matter.

This paper aims at revealing new tendencies in the research of strategies, which are the cornerstones of the companies' strategic management in the condition of increasing changes and environmental uncertainty and developing an approach to the strategy formation on the basis of the balance between value propositions. Preparing the materials, we used the data available in open Russian and foreign sources as well as internal companies' data obtained in the course of conversation with the managerial staff of the Russian companies and consulting projects.

2 Changes in External Business Environment

Of course, changes in external business environment (challenges) exert strong influence on the development of strategic management theory. According to Hamel (2007), in the twenty-first century, these changes have become discontinuous/interrupted, unexpected, rebellious, and revolutionary. Not only value chains but also separate industries are torn by strife. In fact, it is impossible to predict what kind of goods and services will be of value in 10 years' time, what the world economy will be like, what kind of specialists will be necessary for the company to withstand stiff competition, etc. Interrelations between the market participants are not linear, but rather they are dynamic and incredibly complicated. To describe the characteristic features of environment, scholars tend to use the term "VUCA" (volatility, uncertainty, complexity, and ambiguity).

According to the recent global research conducted by IBM, 1500 interrogated CEOs view the necessity to accommodate to the increasingly complex business environment as the greatest difficulty for their enterprises. Eight of the ten CEOs are sure that business environment is constantly becoming complicated, but less than a half of them are ready to changes. According to the respondents, the companies are mostly concerned about the lack of understanding of what exactly their consumers expect from them (Madsbjerg and Rasmussen 2014). As a whole, our experience shows that the following groups of factors have the most significant effect on strategic decision-making of the companies.

2.1 Changes in Macro Environment and Institutional/ Regulatory Frameworks

In accordance with the latest theory of economic growth, there are two reasons for economic changes: emergence/creation of innovation technologies and political, social, and legal changes which form institutional/regulatory environment and determine the context for business activity. Changing "rules" are widely illustrated

by the case of debtors: they used to be put in jail, but now their debts are restructured in courts, which is beneficial for all interested parties. Knowledge economy has an important impact on the development of business. Studying high-tech companies in knowledge economy, Arthur (2007) notes that products of these companies are part of infrastructure including other products and technologies. In other words, high-tech goods are attached to a certain product group where separate items/components supplement and support each other. Thus, business ecosystem, the elements of which cannot exist without each other, has become a new object for the analysis of environment.

2.2 Transformation of Industries and Markets

In the current competitive landscape, traditional market access barriers are losing their significance; industry borders are fading (e.g., telecommunication); the existing "business recipes" are becoming less efficient due to technological innovations and development of related sectors, which challenges the company's identification of competitors and determination of its product values for the consumers. Nontraditional competitors (mavericks) tend to create new business models and cost-effective technologies even in mature industries (William and Labarre 2008).

2.3 Changes in the Nature of Competition

Increasing number of competitors due to globalization of economy, possibility of rapid imitation of the leading companies, "value migration" in industrial value chains, and other factors contribute to the change in the nature and models of competition, promote co-competition and partnership, and create new markets/market niches (Brandenburger and Nalebuff 2012; Prahalad and Ramaswamy 2006; Chang 2010).

Besides, according to Friedman (2006), in the modern flat world, individuals and mini-collectives have received an opportunity to cooperate and compete in the world market. These rival partners can engage in economic competition worldwide, creating new corporations or modifying the operations of the existing companies. Their chances of success are defined by education, abilities, ingenuity/resourcefulness, and access to world communication system rather than nationality and residence. This situation considerably changes the conditions for the companies' operations. The Internet and communication technologies have made it possible for the company to perform various tasks required by a modern civilization, which is almost instantly carried out in global scale. The world has become a uniform production field with unified operating/working rules. This, indeed, is the essence of "flat world" leveled by information technologies.

2.4   New Consumer Behavior Models

Consumers have a profound impact on strategic decisions of the companies along with transformation of industries and changes in competition patterns. Inconsistency and unpredictability of consumers' behavior, who are no longer "passive consumers" of products and services, decrease in their loyalty in the conditions of saturated markets and free access to market information, as well as changes in consumers' values force the companies to revise their consumer policies. The companies increasingly shift from selling goods to rendering services and solving the problems of consumers, moving up the value ladder in industrial markets, creating additional values in consumer goods markets, entering into partnerships with consumers (co-working, co-creating), and engaging in innovations.

In fact, an increasing number of people require solutions, but quite often they are ready to pay only for a product; this factor has become a source of tension for many companies (Prahalad and Ramaswamy 2006). Therefore, shops in compliance with the all-European trends are forced to expand the range of services; subsequently, it might be possible to add an entertaining component to their activity.

In aggregate, the effect of the specified factors increases uncertainty of environment and promotes emergence of new conceptual approaches in the theory of strategic management and development of methodological and instrumental/technical support in this sphere.

3   New Trends in Strategic Management Theory

The system analysis and synthesis of modern concepts and findings of various studies help to single out the following significant trends in the development of strategic management theory at microlevel:

- Transition from sector analysis to the system analysis of business ecosystems as a context of strategy formation in knowledge economy
- Formulation of strategic *business networks* of independent players as the most important mechanism to reinforce competitiveness of enterprises
- Recognition of the need for a continuous/constant flow of innovations and development of innovative entrepreneurship in the conditions of temporary nature of competitive advantages and dynamism of economic environment
- Increased focus on the value factor and value propositions predetermining the shift in emphasis in the companies' customer policies

Let's consider these trends in terms of changes in strategic priorities and development of new tools, methods, and approaches to the formulation of companies' strategies.

3.1 Business Ecosystem

Changes in external business environment are followed by expansion of the existing analytical tools and methods. In the twentieth century, the ability to play the so-called competition game and the knowledge of the game rules was the cornerstone of a successful strategy. Respectively, methods for industrial competition analysis played the key role: Porter's five forces analysis, value chain, strategic groups of competitors, Ohmae strategic triangle, etc.

Change in business conditions in the twenty-first century predetermined, first and foremost, the need to widen the limits for the analysis of economic environment. Thus, expanding Porter's approach to the analysis of competition, Slywotzky (2006) introduced the term "competition radar" and showed that in the fight for consumers the "radar screen" (all-around visibility) which covers competitive environment including the companies with different business models and potential competitors is really helpful for the companies to remain competitive. Besides, Slywotzky (2006) emphasizes the importance of focusing the analysis not only on the rivals but the *consumers* since the changes in the needs of clients and their priorities start the process of value migration, opening the opportunities for new business models. Thus, it is the intention to expand the limits of the analysis and to get into the motives and needs of consumers (often hidden and unconscious) that may allow the company to create a new nonconventional business strategy.

Thus, Philips strategic initiative was focused on offering people a new reason for purchasing the company's products and a new way to use them. The company's specialists were interested in integral interpretation of the feelings of patients (especially children) at a computer or magnetic and resonant tomography: before, during, and after the procedure. For this purpose, the company turned to professionals who studied the experience of the users/consumers of Philips products, and together they discussed technologies of "creation of comfortable environment" as a perspective direction for the producers of medical equipment. As a result, tomographic scanners were improved with a screen for animated cartoon films, and a reduced copy of a tomographic scanner was created with which a child can play in a waiting room scanning dolls (Verganti 2011).

Actually, this case is about the use of the so-called ethnographic methods of analysis. Ethnographers (or social anthropologists) seek to see life of people "from within," watching them, listening to their talks, talking on abstract subjects, and visiting consumers' houses and offices. This method gives information about human environment, situations when people will use new products, and the role of these products in their life. Intel, for example, started ethnographic researches in 1995 when the company decided to enter consumer market. Today, 20 ethnographers work for this company. Also, other companies such as IBM, Samsung, Pfizer, Lego, Adidas, Procter & Gamble, etc. appreciated this method at its true value (Madsbjerg and Rasmussen 2014).

It is difficult to overestimate the role of ethnographers in forecasting the future development trends of high-tech markets. Will smartphones replace computers or

tablets? Will TV and PC technologies draw closer? Will elderly people use traditional TV technologies or master new opportunities? The answers to these questions predetermine strategic priorities of the companies.

Another problem of business environment analysis is its *uncertainty*. Courtney et al. (2006) note that the growing uncertainty of environment compels the companies to widen the range of tools for strategic analysis. Thus, *scenario planning* has become a major imperative for the companies to use in their business activity. The *theory of games* helps the companies to understand uncertainty caused by the behavior of their competitors. Scenario planning is a part of strategic planning related to tools and technologies which allow the companies to operate uncertainty of the future (Ringland 2008). Thinking by scenarios is per se the vision for the future as a theatrical play which is not put on the stage yet; the scenario of the play is a brief but complete description of the succession of events until certain time (Lindgren and Bandhold 2009). Such companies as Shell, 3M, Krone, Electrolux, and others use scenario planning in their strategies.

Today, road map methodology is widely used as an instrument for strategy formulation, which allows entrepreneurs to build complex scenarios, given the interrelations between the context of environment and involvement of certain resources into the economic turnover. Road maps allow the companies to visualize possible ways to achieve their objectives, visually illustrating step-by-step changes of technologies, products, or their state in the given period.

It seems relevant to notice that irrespective of the proposed and/or supported concept of strategic management, two aspects of the company activity are necessarily considered: internal resources and processes and external opportunities for development (clients, competitors, technologies, etc.) which, as a matter of fact, also define strategic alternatives of the company development.

Methodologically, until the end of the 1970s, the alternatives for business development were generally considered in terms of products and traditional borders of the markets, based on the Ansoff matrix "product–market." In the 1980s, many researchers, in particular, Abell (1980), broadened the sphere of strategic analysis by adding technologies and basic needs of clients as defining business development factors (the three-dimensional business definition of Abell). Later on, Hamel and Prahalad (2002) introduced the concept of key competences for a company as a source of sustainable development and criterion to determine business frontiers (core product as a key factor for penetration into new markets).

At the beginning of the twenty-first century, Zook and Allen (2007) showed that about 90 % business growth initiatives concern interrelated spheres. Based on the concept "core business," the authors suggested that the companies consider possible directions for their development with the help of multistage maps of related business areas which radiate from the core business, determining the directions for technological development and reconfiguration of value chains, possibility to choose new geographical zones, sales channels, market segments, as well as new products and businesses. The essence of multistage mapping as a methodological tool for external analysis of business environment is to identify various opportunities for the company's growth in strategic context.

To conclude, external analysis of environment and the range of applied methods and tools are constantly expanding/broadening from traditional sector analysis and Slywotzky competition radar to ecosystems of high-tech industries, with scenario analysis, ethnographic researches of consumers, road maps, theory of games, and other methods being added to Porter's five forces analysis.

3.2 Strategic Business Networks

Formation of technological ecosystems (networks) is known to be one of the most important components of high-tech companies' strategies. Today, the companies—technological leaders—tend to create networks, i.e., free alliances of companies grouped within a certain ecosystem, rather than making the product an "absolute standard" of a sector/branch (Arthur 2007) (e.g., Windows, Android, Drupal, ecosystems of Apple Inc., with iTunes and iCloud being the core of it).

Metcalfe's law in the sphere of IT technologies, which proves that usefulness of a network is proportional to a squared number of its users, defines strategic priorities of the companies within the ecosystem including a wide spread of the developed standard. Attracting as many independent users as possible, the leading company together with its partners "closes" the market for competitors, providing the participants with network advantages (effects) of an ecosystem. The network effect is used by Visa and MasterCard, eBay, etc. At the same time, it is possible to give other examples of the companies which failed to build such networks; as a result, although offering technically excellent product, they gave up the most part of the market to their competitors (e.g., Sony Corp. and Betamax video recorder, Apple Inc. and Macintosh system, etc.).

Along with closing the market for competitors within an ecosystem, the company can use the strategy of *sticking/binding and subsequent shifting of consumers*. In other words, having gathered a considerable number of users (getting them stuck with one product) in a particular part of its ecosystem, the company can shift them to other products. Microsoft is the most telling example of such a strategy which shifted millions of users from DOC to Windows and then from one Windows version to others, constantly supplementing the system with new applications and offering preferential terms of updating. In fact, a product within an ecosystem (technology platform) is subject to continuous improvement. It is relevant to notice that the success of Windows platform is determined in many respects by the support provided by Microsoft to the software developers, using their competences to propose complex solutions to the consumers.

Formulating development strategies in high-tech business, the company needs to find out positive and negative communication mechanisms in ecosystems where the company operates or is going to enter. Respectively, within an ecosystem, it seems necessary for the company to carefully choose partners and regulate the mechanisms of mutually beneficial feedback. Thus, the companies' mission, teamwork, and knowledge have become key factors in the network structures formed in high-

tech industries. At the present time, in accordance with the current global development trends, many state programs designed for the creation of business networks have been launched to support regional clusters in Russia.

3.3 Innovations and Innovative Entrepreneurship

The attention drawn to innovative aspects of business development as a basis for successful company strategy is predetermined in many respects by temporality and instability of competitive advantages caused by dynamic environment.

The idea of temporary competitive advantages was developed by many modern researchers. In particular, Morrow et al. (2007) note that over time because of high uncertainty of environment, sustaining steady competitive advantages has become improbable; therefore, the companies are highly likely to develop a series of temporary competitive advantages. McGrath (2013) proposes an approach based on continuous development of new strategic initiatives to receive a set of short-lived (temporary) competitive advantages. The similar ideas on temporality of competitive advantages were suggested by Bowman (2003) who showed that a really steady competitive advantage involves the company's ability to learn faster than the competitors, with creation of advantages by means of knowledge accumulation being the backbone of the strategy.

In the given conditions, knowledge and innovation appear to be key assets of any business, which allow the company to sustain long-term competitiveness due to the creation of unique value propositions for consumers and/or taking opportunities where competition is limited. This results in the companies' orienting to the development of innovative activity and entrepreneurial culture which provides constantly increasing flaw of innovations—new products, services, production processes and distribution, innovative business models, etc.

The previously mentioned changes in business environment allied with the tendencies of the reduction of life cycle of goods, increasing mobility of creative human intellectual capital, and changes in financial instruments have led to the development of the new approaches to strategic management of innovative processes based on an *open innovation* paradigm [the term introduced by Chesbrough (2007)].

3.4 Emphasis on Value Factor

Recognition of a temporal character of competitive advantages is followed by the emphasis on the company's value factor and value proposition. There is conceptual clarification of "value" in relation to business. Thus, Larréché (2008) notes that value has two aspects: the value of the company's proposition to the client (*consumer value*) and the clients' value for the company (*consumer capital*). As such,

consumer value is understood as a property of product (service) to satisfy certain needs of a client. Of course, consumer value may have different form and content in industrial (B2B) and consumer markets (B2C).

Doyle (1999) developed *value ladder* for industrial and business service markets with six levels. Seeking to avoid competition, a company has to climb up the value ladder, shifting from a usual product to superior quality goods and excellent services, guided by the idea to become expert in the businesses of partner clients, to understand specifics of their activities in order to create real value for the clients. In this case, the supplier organization acts as a consultant rather than a seller, and its strategy aims at building mutually beneficial relations/partnership with clients. The value model of LaSalle and Britton (2006) distinguishes four types of values (physical, emotional, intellectual, and spiritual), shows their content, and helps understand value guidelines of individual consumers in B2C markets.

Kim and Mauborgne (2005) developed a *blue ocean strategy* which allows the companies to compete without competing. This strategy and its value propositions are based on the use of special methodological tools: *blue ocean strategy* and a supplemental *four actions model* (eliminate, reduce, raise, and create). Larréché (2008) suggested that the process of *value creation* for consumers and *value extraction* (profit) for the company can be presented in the form of a three-level pyramid which reflects the direction of value movement and interdependence of these directions. According to this approach, the company working with consumers generates value and in cooperation with the partners gains value which can be further extracted (Fig. 1).

Prahalad and Ramaswamy (2006) developed *value creation model* and called it DART system—dialogue, access, risk assessment, and transparency. According to them, effective process of value creation for consumers includes dialogue between the equal parties, consumers' access to the product and their impressions by means of product trial and other mechanisms rather than buying it, active discussion of risks and benefits of the product, and transparency of information which facilitates the dialogue and promotes the formation of trust between the company and its consumers.
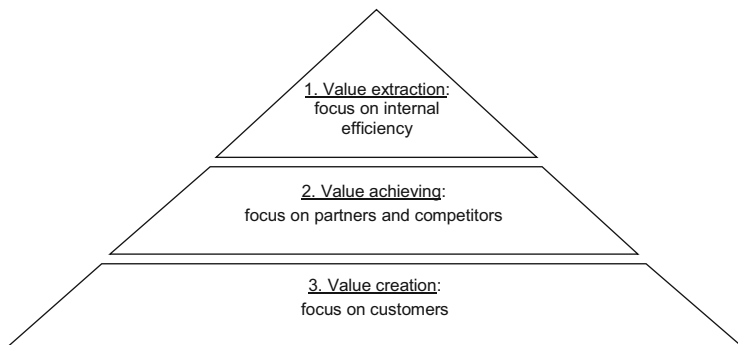
Fig. 1 Value creation according to Larréché (2008)

In general, orientation to values and value proposition for consumers is a significant tendency in the sphere of strategic management. The necessity to form value proposition for consumers is connected with the fact that today the logic of competition has evolved from imitation of products (mimicry strategy, i.e., offering consumers better, cheaper, more beautiful, etc. goods) to revolutionary confrontation of business models and further to the existing competition of *value systems*.

Such methodological tools as value ladder, consumer model of values, blue ocean strategy, and DART system are used to help managers understand consumer values, and Larréché's approach shows complexity of multistage extraction of value by the company.

4 Strategy Directed to Value Creation

The analysis and generalization of the revealed development trends in the theory of strategic management have made it possible for the authors to suggest an approach to strategy formulation in order to achieve the balance between value creation for consumers and value extraction for the company. In other words, the company's value proposition has to embody both the benefit perceived by a target group of clients and the capital brought by this target group. Thus, in the modern dynamically changing world, such a proposition has to be based on an original idea, new opportunities, and the company's ability to learn fast, reconfiguration of competences, and formation of business partner communications within technological ecosystems.

Figure 2 shows the authors' vision of the strategy formation intended for creation of value.
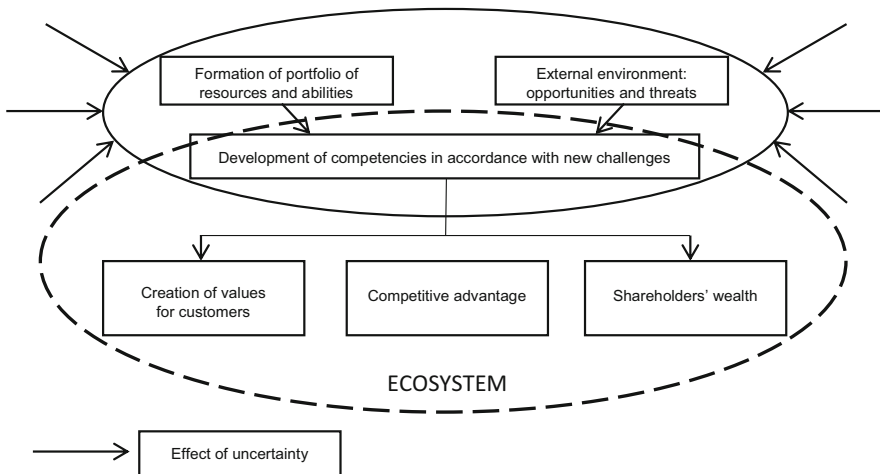
Fig. 2 Formulation of the strategy directed to value creation

It seems reasonable to emphasize that the given approach, first and foremost, reflects the change in the role of consumer value analysis: from tactical means of attracting and keeping the customers to the core element of corporate strategy determining a platform for continuous formation of new competitive advantages and, as a result, providing/increasing wealth for the shareholders.

The analysis of the Russian companies operating in Siberian region shows that a reasonable balance between the company's efforts to create value for the consumer and the company's shareholder value (equity) is one of the most important factors of success in modern context. Finding this balance is a complex task, and the example of Top-kniga—a bankrupt book retailer—illustrates that the shift to any side may entail serious consequences (Table 1).

Table 1 shows the results of comparative analysis of three Siberian companies which operate in different sectors of economy carried out on the basis of the given strategy formulation approach.

The results of comparative analysis show that the observed cases are quite typical in terms of strategy directed to value creation, and in the Russian practice, it is possible to define three groups of companies. The first group shows reasonable balance of value propositions for clients and shareholders as well as dynamic development of resources and abilities according to new challenges, which results in sustainable development of these companies during a long period of time (e.g., C1, etc.).

The second group involves the companies which were successfully developing during a certain period of time, but the shift in balance of value propositions either toward shareholder or consumer value has led them to bankruptcy or the change of owners (e.g., Top-kniga, etc.).

The third group involves the companies which failed to create value propositions adequate to the needs of the market, e.g., C3 (see Table 1). These companies have found themselves in a difficult economic situation, losing their competitive advantages. Also many innovative and IT companies, which focus on technological innovations but do not pay much attention to value propositions for consumers (i.e., do not orientate to the market) and, as a result, do not create value for their business, can be added to this group.

5 Conclusion

Summing up, we support the view of the leading experts in strategic management that in today's dynamic, unpredictable, and chaotic world, strategic development and strategic management remind a game of chess where the outcome of the game is predetermined not by the efforts and resources but skillful step-by-step management of competences of the company, maintaining a reasonable balance of value propositions.

It is shown on the example of Russian companies that maintenance of reasonable balance between companies' efforts on consumer value creation and shareholders

Table 1 Comparative analysis of the companies' strategies

The key parameters defining strategy formation	C1—the large diversified IT company established on a wave of economic reforms and formation of banking services	C2—Top-kniga, a well-known book-selling company in Russia	C3—an engineering/machine-building enterprise (in the USSR it was the leading producer of competitive equipment in the world market)
External environment: opportunities and threats	Favorable: development of IT and financial markets and network services	Demand for books, competitive threats from online stores and e-books	Increasing competition in the global markets. Penetration of big foreign companies into the Russian market. Emergence of new engineering companies
Resources and abilities (key competences—KC)	KC: automation of operations and development of integrated solutions + partnership (internal and external)	KC: management of wide product range, logistics, partnership	KC: technological and organizational in the sphere of implementation of complex individual orders (internal orientation)
Development (adaptation) of competences and products in accordance with new challenges	Development of new IT products associated with electronic payments including those for new spheres. Changes in business model stimulating innovations	Product range extension. Online store	Obsolescence of technological competences. Poor marketing and customer service competences
Consumer value.	Increase in value on the basis of: – Product and technological innovations – Individual approach to clients – Product support	Products availability, possibility to order any book	Production losing to competitors in respect of: – Operational and ecological parameters – Complexity of solutions (no "turn-key" delivery + additional services) – After-sale service and product support – Contract price
Competitive advantage	Market leader. Partnership with the largest banks, financial groups, the city halls	Leading book retailer	Loss of competitive advantage

worth is not an easy issue. But successful solution of this task provides sustainable development of the company during a long period of time. Imbalance in value propositions may lead to loss of competitive advantages of the company, loss in

profit, and even commercial failure. Consequently, consumers' value, creating bases for new competitive advantages and providing shareholders worth, becomes a core element of corporative strategy.

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Best Practices in the Employment of Knowledge Workers 65 and Over and the Benefits of Employing Them (An Empirical Approach)

Grażyna Bartkowiak

Abstract This paper addresses the issue of the employment of knowledge workers aged 65 and over. It recognizes the inherent value in business organizations, maximizing the use of human resources, as well as the potential for mutual benefit(s) between this age group and the businesses that employ and seek to employ them. It examines how organizations feel about the ways by which practices which utilize the skills of this age group may coincide with their entrepreneurial strategy. Ultimately, this paper aims to shed light on ways that may facilitate the use of the best practices of these knowledge workers by business organizations. The research seeks to obtain answers to the questions: which practices in the employment of knowledge workers 65 and over can be used (i.e., which are available?); which (according to entrepreneurs and executives) are actually used; and, more explicitly, given the high amounts of social capital existing in the age group studied and the resulting potential for such things as knowledge transfer and enhancement of strategic decisions, which benefits does the company receive as a result of employing knowledge workers aged 65 and over?

Keywords Social capital • Intellectual capital • Knowledge transfer • Mentoring

1   Introduction

A prolonged period of economic activity related to the amended statutory mandatory period of employment (Act to extend the statutory retirement age 2012 (c. 637)), although like any organizational change stirs controversy, is challenged at the same time and thus can be considered as an opportunity for both the organization and the employee. We can accept the idea that a key objective of social policy—at the level of human resources strategy and integrated within the organisation's strategy—is to maximize the use of human resources, while

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implementing business targets. These targets have been postulated by the social economy. They boil down to increasing the entrepreneurial activities of employees, regardless of age. Another important goal of the social economy is to fully satisfy employees' needs and values. These processes can be facilitated by the development of best practices and programs related to employment of workers aged 65 and over. This is dedicated to the issues in this paper.

2 Best Practices in the Employment of Knowledge Workers 65 and over

Davenport (2005) emphasizes that knowledge workers have specialized vocational training, are experts in their field, and are involved in the creation, distribution, and implementation of the practice of creating their ideas. Creative thinking is the goal of their lives.

Best practices for entrepreneurs and executives in the employment of knowledge workers 65 and over have come down to the specific organizations taking action to implement two types of objectives: to allow a full use of the intellectual capital of knowledge and experience inherent in knowledge workers in order to maintain the competitiveness of the company and to allow workers to continue pursuing a career, to make the most they can to fulfill their career goals and life. Among these practices can be distinguished: coaching, mentoring, individualized employment contracts, and flexible working hours (Gaudecker and Scholz 2006; Rausch et al. 2002).

2.1 Coaching and Mentoring

One of the offered forms of economic activity is to conduct and participate in the shaping of knowledge workers and professional competence development (particularly important in the case of knowledge workers 65 plus) a coaching and mentoring session. Both of these require competence, experience, and commitment of knowledge workers (Syrek-Kowalska 2014). The client and the coach establish the goals that a coachee knowingly undertakes to take into account in its action. Their implementation requires the partnership became almost therapeutic ratio of the two sides (Armstrong 2001). Coaching takes place in the form of fixed meetings, unlike psychotherapy meeting which aims to motivate people for more effectively achieving career goals. However, it is observed that the boundary between psychotherapy and coaching is not tight (Sękowska 2014; Żukowska 2010; Krasiejko 2010) although in the case of the former, achieving the therapist's competence is much longer and more difficult. A common activity of coaches is highlighting the most relevant changes that the trainee needs to make in his or her

professional life; revising current operational goals, setting new targets, and reflecting on how to achieve these targets and goals are all significant factors. Depending on the function, we can distinguish among coaching, personal coaching, life coaching, business transformation coaching, career coaching, and coaching of competence development. In the first case, the client is one who undergoes analysis in different areas of his or her life. In the case of coaching, the relationship between the coach and the trainee refers to her or his professional development, or their development within the organization itself. The organization then orders a coaching service, which is addressed to selected employees, and even to executives (executive coaching), for which coaching knowledge workers require high competences both professional and social (Scoular 2014). Career coaching is focused on the area of work, although at the same time includes private life. One can expect that for appropriate knowledge workers, the most popular is competency coaching, including both professional competence and social competence.

Mentoring is a relatively long-term process of boiling down to provide expert support, both in terms of the functioning of an employee in a particular organization (Parsloe and Wray 2011) and pursuing a career. A mentor is a man who has a wealth of professional and life experience and, in the case when he formulated suggestions related to a specific organization, is the person that recognizes its excellent organizational culture and familiar mechanisms "for success" in a particular company (Parsloe and Wray 2011). One should be aware, however, that in the provision of support, which may also take the form of emotional support structure, the mentor-employee (mentee) relationship is not the nature of the contact partner, recalling more the student-champion relationship (Armstrong 2001; Bennewicz 2011). For these reasons, knowledge workers require a special psychological perspective: an open attitude towards their associates, the possession of empathy and a willingness to share their knowledge with others. For knowledge workers 65 plus, mentoring can be a form of recognition of their knowledge, experience, and high level of competence and even their ability to fulfill their mission in life, for the part of employers, and a crowning career they have ever done.

2.2 Individualized Employment Contract

Idiosyncratic employment contracts of employment determined employee and the employer, called I-deals, play a particularly important role in the context of all individual contracts. The contract allows both the employee and employer individually negotiated agreements to work and appear to be particularly important for knowledge workers 65 and over. According to Kowalczyk (2014) and Rousseau et al. (2006), the point is in terms of individually negotiated, mutual contract, which has the following characteristics:

- Individual negotiations. In each case individually negotiated contract is negotiated, which differs from the contracts of other employees.

- Heterogeneity within the reference group. Workers are provided (in accordance with the Articles of Association or other provisions of the labor law) different conditions and forms of awards for achievements.
- The possibility of mutual benefit (win-win arrangement). Organization gains a competent employee, and the employee is satisfied and not looking for a new job.
- Diversification of the scope of the agreements. It may relate to individual elements of a broader package of agreements or related benefice.

This solution seems to be ideal for knowledge workers 65 and over and may include both flexible working hours and individually negotiated content and scope of tasks.

2.3 Flexible Working Hours

Flexible working refers to the fact that employees start and finish their work at various times. In practice, this means that the employees themselves can determine their working hours, however, required a certain number of hours to be worked at any given time. Most often, considering the legal conditions, the worker has the right to work what is the longest maximum standard work day but the shortest as far as the presence of specified time requirements (Salwa 2003).

The amendment to the law regulations (The Labour Code and the Law on Trade 2013. (c. 896)) assumes that in the reference period, the working time may include a total of 12 months. Although the use of flexible work requires careful accounting of worked hours by the employer, it builds confidence because implicit trust is established by allowing employees to fulfill their duties within the time of their work. For knowledge workers and especially the staff of 65 plus, it seems to be particularly advantageous because of the nature of the work: varied pace of performed tasks, their ability to self-regulate their mental effort, and individualization of work tasks.

2.4 Good Practices in the Area of Employment of Knowledge Workers 65 and over, in the Opinion of Employers, and the Benefits of Their Employment (the Own Research)

To verify the existence of good practices to further the employment of knowledge workers 65 plus, particular behavior research has been planned and carried out.

In these proceedings, the following problems were formulated:

1. What are the best practices (according to entrepreneurs and executives) which could be used in the area of employment of knowledge workers 65 plus?
2. What are the best practices actually used in the area of employment of knowledge workers 65 and over (according to entrepreneurs and executives)?
3. What benefits (according to entrepreneurs and executives) does the company receive from the knowledge workers who are 65 plus?

The study involved 297 executives employed in small- and medium-sized companies. The subjects, workers 65 and over, responded to the questionnaire and open questions (reliability measured by Cronbach's alpha coefficient is .771) online concerning the proposed best practices. However, respondents omitted some of the questions of the questionnaire; hence, the number of comments on specific questions, of which there were 26 (after four possible answers to each), fluctuates within 281–290. Empirical studies were carried out in the framework of the project NCN "Competence management knowledge workers aged 65 and over. Good practice in the area of employment." The analysis has only seven questions, for which the respondents have made a choice.

Analysis of data indicated in Table 1 showed differences in the postulated practices. The use of the knowledge and skills of knowledge workers 65 and over, in the form of training, proved popular. However, it can be observed that the postulated range of possibilities has been expanded to include activities which are not the subject of a specific company but the Social Insurance Institution (extension of leave for seniors, new packages of benefits). Their suggestion of the telework that respondents indeed termed "work at home" deserves attention, but they understand it as ability to perform work away from the workplace.

The data obtained in Table 2 do not cause shock or surprise, even though they point to the existence of differences in the frequency range of postulated practices and actually implemented. As indicated, the following table, less than 40 % of entrepreneurs and executives do not apply to any form of good practice. At the same time, different position statements provide a slightly smaller number of people (over 30 %), which are of the opinion that knowledge workers 65 and over can still

Table 1 Good practices postulated by entrepreneurs and managers in the area of employment knowledge workers 65 and over

Type of good practice	N	%
Training new employees	89	30.4
Flexible working time	74	25.7
Diverse forms of employment	54	18.4
Coaching	20	6.8
Mentoring	17	5.8
Telecommuting/Home	15	5.1
Other e.g.: work in the form of external experts, facilitate ergonomic	14	4.8
The findings within the company, e.g., longer paid holidays	5	1.7
Facilitate introduced by Insurance Company (longer holidays, full price release, the new benefit packages)	5	1.7

Table 2 In fact, implemented by entrepreneurs good practices in the employment of knowledge workers 65 and over

Type of good practice	N	%
The use of different forms of contract and differentiated working time	39	13.6
We offer next routine duties of training for newly recruited employees	36	12.5
We offer a job as a mentor	7	2.4
We offer a job as a coach	8	
The employee does not deal with anything new in relation to the work performed	88	30.7
We do not use such practices	109	38.0

Table 3 The ability to take advantage of greater experience by ordering (him or her) to the transfer of knowledge (knowledge sharing) to younger workers (including through coaching)

Types of responses	%	N
Mature knowledge workers can work as coaches to a selected group of employees (e.g., the talents)	16.6	48
Workers aged 65 and over can prepare to work newly hired workers	58.8	169
Knowledge workers 65 and over can develop career paths	10.7	31
Mature workers can create a positive organizational climate through their own example and pointing to the importance of sharing knowledge	21.0	61
Other responses	1.7	5
The total number of responses	97.6	290

do their job. Encouragingly, however, a total of approx. 30 % of the subjects, presenting the situation in their companies—small- and medium-sized enterprises—in fact implements best practices in different forms of employment, flexible working time, and ready-to-work newly recruited employees. Relatively unpopular, with respect to the proposed practices in the current employment, coaching and mentoring have proven to be often made in the literature and in practice. Such results may be obtained by the study of several people who work in small and medium-sized companies and follow such practices. Moving on to discuss the benefits that employers and managers have seen in hiring knowledge workers 65 and over, we should consider five categories of statements, each of which boiled down to select one of four options or give their own suggestions.

As is clear from the data presented by employers and executives in Table 3, over 58 % believed that knowledge workers are ideal for the preparation of the work of newly adopted people.

In terms of the importance of social networking category, it can be seen that a total of more than 66 % of those participating in the study pointed to the important value of social relations (Table 4).

Analysis of the data in Table 5 indicates that more than 50 executives and entrepreneurs see opportunity to benefit from the advices of experienced colleagues (mentoring). Some are concerned about the fact that only approx. 7 % of respondents allow the use of the knowledge of the staff of 65 plus with regard to strategic

Table 4 Possibility of using external contacts (built by years of social capital) knowledge worker to acquire skills important for the competitiveness of the company

Types of responses	%	N
Mature workers have greater ease in acquiring knowledge outside	15.2	43
May be more likely than others to consult introduced solutions with other experienced people outside the company	25.4	72
Mature workers through the extensive network of contacts can easily gather the necessary resources of knowledge	38.5	109
Knowledge workers aged 65 and over due to their own resources and knowledge developed social networks contribute to the competitiveness of the company	27.6	78
Other responses	0.4	1
The total number of responses	95.3	283

Table 5 The ability to use the knowledge of employees 65 plus in consulting in strategic and tactical decisions (mentoring)

Types of responses	%	N
Mature knowledge workers can in many cases be able to advise younger colleagues	52.3	149
Knowledge workers 65 and over may participate in the development of the company's strategy	6.7	19
Knowledge workers 65 and over can support company management in solving difficult problems	23.2	66
Knowledge workers aged 65 and over may through their years of experience and built the authority to act as peacekeepers in conflict situations	26.0	74
Other responses	0.7	2
The total number of responses	96.0	285

decisions affecting the company. This situation may be due to usurpation (mainly by entrepreneurs) of monopoly power and the right to manage the company.

As indicated by the data obtained in Table 6, the positive assessment indicates distanced evaluation of events in expression of less than 40 % of the respondents; slightly fewer respondents highlighted the high prognostic value of thinking knowledge workers 65 and over as a result of their unquestionable experience.

In Table 7 as in Table 3 speeches, executives and employers emphasize the importance of social interaction of knowledge workers 65 and over as confidence-building factor, and it creates a positive image of the external (38 %).

3   Conclusion

The data obtained show some contradiction and controversy in the statements of entrepreneurs and executives, on the functioning of knowledge workers 65 and over. On the one hand, the discrepancy between the actually implemented and postulated practices does not seem significant: refer to the frequency of occurrence and implement typed by subject practices and suggest greater use of flexible

Table 6 Possibility to use the example of 65 plus employees distanced attitude toward introducing ill "newness"

Types of responses	%	N
Workers 65 and over event scenarios accurately predict both for the organization and the business environment	14.2	40
Knowledge workers aged 65 and over less than their younger colleagues present a "black and white" view of the world and people	14.2	40
Knowledge workers aged 65 and over to a greater extent than other younger colleagues are independent judgments	38.8	109
Mature knowledge workers successfully confront current events with his rich experience and more often than others are able to accurately predict the effects	35.9	101
Other responses	1.8	5
The total number of responses	94.6	281

Table 7 Possibility of using external contacts knowledge workers in order to attract the favor of the environment and building a positive image of the company

Types of response	%	N
Knowledge workers aged 65 and over tend to have "more developed" contacts outside the company	18.4	52
Knowledge workers aged 65 and over by their more confident and balanced behavior build a positive image the company	17.4	49
Knowledge workers aged 65 and over often have contacts in order to obtain more favorable external institutions in solving specific problems of the company	32.3	91
Mature knowledge workers as the person representing the company on the outside, to a greater extent, inspiring confidence, as partners to the relationship.	37.6	106
Other responses	0.7	2
The total number of responses	94.6	281

working hours. These types of practices of both the proposed and actually carried out indicate quite stereotypical, not exceeding the current realities of the way of thinking and the level of awareness of entrepreneurs and executives surveyed enterprises. On the other hand, these same respondents indicate numerous benefits of employing knowledge workers 65 and over. This situation may be due to the declarative nature of the expression of entrepreneurs and executives and their limited involvement so far in the use of intellectual and social potential of knowledge workers 65 and over. So we should consider developing activities to promote greater use of more diverse good practice examples. These actions, in practice, for example, may be for the employer to organize competitions of the most friendly staff of 65 plus or a number of other initiatives that show the tangible benefits of hiring employees of that group. We also should think about the economic instruments to motivate entrepreneurs to hire workers 65 and over. The data obtained indicated as the complexity of the issues related to the employment of workers 65 and over. Analysis concerning socioeconomic factors that need to maintain a balance between generating profits and concerning for the development of intellectual capital in their company work should be taken into account. In this situation,

importantly, entrepreneurs and executives can have positive experiences and gain valuable awareness as a result of employing knowledge workers 65 and over. It is the best way to know the interests of the employers in organization where knowledge workers are a vital asset that determines competitiveness. The mutual interests of those subjects become for each of the parties almost a priority task, requiring a systematic approach to employees, organization, and its environment.

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Causes of Inattention on Financial Competency: A Qualitative Study

Omid Mehrabi and Rozeyta Omar

Abstract During the recent years, the world has encountered a huge financial change with personal, organizational, national, and global effect. On the other side, competency modeling teams are concerned on the external changes as one of the sources of information. Thereupon, they are expected to pay more attention on financial competency in competency modeling. Our library research and preliminary field study revealed the least attention on financial competency. The purpose of this paper is to diagnose for inattention on financial competency. We held 2 eight-person focus group discussions and 12 in-depth interviews to learn about "why it has been neglected." The participants included Iranian large-size business owners, organizational top managers, and HR managers. A grounded theory approach was deployed to analyze the findings of focus groups and interviews. The participants addressed to a combination of potentials that have been categorized in this paper.

1 Introduction

The employees' competencies as one of the main factors of organizational performance are agreed by the vast majority of academicians and practitioners. For more than 40 years, the scholars and HR professionals have been struggling to recognize the effect of competencies on individual and organizational performance (e.g., Bolo 2011; Bradley 1991; Garavan and McGuire 2001; Getha-Taylor 2008; Gupta 2007; Mclelland 1974; Sanghi 2004). The important point is that not only the essential role of competencies on organizational performance has not been faded, and also some pieces of evidence disclose that day by day, more and more researchers and authors emphasize competencies (e.g., Cardy and Selvarajan 2006; Coll and Zegwaard 2006; Dull et al. 2011; Kalargyrou and Woods 2011; Ko et al. 2011;

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Roe et al. 2010; Rychen and Tiana 2004; Young et al. 2007). Most of the recent competency studies approach to competency identifying, assessing, or revalidating the current competency models in their cases and revalidating the known competency assessment tools (Sanghi 2004). However, in comparison with the empirical researches, few of the studies discuss about the abstract and conceptual issues such as the definition, the nature, and the philosophy of the competencies (Gasteen 1995; Hager and Beckett 1995; Walker 1996).

In order to map a competency model, the scholars recommend adopting the best practices or generic models instead of sketching a new one because of time and costs' considerations (Lucia and Lepsinger 1999; Sanghi 2004). Consequently, most of the empirical studies alter the previous models according to their situations. Thus, new competencies rarely are suggested in the followers' reports. In this type of studies, the scholars usually recategorize the previous sets of competencies. The most studied competencies of this group are generally previous proposed personal or psychological competencies or a specific technical competence, i.e., IT competence, project management competency, or teaching competency in a particular group. Moreover, most of the scientists employ similar methods, source of information, and instruments of data gathering and assess the level of competencies among the examinees. In other words, the scholars have seldom contributed to the above subjects, and the later practitioners and scholars are employing previous validated methods, instruments, and sources as assumed unchallengeable elements of competency modeling. In spite of this, a proper notion about the paradigm shifts will help the modeling teams to establish the competency model, more suitable (Sanghi 2004).

Although the world has been always confronted with big changes, the new financial change of the recent years is supposed as one of the most tremendous. There are a few substantial indications that evidence emerging a modern financial change: (a) amplification of the competitiveness (Bengtsson and Wilson 2010; Cáceres 2007; Heijden et al. 2005); (b) the huge effect of financial crisis on individuals, and even on the world (Aizenman et al. 2010; Filardo et al. 2010; Taylor and Williams 2008); (c) increase of the diversity of financial products and services (Courchane and Zorn 2005; Willis 2008); and (d) significant accent on financial literacy (e.g., see Bayer et al. 2009; Bernanke 2008; Greenspan 2005; Lusardi 2009; Mandell 2008), especially in developed countries. This financial phenomenon looks like a paradigm shift that is gradually becoming epidemic (Chengsi 2008; Sun et al. 2011).

Some scholars have studied limited elements of financial competency—or competence—like accounting and budgeting. More distinctively, they are concerned on the positions that are directly financial related, i.e., accountants and finance managers (see Appendix A). In this group of studies, the official financial degrees and certificates, technical skills, and previous financial-relevant job experience have been often introduced as the financial competence determinants. In qualitative studies, the scholars have tried to answer this question: "How do the studied segments acquire the financial knowledge and skills?" The main contribution of this kind of studies is to improve the training and development models.

The other area is financial literacy, because its concept is so close to the financial competency. Financial literacy has been concerned in the 1990s by some educationalists, psychologists, sociologists, and micro- and macro-finance economists. All previous struggles could be categorized into four main classes, namely, (a) definition, theorization, and conceptualization (Kershaw and Webber 2004; Remund 2010; Webber et al. 2002), (b) determination of the measures and indicators (Sabri 2012; Tawfik et al. 2008), (c) assessment of the studied groups' level of financial literacy (Atkinson and Messy 2011; Huston 2010; Taliefero et al. 2011), and (d) financial education studies (Bayer et al. 2009; Lusardi 2008; Mandell 2008; Walstad et al. 2010).

Although the researchers do not completely agree on the concepts of financial literacy, unanimity could be inferred between them about one of the initial financial literacy definitions, which is interpreted as the ability of judgment and making rational financial decisions (Taliefero et al. 2011). This issue is implied from the applied financial literacy assessment tools, which often have been concerned on financial knowledge and skills. For instance, the majority of financial literacy assessment reports are addressed to Lusardi's or ANZ Banking (2008) Group's assessment tools.

While most of FL researchers agree with the knowledge aspect of financial literacy as the main aspect (Donohue 2011; Huston 2010; The MoneySENSE Financial Education Steering Committee 2005), only some of them even acclaim the financial literacy beyond the competency (Buckland 2010; Remund 2010). In this latter approach, they consider the financial attitude, belief, knowledge, skills, experience, and values under the financial literacy. The second approach, however, does not give assessment tools as strong as the first one for attitude or belief parts of financial literacy. According to available reports, the majority of studied groups, i.e., the retired, the poor, mothers, students, parents, and other groups, lack the financial literacy, whether partially or completely. Moreover, the necessity of financial education has been so stressed by the researches that some countries have established a national financial literacy development to monitor and improve the nations' financial literacy. Despite that, financial literacy has not been mentioned or suggested as a generic competency.

2 Motivation of the Study

According to what is mentioned, it is expected that financial competency should be attended as one of the incumbents' important competencies. Surprisingly, scanning the current proposed generic competency models reveals that despite the importance of financial competency to organizational performance, a low attention on this new competency has been paid by both practitioners and scholars. For instance, in the Lancaster model of managerial competencies (Le Deist and Winterton 2005), Burgoyne's transcultural managerial competencies (Burgoyne and Reynolds 1997), and Maruti Udyog Ltd's personal competency framework (Sanghi 2004), which the

practitioners usually customized, there is not any trace of financial competency as a generic competency. In other words, the financial competency has been ignored or neglected among the known and current competency model.

Financial literacy and its individual, social, and national effect and importance have been studied for more than 15 years (Lusardi and Mitchell 2011). The worldwide information and knowledge sharing and access do not allow us to credulously believe that both HR practitioners and scientists' unawareness of what is happening out of their offices has caused this substantial negligence. Surprisingly, despite costing the vast of money to recognize their atmosphere, even the high prestigious companies' competency models lack the financial competency. More significant is that most of the studies about financial literacy have been conducted in very close disciplines to HR in terms of nature, e.g., psychology and education (Earnst et al. 2001; Fromlet 2007; Kershaw and Webber 2004; Marson et al. 2000; Webber et al. 2002). Thus, this supposition is raised that another factor(s) may cause the lack of financial competency, while the lack of literature on the causes of inattention to financial competency is the second problem.

3   Methodology

The concept of financial competency has not been explained, yet. Therefore, we required to explore the significant meanings beyond the participants' words, actions, and even behaviors. The mentioned points are the basic assumptions of grounded theory. Thus, the mission of the researcher is to elicit the theory or idea that was grounded behind the participants' interactions.

Data was collected through conducting two focus group discussions and 12 - in-depth interviews. We held the first round of focus group discussion as a preliminary discussion to get the participants' notion about the financial competency. Their perceptions also helped us to prepare the guiding questions for in-depth interviews. However, the researchers had invited eight people for each discussions; the second round of focus group was held with seven attendants.

All discussions were transcribed, immediately after each meeting, and were shown to the participants to verify their statements. Though the participants could speak English, the language of discussions was in Persian. Inasmuch as, the main challenge of qualitative approaches is to explore the participants' deepest and realest feeling and insight about the issue; their mother tongue could convey their perspectives.

Between the two rounds of focus group discussions, we accomplished 12 - in-depth interviews with 12 individuals who had some perspectives about the financial competency. All the interviews were aided with some guiding questions, which were implied from the first round of focus group discussions and previous interviews. Each interview lasted averagely around two hours; however, we did not emphasize a fix time for the interviews. All interviews were captured and

transcribed immediately after the interviews to prevent losing the data or forgetting anything. During the interviews, we noted any meaningful body language, gesture, and tone change of participants. After transcribing the records, these pieces of evidence were synchronized with the transcripts. We also sent the transcripts to the interviewees to check the statements and verify if they agreed. To avoid influencing the interviewees, the interviewer did not mention or emphasize previous interviews' data. Similar to focus group discussion, the field researcher tried not to affect the interviewees' perception through asking bias questions. However, to ensure getting the required information, the inquirer provided some key issues and guiding questions and used them in appropriate cases.

The other weakness of qualitative studies that some scholars have hinted is the extent of trusting on interviewees' statement. This alarm should especially pay more attention whenever the participants have to reveal their beliefs, attitudes, values, and so on. Additionally, the participants from more vulnerable positions are more potential to hide the facts or their real opinions (Opdenakker 2006). Inasmuch as the participants of this study were from top managerial levels of their organizations, we could trust on them more easily. Moreover, the main direction of interviews was positive; they were talking about what they understood about the financial competency, while the others did not. However, considering that they may challenge themselves or their organizations, the interviewer struggled to extend the mutual reliability with them. In sum, systemic, comparable, and comprehensive data gathering through the semi-structured interviews convinces the researchers to employ it. Considering previous interviews and flexible questioning helped us to decline the weakness of this method.

We employed the qualitative content analysis (QCA) to elicit the keywords and main elements of the causes of inattention on financial competency.

The participants of this study were opted based on purposive sampling, because regardless of the possibility or impossibility of random sampling of related population, the essence of this study required knowledgeable, experienced, and open-minded participants in the field of competency mapping. In addition, to have insights about the financial competency, they also must be interested in the topic.

Based on the above criteria, some positions and jobs were more potential to find the candidates: the owners who are involved in recruiting or assessing the managerial job applicants, job interviewers, top manager or headquarters, HR managers, and HR experts.

We invited five owners who emphasize the financial ability and intelligence in managerial job applicants. One of them has founded more than 12 diverse types of business in the field of foundry, chemistry, agriculture, aviculture, oil, texture, automotive, telecommunication, import and export services, and education. The next invited participant has founded a company in the field of energy. They build various power plants, including thermal and green inside Iran and in abroad. His company is worth more than four billion US dollars. The third invited owner has one of the most well-known engineering consultation companies in the Middle East zone with more than 1200 engineers. The fourth owner is the founder and the owner of one of the top-ranked holdings in Iran. According to the official reports, his group

Table 1 Participants' background

Name	Current position	Age	Academic grade	Experience (year)		# of modeling experience	Invited as
				Total	Managerial		
Abbas	HR manager	53	PhD	28	23	50	HR manager
Ali	Owner	61	MSc	38	30	35	Owner
Baba	HR manager	54	PhD	24	16	80	HR manager
Behzad	Top manager	50	PhD	25	25	70	Top manager
Elyas	General manager	55	PhD	23	18	50	Manager
Farhad	Owner	53	MSc	35	24	30	Owner
Farzam	Manager	34	BSc	10	4	30	Manager
Fazel	Owner	45	PhD	28	24	40	Owner
Habib	Manager	54	BSc	30	20	40	HR manager
Hashem	HR manager	36	PhD	8	3	30	HR manager
Mahdi	Manager	48	PhD	26	20	25	HR manager
Naser	HR manager	50	MSc	24	17	60	HR manager
Reza	Owner	60	MSc	33	28	40	Owner
Saeid	Owner	59	MSc	34	27	46	Owner

is worth around two billion US dollars, including 40 firms in the field of chemical goods, cosmetics, food, cellulosic products, distribution, advertisement, etc. The last owner has a middle-size agro-food industry. Before establishing his own business, he was an expert and a middle manager in the field of electronics. His business is worth around 360 million dollars. He was the youngest businessman interviewee. The other participants were top managers of their companies in the field of HR or other departments.

At the first round focus group discussion, totally, eight persons were recruited. One of the previous participants could not attend on the second round of focus group. He was one of the owners. Given that, the findings of the second focus group were shown to him, and he later delivered his insight. The brief participants' background has been attached in Table 1.

4 Findings

The participants were asked to deal their viewpoints about the causes of inattention on financial competency. The detail and follow-up questions were asked to whom they revealed new perspectives on the topic of interviews. They were asked to narrate their experiences in terms of the reactions of responsive positions about this ability, their reasons of inattention, the effect of other organizational features on financial competency ignorance, and the role of HR staffs and managers in the current situation. Simultaneously, the researchers started analyzing the gathered content to discover the grounded theory. The following main causes were elicited from participants' statements.

4.1 HR Managers' Ignorance About the Financial Competency

Several pieces of evidence convinced us that most of the invited HR managers did not attend on financial competency, whether intentionally or unintentionally.

We felt a type of negligence from the participants' statements. During their interviews, they delivered a diverse range of arguments that the financial competency is not as important as what acclaimed the literature supposes, i.e., causal effect of other factors on financial success, cost, limitation of the number of competencies, difficulties of competency modeling, and finally, the importance of financial information, which the top managers do not like to be shared or questioned by the other employees.

The second type of statements convinced us that some participants had ignored the financial competency, unintentionally. Indeed, some participants were not aware of their ignorance. One of this evidence was addressed to the difference between competence and competency. **Habib**'s (one of the invited HR managers) argument, for instance, opened a new line of questions. He deducted whereas the financial competency is a combination of knowledge and skill, it is not required to be considered in competency models. His opinion motivated us to ask about the participants' opinion about the nature of competency and difference between competence and competency, because according to **Habib**, he had supposed the financial competency as a knowledge and skill. In his interview, **Saeid** (one of the invited business owners) approved that some HR managers do not care about the difference between these terms, which can originate a part of ignorance. Some participants believed that financial competency is a technical and professional competency, which is not required for all managerial levels.

On the other side, some HR managers thought that the top managers and owners had not been asked to model the financial competency, while the owners asserted on it and addressed the ignorance to HR managers. In sum, they thought that they had asked this competency from HR managers; however, the HR managers could not

fulfill their request. In addition to the owners, some HR professionals admitted the HR managers' ignorance. Two of them even applied *the compound ignorance* to explain their idea.

4.2 The Weakness of Competency Modeling

During their interviews, some participants pointed the capacity of competency modeling and its components. Particularly, three components, the source of information, methods, and instruments, were highlighted. In their point of view, the HR staffs would not be able to identify a future-oriented competency like financial competency through applying the past-oriented methods, instruments, and the source of information.

4.3 Emerging the Attention on Financial Competency

During their interviews, some participants delivered some symptoms of emerging the attention on this competency. We could classify their examples into four levels:

1. It is considered, but under the other names (as was acclaimed previously).
2. It has been attended; however, because of its difficulty, it is not easily identified.
3. If the financial competency is cascaded to several levels, it could be said that it was considered in some levels; however, it has not been attended in all levels, yet.
4. Some participants clearly declared the gradual development of financial competency.

The focus group and interviewees mentioned several causes of inattention. Some argued on the necessity of financial competency; some referred to the competency identification team, methods, instruments, and the source of information. The fish bone diagram illustrates the mentioned causes (Fig. 1).

All enumerated causes could be considered; however, some of them are less acceptable, because the participants could not respond to some question that the field researcher asked about their statements. Moreover, as was delivered, some participants argued the others' opinion. Some opinions opened the new questions that did not respond as well. For instance:

- **The owners do not believe in financial competency.**

  – The invited owners for this study had an opposite opinion. In their mind, the HR staffs—as the main accountable for competency modeling—should cue alarm the necessity of a competency.
  – Even though the owners or top managers do not talk about the financial competency, why the HR staffs do not highlight it?
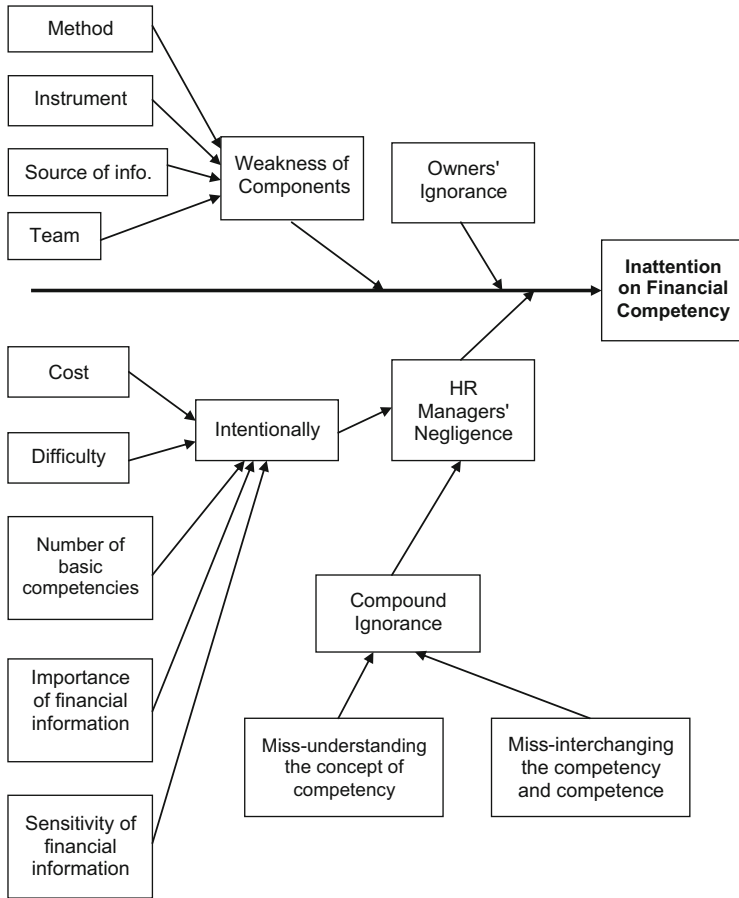
Fig. 1 Causes of inattention on financial competency mentioned by participants

– Although, regarding the type and the scope of this study, the researcher cannot generalize his argument to all Iranian managers, this limited study can hint the professionals not to persist on top managers' incuriosity about the financial competency.

- **The best practices have not mentioned the financial competency.**

  – This reason is not an appropriate reason for all unawareness. Some of the participants were known as a leading competency modeling consultant in Iranian top ten organizations. Hence, why do these professionals have not advised the financial competency for top ones?

  – In addition to screening the best practices, other sources should be studied. Why do the HR professionals assert on paradigmatic competencies instead of innovative or future competencies?

- How do they prove that this competency has not been ignored, unintentionally?

- **Because of the number of necessary competencies, it has been ignored.**

  - The number of competencies has never alerted as a fundamental prerequisite of competency modeling. It has been hinted as a practical criterion to simplify and accelerate the process.
  - Even though they consider the number of competencies as a limitation, how could they demonstrate that the financial competency is not as important as the others?

- **This competency has been identified but in other names.**

  - The participants, who stated the above sentence, did not deliver an acceptable evidence of deploying the financial competency. For instance, they were asked to explain their assessment methods. Their responses showed that they had misunderstood the concept of financial competency with other similar terms.
  - They had mis-interchanged competence and competency. This phenomenon was observed during the literature review and getting advice in the stage of research planning, too. In other words, mis-interchanging the basic terms might cause ignoring a competency.

- **Past-oriented components cause this ignorance.**

  - This reason is not rational, too. As delivered in the literature review, the closed terms to the financial competency were emerged around the end of the last century. At that edge, it might be accepted that the available components are not able to cognize the emerging terms, but after a decade, it is not supposed as a new or future term.
  - Even though the HR managers assert on the essence of using components, the next question will be raised is that why they do not introduce or improve or employ a relevant future-oriented component.
  - Based on current components, the future-based competencies will never be discovered. Thus, how can they assure modeling the future-based competencies?

Reviewing the above arguments highlights the HR professionals as the main cause of inattention:

(a) Misunderstanding the concept of competency may cause the HR staffs to mis-interchange competence and competencies. Thereupon, they may ignore the financial competency, because regarding to their point of view, it is not required for all managerial levels, position, and activities.

(b) The HR staffs are the main competency modeling members that decide about the approaches, methods, instruments, and the source of information. Thereupon, if the components have problems, they have to diagnose and solve the

problems. In other words, the problems of the modeling components refer back to them.

(c) As a consultant in the field of human resource and competency modeling, they have to play a trailer role. Consequently, even though the owners could not foresight the future, they would cue the competency models toward the organizations' ongoing needs.

(d) Offering the new source for understanding the prospective managers is the HR professionals' responsibilities. Hence, they have to be much aware of the future. In this way, they should revise their own competency models to ensure that the new generic competencies have been considered for themselves. As one of the first steps, they should be aware about the other relevant disciplines' contributions.

5   Conclusions

In this paper, we reported our learning about the causes of inattention on financial competency. Though the participants enumerated several causes, they were not at the same extent of importance. All in all, the main causes of this ignorance were referred to the competency identification components, which are the approach, methods, instruments, source of information, and team members. The other causes like the owners' unawareness did not seem as reliable as the components. Moreover, some HR professional argued it as a main cause. Figures 1 and 2 illustrate the causes of inattention.

As Fig. 2 shows, in comparison with the mentioned inattention causes, the HR staffs were diagnosed as the most effective factor of inattention, because they per se decide about the other components. Therefore, if they do not consider the future in order to pick the components out, the future competencies will not be identified. In other words, through the current paradigmatic components of competency modeling, the future competencies will be ignored, predictably.

As some participants acknowledged, in order to get an appropriate output, the HR experts should have a look toward the new paradigms of business. To do that, other disciplines' improvements and relevant comments could be concerned. The HR experts should also develop their own competency models. In other words, through reinforcing the source of information and competency modeling members, the new and future competencies would be identified more probably.

6   Future Works

As stated, the field research of this study was done among Iranian atmosphere. The comparative studies between similar and different atmospheres could help the professionals to better understand and consequently create more reliable identification, assessment tools, and development plans.
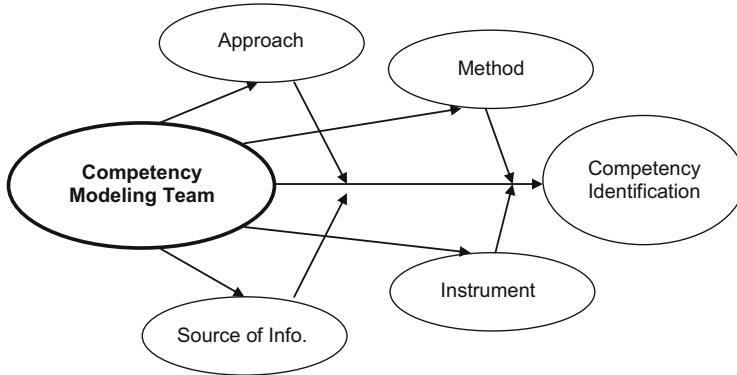
Fig. 2 The place of competency modeling team in other components

Also, a comprehensive library research is strongly recommended. The aim of this study could be to map the status quo of financial competency in available competency models, whether generic, customized, or well-known branded company competency models. The collocations and terms, which the participants employed, would contribute the prospective studies to systematically scrutinize the current competency models and quantitatively analyze the contents.

Finally, however, we tried to consider the effective issues on the quality of current research; this research is classified as a qualitative research. One of the main controversial issues in qualitative studies refers to its generalizability. A quantitative research can improve the findings of this study in terms of mentioned issue. Clearly, the future researchers can collect a more respondents' opinion about the concept of financial competency. The respondent should be selected from a diverse range of business type, managerial position, nationality, firm size, and so on. Another similar research should focus on the causes of inattention.

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The Marketing Problems of Turkish Movies in Global Markets

Askim Nurdan Tumbek Tekeoglu

Abstract In 2014 the Turkish cinema celebrated its 100th anniversary, but it is faced with marketing problems in global markets, although the Turkish theatrical market registered an impressive growth during the past 11 years. Turkish theatrical market is the second largest European growth market and the seventh largest European theatrical market. There are 63 coproductions between 2004 and 2013, and an increasing number of Turkish films and a lot of Turkish films have been selected for international film festivals and received a large numbers of awards. In spite of that fact, the filmmakers and directors cannot sell their films to international film markets. In this paper, the current marketing problems of Turkish movies and possible solutions will be discussed.

Keywords Turkish film industry • Marketing problems

1 Introduction

Movies reflect changes of economic, social, political, and cultural life in a society. The development of the Turkish film industry between 1914 and 2014 shows all these economic, social, political, and cultural changes in its structure. While only few films were produced due to the strict state control during the Second World War until the 1950s, the local cinema industry boomed as "Yeşilçam" after the 1950s and numerous films were produced until 1975. After the 1970s the political and economic climate of Turkey weakened the film industry and the crisis deepened in 1990. After the 2000s the Turkish film industry started to grow with the television channels, the state supports the cinema, digital, and technological investments, and important success stories of important directors emerge as Nuri Bilge Ceylan, Yeşim Ustaoğlu, Derviş Zaim, Özcan Alper, and Semih Kaplanoğlu at international film festivals and global film markets.

The Turkish film industry is not represented successfully at international markets. Turkish films generate only 7 % of their admissions in other European

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markets. The reason is the image of Turkey in other parts of the world and marketing problems of Turkish movies in the global markets (Kanzler 2014). Film marketing has become a profession and innovative marketing tools are used for many films produced at Hollywood and in EU countries. Movie marketing is moving into the digital age and new techniques are developed by studios as Universal, Disney, and Fox to invest in digital channels (Joseph 2014).

Before the film "Ra.One" was released, 3.4 million USD was spent to its online marketing activities. The total marketing and promotion budget of the film was 410 million USD. Hollywood films spend millions of dollars for marketing of the films to international markets (Shafiulla and Babu 2014).

In Turkey only producers with limited budget spend for marketing, neither distributors nor cinema owners. The only film-funding authority is the state, and therefore producers can finish their films under very poor financial conditions and not much is left for marketing budgets to introduce the films to international markets. There are some emerging private film funds like Yeni Film Fonu, but it is very new and not widespread. It is very important to define a target, target audience and finally a strategy during the preproduction phase, and all the finance mix should be made accordingly. The aim of the paper is to draw attention to the marketing problems of Turkish movies in the global markets and discuss possible solutions accordingly.

2 Turkish Film Industry

The cinematograph was introduced to the Ottoman in 1896. There was limited national film production between 1914 and 1950. There were a few cinemas in big cities and they were screening mostly imported films. Muhsin Ertuğrul is the most famous director during the period and produced his films with two producers: Kemal Film and later İpek Film. The Turkish state controlled the film production due to the Second World War and not much was created in between.

In the beginning of the 1950s, the Turkish state started to support the Turkish cinema by decreasing the taxes, and the cinema became the key entertainment for the middle-class families. Many cinemas were opened and production companies were established to produce films between 1950 and 1975. As the demand has increased, films with low budgets were produced. Technical conditions were poor and most of the films were produced with no voice and dubbed later. The cinema owners supported the producers to produce the films as quickly as possible, because there was a pressure from the audience for the new films. Some sources state that 247 million tickets were sold in 1970 (Behlil 2010).

During the late 1970s, the Turkish cinema is faced with a crisis and it continued till the 1990s. The main reason was both the economic and political crisis. TV penetration increased dramatically during the 1970s. Sex comedies, arabesque films, and violence films started a new trend for the immigrant, macho men that

came to big cities from Anatolian villages, but the crisis of the Turkish cinema continued till the start of the new century.

With the new Cinema, Video, and Musical Properties Law in 1986, for the first time in history, direct film support was started, and a special Cinema and Copyright Directorate was formed within the Ministry of Culture and Tourism. Municipality tax was abolished for domestic films and set at imported films. Turkey becomes a member of Euorimages. The Turkish cinema started to experience its golden period in the beginning of the 2000s. The increase of TV channels helped to broadcasting of old Yeşilçam films and the new generation liked them. It created a demand for local TV series. New production companies were established and they produced TV series and commercials. With the capital they received from the business, they invested on the production of features, and many successful films were produced after the 2000s till today.

Directors like Nuri Bilge Ceylan, Yeşim Ustaoğlu, Semih Kaplanoğlu, Özcan Alper, and Derviş Zaim received many awards at international film festivals. The Turkish cinema became well accepted in international markets. However, the success stories are limited due to the marketing weaknesses of the producers in international markets. The increasing consumption culture created many shopping malls in the big cities and new cinema chains opened multiplexes (Sevinç 2014). According to the research, many Anatolian cities do not have more than two or three cinemas, so the government should also support small and medium cinema chains to invest more for new cinemas in the cities. American people go four times a year, French three times, and Turkish people go only once to the cinema throughout the year. The ticket prices are high and this problem can only be solved by the state, and the cultural resistance to go to the cinema can only be overcome by special educational attempts in schools and communities. Advertorials and TV campaigns can be very useful to change public opinion about the cinema. According to the research results, many economic, financial, educational, social, cultural, and law regulations have to be made to position the Turkish cinema in international markets. According to a research, art films with national or international awards should be supported by the government, as their screening is limited. Commercial films with popular themes occupy all the big cinema chains in Turkey (Tanriover 2011).

Related with that fact, the cinema admissions increased to 50.4 million in 2013 from 11.4 in 1990 (Kanzler 2014).

3   Marketing Problems of Turkish Movies

If a film is selected to an important international film festival, then the film receives a good coverage at the international media and is distributed internationally. The expectation of the international film festivals, distributors, and TV channels for a political Turkish movie is high, and political films have more chances than others. Oriental expectation of the juries at the international juries is another positive factor

influencing the decisions to choose the Turkish films to a festival program (Zaim 2008).

Politics in funds like Euroimages play an important role for Turkish films to be able to get selected by the jury and lobbying for Turkish films is missing. Applying to international funds is necessary, but there is no chance to be selected if the necessary lobbying with the jury is missing by the producer. If the producer is not a social person and is not capable of any foreign language, then it is very difficult to network or lobby for the film to be able to find a coproducer or to know somebody that is a decision-maker for the selection process of the films to the official festival program or funds (Tekeoğlu 2014).

According to Koca (2014), there is a serious script problem in Turkey. Producers start with a project with a good potential and a good idea, but later this potential is lost. The film could be multidimensional, but suddenly the script develops in one direction and loses its multidimensional effect. Festivals as Cannes and Berlin select more films with French or German coproducers. The Panorama section of Berlin Film Festival selects films with strong producers and good casting. These German and French film festivals promote more their national films.

The decisions of the jury members at international festivals are subjective, and it is impossible to look for objective criteria for the selection of the films to a festivals. For example, "Uzak," the film of Nuri Bilge Ceylan, was not selected to Venice Film Festival, but selected to Cannes and was awarded later. The American film capital has also a pressure on these festivals as they invest a lot to these festivals, and American films are selected to the festivals (Zaim 2008).

Producers do not define their targets and a strategy for financial positioning for their films during the preproduction phase. According to SEYAP (2014), most of the producers do not develop a festival strategy. Turkish producers do not go to festivals to develop relations with distributors, media, and other channels. Also a distribution strategy is not developed by Turkish film producers.

In 2008 the 45th Antalya Film Festival was organized and the 4th International Eurasian Film Festival started international film market during the festival. Bavaria Film International, HBO Central Europe, Joint Entertainment, Kinowelt International, Maximum Films, Studio Canal, and many other international companies were present at the film market. There were 300 executives from 55 countries. After Antalya Film Festival, there was Eurasian Film Production Platform, and producers from Turkey, China, Taiwan, and New Zealand joined to make meetings for low-budget films and also there were mutual agreements to produce high-budget films (Ormanlı 2013). National film festivals should develop industrial platforms to introduce the Turkish films to international markets (SEYAP 2014).

The observatory identifies 63 international coproductions, and it is 12 % of the total Turkish production volume in this period. Turkish films with international coproducers have more chance to reach the international markets, but the number of coproductions is low.

The Turkish cinema reflects political and cultural changes. Most of the films concentrate on gender, male-dominated society, and cultural memory. In last 10 years' time, the directors concentrated more on the fight between modernity

and tradition, social habits, sexual identity, and male-dominated ideology. Thus, the Turkish cinema tells more about the cultural changes, oppositions, and hybrid expressions of the Turkish culture history. The Turkish cinema is not attracting international audience because of the abovementioned local problems and subjects (Berlinski 2009).

4 Film Marketing Strategies

Two-thirds of the box office figures of Hollywood blockbuster films come from the international markets. Some animations are made local with dubbing and local jokes. Hollywood studios produce many new projects in international arena to reach as many people as possible. Thus language and culture differences are eliminated. Apart from this it is not important who the stars are; it is more important from where they are. In this respect, the films as "Ice Age" and "Rio" have been successful by not depending on a certain culture.

Especially Rio and Ice Age were made very local by dubbing. Hollywood is very aware that adventure and superhero films are acceptable by international audience. For example, Pixar's animation film "Cars 2" has been translated to 44 languages (Daily Mail 2011). There has always been translation problem of the main character nearly in every country. As there is not a common vocal culture, it has been very difficult to understand a very special character in an American animation film. There are a lot of efforts to solve this problem. Therefore subtitles always seem to be the best solution for better understanding of the different characters in the films. One of the marketing elements of the films is good translation at the global film competition. Films like "Mission: Impossible," "Tintin," and "Transformers" had great success stories in international markets. "Tintin" was screened in Europe 2 months before in the USA and had an income of 300 million USD (Wikipedia). "Mission Impossible" was shot in countries like Russia, India, and United Arab Emirates and the film premiere was organized in Dubai. The subjects from the American literature do not attract international audience, but Hollywood films that do not reflect too much American values have technical quality and commercial success.

The institutionalization has been accomplished at the American film schools, cinema associations, sectored institutions, or casting agencies. The commercial films of Hollywood touch American values not much, and they bring together many intelligent filmmakers with their styles and technical superiorities from all over the world in the USA (Goldstein 2012).

Hollywood concentrates on international audience. In this respect young people in Russia, China, and Brazil show more interest to Hollywood films. Warner Bros received 2.9 billion USD incomes from the films like "Harry Potter," "Sherlock Holmes," and "Inception" in 2010. The DVD sales in the USA decreased and now there is more dependence on the international markets. Films, which make less profit than planned, get more income in markets as Russia and South Korea.

Especially Russia is the target market of Hollywood. In 2010 imported films made five times more business than local films. The income in China reached 1.5 billion USD, but China allows screening of 20 foreign films a year and only 15 % of the income is given to the American distribution companies, whereas in the USA the distribution companies get 50–55 % of the income. The big Hollywood studios are very good at getting the most of the profit from the film projects. They have very strong marketing strategies and adaptation capabilities to different film tastes of international audience and the capability of being accepted to international markets. Most of the American and Canadian films cover their costs in their home countries, but they sell their films to foreign markets much cheaper, and it is a strategy to weaken the international competition. A film produced in Argentina to screen in its home country costs more than an American film. Thus the European directors are also attracted to shoot in the USA. Especially after the Second World War, the international markets gained more importance for Hollywood.

Turkey has more interest in local films than Hollywood films opposite to many countries as Russia, India, or China. The Turkish cinema is strong in its home country, but not strong in Middle Eastern countries as Egyptian cinema in the region, because the Turkish language is not as well spread as Arabic language.

In a modern-day marketing promotion, marketers of goods and services are using an integrated marketing communication approach to promote their offers effectively and efficiently to target and position their product in the minds of the customers. Integrated Marketing Communication includes other promotion mix like direct marketing, sponsorships, online promotion through social network, and product placement."Ra.One," which is the name of an Indian film with 410 million marketing USD budget, used innovative integrated marketing strategies to reach the target groups (Shafiulla and Babu 2014).

The producers should define their target. They should not categorize their films as festival film. Each film should have a finance plan, a target according to the finance plan, and goals related with the target. And after defining the target, the strategy should be fixed in the right direction. To take an Oscar award is not the right target. While doing the festival strategy, festivals with film markets should be targeted to meet producers, distributors, media, and other related representatives. While making the film, the targets should be clear and later a road map should be developed. It is not the task of the producer to decide for which festival the film is suitable after studying the script; it is the duty of the producer to think how to finance, how to position the film, and in which category to go (SEYAP 2014).

Lobbying at international festivals is important. You have to concentrate how to use your films at the festivals, where there is international media, how to start up important relations, and how to manage the marketing activities of your film. Most of the relations are shaped at international festivals. "What is our target audience going to be?" American cinema evaluates films as products and marketing activities are carried out through this perspective. They have been successful all over the world owing this fact. Turkish films should also be considered as products and be marketed professionally: a marketing budget should firstly be reserved before moving on to the production period. Word of mouth and PR are important. There

is a prejudice against Turkish films. A very few films are sold to international markets. Mostly political films are sold, and therefore films explaining more about the individual as Nuri Bilge Ceylan makes can have chances at international markets. His films are original and attract the attention of the West.

International scripts should be developed. Turkish scriptwriters should cooperate with script doctors for a better script. In the last 20–30 years, many political, cultural, and technological developments affected many art streams deeply. Globalization is another factor that came out after all these developments. The cinema that is affecting billions of people and creates astronomical income is in the interest area of globalization. Hollywood and other developed countries take cinema as a propaganda and commercial value. More than 100 years, they affected billions of people, and their success does not only come from their economic and technological superiorities but also from very effective and widespread PR and marketing works. Hollywood invites successful filmmakers from all around the world to Hollywood to make films together.

The Turkish cinema had many successful stories both in commercial and art side in Turkey and abroad. After the crisis in the 1980s and in 1990s, the Turkish cinema came to a discussible position, and many academic works have been done in the area. The Turkish cinema became more and more known, and many awards came and some process was made in the global markets, but the Turkish cinema cannot be shown as one of the most important cinemas because of technical, economic, cultural, and sociological reasons. Missing industrialization of the Turkish cinema, films that are covering more local problems of the country such as limited number of theaters, weak communication and marketing activities, and undeveloped cinema habit of the Turkish audience positioned the Turkish cinema as regional and national and not global (Ormanlı 2013).

5   Conclusion

The cinema is an important tool to reflect economic, political, and cultural changes in a society. Looking at the Turkish cinema, it is seen how the changes in the society were expressed in films during the last 100 years. The Turkish cinema celebrates its 100th anniversary, and there are positive developments in terms of admissions both in Turkey and in international markets especially between 2004 and 2013. But there is still a way to go, because Turkish films only generate 7 % of their total admissions in other European markets.

There are two ways of introducing the Turkish films in international markets: selection of the films to the programmers of festivals and/or producing films with international coproducers. Marketing is the most important tool to be able to get selected to festivals or to find coproducers for Turkish film projects. There are other problems as image of the country, prejudice of European jury members against Turkish film, or problems of Turkish script writers to create authentic scripts. State support is still weak, though Turkish stands try to market the Turkish films in Berlin

and Cannes film markets in the recent years. National film festivals also have to enrich their content with international film market or film forums as Istanbul Film Festival and Golden Orange Film Festival in 2014.

The most important reason for more existence in international markets is the missing marketing capability of Turkish producers in international film markets. The best way to market the Turkish films in global film markets is to use 6P approach of Kotler who added two other Ps (public opinion and political power) to 4Ps which are product, price, place, and promotion in 1986, which might include all the missing points that Turkish films need to market themselves in international markets. First of all a good film with an international script having its well-defined target group should be produced. A detailed budget and finance plans have to be made carefully to distribute the film to international markets with logical profit margins and to estimate the commercial outcome accordingly. The screening platforms are wide after the Internet access and its spreading all over the world. The decisions for where to distribute and with which platforms if theater release or only the Internet or any other platform, each market and platform has to be studied carefully, and decisions should be given accordingly. Promotion is the most important factor, where Hollywood, French, and some other European cinemas are very powerful. A strategic marketing plan should be made and realized. Lobbying for the Turkish cinema outside and changing public opinion accordingly are other tasks to be made by the governmental authorities and nongovernmental organizations related with the cinema of Turkey. Powerful filmmakers also should work in international cinema NGOs like EWA or EFA and other organizations to find international coproducers for Turkish filmmakers and develop international films as Mustang, Winter Sleep, and Lamb.

Professional producers as Zeynep Özbatur Atakan, Yeşim Ustaoğlu, Semih Kaplanoğlu, and Derviş Zaim are using 6P approach more or less, but most of the producers are quite far away from applying the rules of modern marketing discipline. More understanding for professional and modern marketing of Turkish films in international markets should be developed. The state cinema department should support the Turkish films with the laws, and financially and other cinema funds should be established to support the Turkish cinema outside. Lobbying of Turkey in terms of Turkish films is also important, and celebration activities for the 100th anniversary of the Turkish cinema in international markets is a good example, but should be continued afterwards.

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Doubts and Risks in the Buying and Purchasing Processes of Business Buyers

Pia Hautamäki and Ari Alamäki

Abstract This paper aims to reveal the nature of doubts and risks that may cause business buyers to resist making a purchasing decision or proceeding in the business-to-business (B2B) buying process. Much sales literature has focused on B2B value creation and the sales process, but less studied is the buyers' buying process and business buyers' feelings concerning the doubts and risks associated with buying. This paper makes an empirical contribution to this debate using 21 in-depth interviews with business buyers, analysed using qualitative methods. The study reveals that the doubts and risks experienced are essential elements of the business buyers' buying process, as the buyers appreciate salespeople who clearly recognize, raise and minimize the doubts and risks that buyers encounter during the process.

Keywords B2B sales • Business buyer • Buying and purchasing process • Customer interaction • Sales process • Types of risks and doubts

1 Introduction

In business-to-business (B2B) sales research, although value creation is well covered, there are few studies examining the subject from the interactional point of view. Researchers have called for value-creation studies of ongoing processes between buyers and sellers, as less is known about the buyers' concepts and experiences of the buying processes (Lindgreen and Wynsta 2005; Salomonson et al. 2012). The sales literature is focused on salespeople and sales organizations, and there is little research related to the doubts and risks that B2B buyers experience during their buying process and a dearth of studies about the expectations of business buyers before or during buyer-seller interactions. Some writers

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(e.g. Hautamäki 2015; Salomonson et al. 2012) have reviewed these topics and emphasized them as essential to the buyers' buying process and behaviour. The more commonly studied sales process differs significantly from the buying process, despite them being different sides of the same coin.

We argue that the supposed doubts and risks and their resolution are core elements in interactional and collaborative value co-creation encounters. Additionally, the complexity of today's business environments means sales has become a relational process in which the attending person defines and supports customers' needs identification. This is why salespeople need to adapt to their customers, possess the skills required to identify customers' needs and be able to carry out unplanned adjustments during sales interactions. Companies seek a competitive advantage by building long-term relationships, and often the only link to the buyer is the salesperson (Blocker et al. 2012; Dixon and Tanner 2012; Haas et al. 2012; Homburg et al. 2009; Jones et al. 2005; Spiro and Weitz 1990; Rodriguez et al. 2014; Tuli et al. 2007; Weitz et al. 1986). In these circumstances, the experienced doubts and risks might halt the progress of the buying process, despite the evident personal and business benefits for the buyers.

In B2B sales research, few studies take the buyers' perspective. Additionally, the value-creation literature often concentrates on the sales organizations and relies on conceptual studies. Because the value-creation literature has not been able to define the value in practice, few studies define the role of value in interactions between buyer and seller. In this study, value creation is seen as an interactive and relational process between buyer and seller. This interactive process that focuses on doubts and risks is also seen to bring value to both participants in the interaction (Galvagno and Dalli 2014; Grönroos 2008; Hohenschwert 2012; Salomonson et al. 2012).

The business buyers in this study are defined as customers who meet salespeople in B2B buyer-seller encounters and who have direct or indirect roles in their organizations' purchasing processes. The study focuses on sales encounters where the business buyers have physically met salespeople and have experience of the competencies, capabilities and behaviours of several salespeople. The doubts and risks here involve the cognitive, emotional, latent or emerging experiences of the business buyers as humans as they engage in buyer-seller encounters (see, e.g. Blocker et al. 2012; Pink 2012; Tracy 2006), although they also have a professional role and position in meetings. The main research aim is to resolve how business buyers view the doubts and risks in buyer-seller encounters and how salespeople should communicate the potential doubts and risks.

2 Related Research

The target of salespeople in sales meetings is to build a common understanding of the business benefits and value with the buyers; in other words, salespeople must be able to generate something new and valuable together with the buying organization. In the sales literature (e.g. Doney and Cannon 1997; Hautamäki 2015; Rapp

et al. 2014; Tuli et al. 2007; Walter et al. 2001), trust and relationships are described as important concepts with a significant role in sales success. Such trust and relationships ensure that both parties seem to have common interests in proceeding in the sales case, but not necessarily in closing the final deal. The B2B sale is often a process that requires several encounters or meetings. From the first contact between salespeople and buyers, the sales process continues to new meetings or, for example, arranging a presentation for board members. Additionally, the buyer organization may be interested in further negotiations to determine and concretize benefits and implement the requirements of the solution or service. The salespeople and buyers work together to develop ways in which the sales discourse progresses from value proposal and agreement to implementation and usage phases (Haas et al. 2012). Hence, the salespeople are not necessarily trying to influence the buyers directly (Rapp et al. 2014). Instead, they help the buyers to coinvent the best possible ways to proceed in the sales case. Therefore, the sales process should be seen as a collaborative value co-creation process that not only involve the creation of new knowledge and practices but also the process of minimizing uncertainty and implementation risks.

Studies reveal that reaching a mutual understanding and agreement may in turn be vital to customers' value creation (Salomonson et al. 2012). This means that salespeople need to possess, among other skills, quality interpersonal skills that enable them to address the business buyers' doubts and risks. If the salespeople are unable to build a common understanding, it may halt the buying process. Concerning the buyer-seller interactions and buyers' expectations, buyers appreciate confidence and a perceived similarity in behaviours with the salesperson. It is reasonable to think that salespeople need to believe they are good sellers and possess the abilities required to be successful in interactions with buyers, such as Bandura's (1982) definition of a confident person in his agency model. It is noted that a person with high self-efficacy will set more ambitious goals and plan his or her actions accordingly, which will likely help the salesperson achieve success. This may mean that salespeople with high self-efficacy are willing to ask questions, providing he or she clearly understands the buyers' situation, problem or doubt. Research also shows that people with high self-efficacy are better at adapting their behaviour to new situations to reach set goals, and adaptive selling behaviour can be a predictor of better sales performance (McMurrian et al. 2002; Spiro and Weitz 1990; Weitz et al. 1986).

Research shows that adaptability in selling is linked to high levels of self-efficacy. Salespeople with high self-efficacy levels take different approaches in sales meetings, and second, they have the ability to change their approach during the interaction with the buyer if needed. Selling has changed due to the increasing complexity of business environments, which means flexibility and the readiness to change planned behaviour is essential in B2B interactions and may help to address buyers' doubts and risks. Salespeople with high self-efficacy engage more often with task-related activities and do not give up easily. Bandura (1982, 1986) sees this relationship between self-efficacy and a greater coping effort as an adaptation towards buyers' needs. It may also be seen that perceived self-efficacy is a belief

in aiming for a set goal. Today's complex business environments put a salesperson in a situation where he or she must complete sales successfully without complete knowledge of the business situation. Salespeople require the ability to work in different situations and behave in a confident manner and must be able to change their sales approaches and alter their planned actions during buyer-seller interactions. They also need to be flexible to adapt their behaviour and feel confident while making adjustments (Blocker et al. 2012; Rapp et al. 2014; Weitz et al. 1986).

Traditionally, sales literature has emphasized the importance of surveying the buyers' needs and wants and of presenting and clarifying the business benefits the buyers receive when buying the products or services being sold. In fact, those issues are essential in a successful sales process and are the core elements in value creation between business buyers and salespeople, but they should occur through an interaction where both parties develop a common understanding and relationship (Alamäki and Kaski 2015; Walter et al. 2001). It is important to note that the benefits salespeople present to the buyers in sales meetings are still value proposals, not the final business benefits. Therefore, the presented value proposals—although both parties have a common understanding of them—involve a stage of uncertainty before they can be adopted and implemented. There are always personal or organization-related doubts and risks that delay the closing of sales deals, despite the clear benefits of the product or service that the sellers are offering to the buyers (Cheverton and van der Velde 2010). The proposed value is clear to the buyers through the using, consumption or implementation processes, and often before this, but the business buyer needs to commit his or her organization to the new issues, or within the internal sales process must gain general acceptance from all those with direct or indirect power in the purchasing decision. Therefore, the buying process also affects business buyers on a personal level (Blocker et al. 2012; Cheverton and van der Velde 2010; Pink 2012; Tracy 2006) and can influence their career and position within their organization. The saying "sales is human" is true, even in terms of technological issues, as people are evaluated either informally or formally based on their decisions and the results achieved in their working environments.

3   Research Approach and Method

This paper aims to reveal empirically the nature of the risks and doubts in buyer-seller encounters, which involves researching how business buyers think in these encounters. The research goal is to analyse transcribed interviews with business buyers to determine how they define these risks and doubts.

The study presented in this paper makes an empirical contribution to sales and marketing research using 21 interviews with business buyers who are executives, managers or experts responsible for purchasing products and services in their unit or organization. They represent several segments, such as logistics, construction, education and services. On average, the face-to-face interviews took between an hour and 90 min. The transcribed material was analysed using a qualitative content

analysis method by coding the interview material twice. In the first coding round, the transcribed material was coded to 16 subject classes or topics, and the 2 most relevant subject classes were selected for deeper analyses. In the second coding round, those two subject classes were recorded to provide more detail in several new doubt- and risk-related subject classes. The transcribed interviews were analysed independently by two researchers.

4 Findings

4.1 The Buyers Think Salespeople Intentionally or Unintentionally Underestimate Doubts and Risks in the Buying Process

This study shows that the identifying, minimizing or removing of risks is not a self-evident procedure adopted by all salespeople in buyer-seller encounters. The business buyers believe that some of salespeople underestimate the risks to ensure closing the sales deal and that salespeople intentionally focus on benefits and closing the sales deal by ignoring the buyers' feelings or potential questions concerning the risks. The following quote demonstrates how the business buyers think salespeople intentionally disregard discourse concerning possible doubts or risks:

> I suppose that salespeople understate or underestimate risks to some extent. Their goal is to sell products, and the customers do not like to buy them if they notice that they include risks.

The business buyers expect the salespeople to be able to recognize the potential risks and to observe the behaviour of the business buyers or their business processes or usage environment to identify weak points that may cause potential risks. This competence requirement relates to domain expertise, which helps salespeople understand the buyers' business processes and special requirements of the buyers' organization. For example, one buyer stated:

> . . .salespeople should know the operations, practices and background of customers, to some extent, [so] that they are able to observe just these types of problems and risks. . . . . .and salespeople are too careful to bring out risks as it might impact on the sales results.

The buyers also expect the salesperson to be ethical, as they do not like sales processes where the salespeople try to sell products that customers clearly do not need or cannot utilize in their organization. For example, one buyer brought up sales ethics by stating:

> The risk is an issue that I would like to emphasize more. I hope that salespeople also have [a] big belief in products that they [sell]. . . So it is, the sales ethics is such [a] thing, that salespeople should sell to those customers who really have a need for that product. And I

hope that they would sell the product to those customers who can utilize it, as otherwise it does not generate development to any system.

The findings show that the buyers evidently would like to build better relationships with those salespeople who understand that the implementation and use of new products and services includes uncertainty. In other words, the implementation and use of new products and services involves potential risks that might prevent the realization of benefits within the planned schedule and budget. Therefore, the buying process includes risks for the buyers' business processes and systems, but also personally for the buyers' career and position in the organization.

4.2 Experienced Salespeople Recognize and Manage Buying Risks

The interviews show that the buyers believe experienced salespeople can better recognize and manage risks. According to the business buyers, experienced salespeople have the ability to foresee how things might develop in the buyers' organization and to identify the factors that might affect the implementation and practical processes while new products and services are rolled out. They are also capable of "reading the thoughts" of the business buyers, as they have learned through practical experience how the buyers construct the potential business benefits in their mind in relation to the current state of their organization and business ecosystem. As an example, one buyer noted a clear difference between experienced and inexperienced salespeople in terms of their ability to recognize risks, an observation also provided by many other interviewees:

> I think that especially the experienced salespeople, who have worked [for a] long time on that product and have seen a lot, can recognize the risks.

The buyers also think that the ability to recognize risks is a feature of professional salespeople. As stated earlier, the buyers suppose that some of salespeople intentionally disregard the discussing of doubts and risks. However, the buyers also believe that not all salespeople actually have the ability and skills to deal with doubts and risks and instead think they sell features and benefits without knowing how those benefits are realized in the buyers' organization or what human, financial and error-sensitive technical issues affect the implementation and consumption of new products and services. For example, one buyer put it this way:

> Some [recognize risks] better [than] others. I would say that the best salespeople can pretty well pay attention to this and go through all things and worries very precisely. They can also pay attention to the stumbling blocks and the feelings of people, if we will begin to cooperate. The others are such that they cannot pay attention to these issues at all. . .

The findings indicate that the business buyers have experience of two types of salespeople. The first group can recognize and manage the doubts and risks buyers encounter during the buyer-seller interactions; they do not underestimate or ignore

them, but rather make them topics of sales discourse. The second group of sales-people does not deal with the buyers' emotions or visible or invisible risks, but instead focus purely on formal sales topics such as the business needs, benefits, pricing or other positive issues.

4.3   The Buyers Say Questioning Is the Mean of Managing Doubts and Risks During the Buying Process

The buyers expect that those salespeople who can listen to customers and ask the right questions will have a better understanding of the critical issues from the viewpoint of customers. They should also have the right attitude and should be active in the sales interaction, as one role of salespeople in this interaction is to manage discussion and pay attention to customers' questions. They should also have the ability to "read between the lines", in other words to recognize customers' doubts, risks and worries—their signs of weakness. Often, the buyers cannot clearly express their doubts and worries, but they express them indirectly. Therefore, questions are important tools to help the buyers conceptualize and define the doubts and risks.

Making doubts and risks visible is a precondition for minimizing and removing them, as the salespeople can only focus on the doubts and risks that the buyers can consciously describe. In the interviews, the buyers emphasized the role of questions in good sales encounters where both benefits and risks are discussed openly:

> In general, the salespeople who can ask [the] right questions can understand customers better and they find out what kinds of issues are problems and cause uncertainty for the sales process. The asking of questions is the only way to find out those things.

The buyers also believe that the right questions are a means of opening discourse on doubts and risks and their management is evidently an essential factor in sales success. Furthermore, the study indicates that the buyers think the salespeople differ from each other in terms of their ability to ask practical questions and focus clearly on the challenges in the buyer's organization. For example, one buyer stated:

> It depends on the interest [of salespeople], that he really asks questions and deeply understands the issues [and] what he is selling, especially on the practical level. That way, they quickly get in touch [with the] challenges. This also differentiates the salespeople from each other, and if he has practical experience and he really knows what he is talking about, this comes out quickly.

The findings demonstrate that the business buyers expect professional salespeo-ple to have the ability to ask the right questions concerning doubts and risks. This encapsulates the ability to learn through asking questions about the challenges that buyers encounter in their business processes and the means of formulating practical value proposals in the value co-creation encounters. The understanding of buyers' business challenges is needed in formulating questions to uncover both emotional

and rational feelings about risks. Hence, the professional salesperson concerns himself or herself with business benefits and the doubts and risks that might end or slow down the buying process, and he or she tries to minimize and remove those obstacles from the sales process while working with the buyers.

5   Discussion

Doubts and risks are an essential influence on the behaviour of business buyers, who appreciate the salesperson focusing on those issues in the buyer-seller encounter. The discourse concerning doubts and risks evidently has a positive effect on the business buyers, and it builds trust between the business buyers and the salesperson. Therefore, given that it promotes trust, it should be seen as an essential element of relationship building. The doubts and risks are emotional reactions to the situation where the buyers feel consciously or unconsciously unsure. For example, they cannot recognize or identify all of the issues that influence the successful implementation or using processes of new products and services, or they are not satisfied with the expertise or behaviour of the salesperson. Hence, doubts are the buyers' personal feelings related to the salesperson, sales firm or service provider, rather than rational issues connected to the quality, value proposal or implementation capability of the service providers.

Buyers for businesses and public organizations purchase products and services to solve business problems and meet needs ranging from minor product improvements to large outsourcing services. The business problems and needs are usually solved by replacing, renewing or implementing new products and services, and this involves taking potential risks to achieve calculated business benefits within a scheduled budget and timescale. When the problem or need is satisfied, the organization gains benefits, which are typically monetary values such as savings, increased revenue or more profitable business operations. This operational improvement or strategic advantage is only realized if the salespeople and the buyer's organization are able to fulfil the promise of value, in other words if there are no obstacles, mistakes, errors or unexpected human factors that affect the realization of value. Therefore, the B2B selling and buying is not purely the selling of benefits and value, but also involves minimizing the identified and unidentified doubts, risks and worries. The buyers are buying safety rather than risks.

The study shows that doubts and risks are an integral part of the business buyers' buying process. The buyers feel and recognize them in several phases of the sales process, but they especially try to identify them during the buying process. The doubts and risks are related to the salespeople themselves, the sales organization and the implementation capability of the buying organization. They can also be related to the buyer's organization and its people, processes and culture.

In addition, this study shows that business buyers think some salespeople notice risks but ignore them in trying to close the sales deal. Those salespeople overlook or underestimate the buyers' doubts despite the fact their behaviour might prevent the

buying process from proceeding. The buyers also feel that salespeople do not like to focus on the doubts and risks that they directly or indirectly raise during the sales interaction as, according to the buyers, such issues might stop them from making purchasing decisions. It seems that there is a potential conflict between the stated behaviour of salespeople and the expectation of buyers. The buyers suppose that the salespeople observe and recognize the doubts or risks that they themselves have also recognized, but the salespeople are silent on these issues during sales interactions to maximize their own short-term benefits.

Careful listening, the observation of customer behaviour and building a common understanding are features of professional salespeople and characteristics of successful sales interactions. This study points out that the more experienced salespeople possess these skills, which the interviewed buyers have noticed in their practical encounters with salespeople. It may be that the inexperienced salespeople are too eager to proceed in the sales process and they worry about raising negative issues in the sales discourse as they do not have the expertise required to manage them in practice. The experienced salespeople may also be those with the highest self-efficacy or those who focus their actions on the buyer. High self-efficacy may also help salespeople to be more willing to understand buyers' situations properly by asking more questions. This coping mechanism may allow salespeople to understand buyers' doubts and risks and help facilitate the buying process.

The business buyers also stated that asking relevant questions helps to define and overcome doubts and risks. Thus, the capability to speak about doubts and risks is a competence needed in effective value co-creation and problem solving, meaning it is a critical skill for professional salespeople. The open dialogue regarding doubts and risks increases trust and relationship building. Unlike innovation (e.g. Kaski et al. 2014; Mäki and Alamäki 2014; Vargo and Lusch 2004, 2008) or user-centred design processes (e.g. Alamäki and Dirin 2014)—which are also value co-creation processes—the sales process concerns trust and relationship-related issues, and open dialogue increases trust. For instance, several studies (Gadeikiene et al. 2012; Rapp et al. 2014; Saha and Banerjee 2013) have emphasized the importance of rapport and relationship building between the buyers, salesperson and other stakeholders. This study shows that avoiding or underestimating the buyers' doubts and risks is likely to produce a lack of confidence between the buyers and salespeople and result in a failure to build the trust relationship needed in successful B2B sales encounters.

6   Conclusions and Future Work

This study demonstrates that buyers believe some salespeople intentionally underestimate doubts or risks that occur during the sales process in an attempt to secure the final sale. On the other hand, the buyers think that experienced salespeople are better able to recognize and manage their feelings concerning doubts and risks than their inexperienced counterparts. In addition, they feel that salespeople who ask

relevant questions better understand their doubts, risks and worries related to the decision-making and purchasing process. Therefore, our findings suggest that removing feelings related to doubts and risks in the buyer's buying process is an essential part of successful B2B buyer-seller encounters.

A better understanding of what types of doubts or risks occur in the buying process, and how buyers indirectly or directly express them, will help the salesperson and sales organizations to develop their sales skills, processes and strategies. The saying "sales is human" is true, even in highly technological settings, as the buyers are often economically, socially or personally responsible for purchasing decisions as they affect many people and processes in her or his organization during the implementation, using or consumption phases.

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Towards a Theoretical Framework for Analysing Blogs as User-Generated Content

Riikka Makinen and Pekka Tuominen

Abstract The purpose of this study is to create a theoretical framework for analysing blogs as user-generated content. The theoretical framework for this conceptual study is created from the motives of users for engaging in user-generated content and the outcomes of doing so. The motivations for consuming and participating in user-generated content are social aspects, information search, entertainment and inspiration, and economic incentives. The motivations for producing user-generated content are self-expression, social aspects, information dissemination, entertainment, and economic and professional incentives. Discussion practices form the basis for the outcomes of engaging in user-generated content. The discussion practices in the context of user-generated content are social networking, drawing inspiration, sharing knowledge, providing peer support, negotiating norms, and opposing values.

Keywords User-generated content • Blogs • Virtual communities • Web 2.0

1 Introduction

Consumers have started to move away from traditional media, instead giving more attention to interactive media (Daugherty et al. 2008). The new media have dramatically changed the way consumers communicate with each other and how they gather and exchange information about products and services (Hennig-Thurau et al. 2010, 2015). Rather than giving greater power to marketers, the digital innovations have empowered consumers by providing them with different peer-to-peer and information search tools and mobile platforms (Deighton and Konrfeld 2009; Heinonen 2011). Consumers place increasing importance on peer reviews and are likely to adopt opinions and decisions from other consumers. This decreases the influence of traditional marketing and advertising while increasing the impact of user-generated content (Bagozzi and Dholakia 2002).

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Global usage of user-generated content sites is ubiquitous (Hoffman and Novak 2012). The social networking site Facebook has more than a billion monthly active users and up to 618 million daily active users (Facebook 2013). Each month, the video-sharing website YouTube has more than a billion unique visitors, who upload 72 h of video content to the service every minute (Youtube 2013). The microblogging service Twitter has 200 million active users (Twitter 2013). Statistics also support the emergence of a new trend; Mobile Web 2.0 has allowed the expansion of social media applications to mobile devices (Kaplan and Haenlein 2010). Through smartphones, consumers can reach and be reached by almost anyone, anywhere, at any time (Hennig-Thurau et al. 2010, 2015). Almost 70 % of Facebook's monthly active users use the mobile application (Facebook 2013), while the figure for Twitter users is 60 % (Twitter 2013).

The personalities of bloggers are reflected through various linguistic characteristics that blog readers are able to decipher, thus making constructions of their personalities (Li and Chignell 2010). Herring et al. (2005) discovered that personal blogs are the most common blog type, accounting for as much as 70 % of all blogs. Personal blogs deal with a wide variety of topics, and hence, specific blog contexts, such as fashion, cooking, sport, and motherhood, have become differentiated.

The potential of blogs as a new medium for marketing has also been noted. Today, blogs are an effective way of distributing information because they attract tremendous attention among consumers and may even exert influence on society at large (Hsu and Lin 2008). What also makes blogs an attractive medium for marketing is their personal touch; the consumer-to-consumer interaction that occurs in blogs is often perceived as more trustworthy than traditional advertising (Bagozzi and Dholakia 2002).

Popular bloggers can be defined as the opinion leaders of the online environment (Chen 2010). Advertising in blogs, however, is a matter that invokes strong feelings. Some readers—and bloggers alike—condemn advertising in blogs because they fear that it will negatively affect the content and the trustworthiness of blogs (Lopez 2009). Bloggers who do participate in blog advertising tend to emphasize that they only collaborate with companies that they like and believe in. The purpose of this study is to create a theoretical framework for analysing blogs as user-generated content. The theoretical framework for this conceptual study is created from the motives of users for engaging in user-generated content and the outcomes of doing so.

2 User-Generated Content and Interaction

2.1 The Appeal of User-Generated Content

Consumers vary in the way they make use of user-generated content. Shao (2009) has identified three types of user-generated content users: consumers, participants,

and producers. Consumers are 'lurkers' who only watch, read, or view but do not express their presence, whereas participants interact with the content and/or with other users on user-generated content sites. Producers are the active creators and publishers of user-generated content. These different users of user-generated content are driven by different motives, which are presented in the following subchapters.

2.1.1 Motives for Consuming and Participating

To understand the ever growing popularity of user-generated content, the motives for consuming and participating in it need to be reviewed. The literature review identified four motives, which are summarized in Table 1 and are discussed in more detail in Table 2.

Shao (2009) states that users participate in user-generated content to fulfil their social interaction needs. Users can interact with the content, for example, by rating the content or posting comments, and/or with other users, for example, through messaging, in user-generated content sites. Moreover, Huang et al. (2008) suggested that affective exchange, as they named social interaction, is the most important motive for reading blogs because it is the element that differentiates blogs from other online discussion groups. By reading their friends' blogs, people can express their care and keep in contact with them. Furthermore, commenting on blogs is a way of expressing one's feelings.

Social benefits were also evident in a study conducted by Baumer et al. (2008). When asked to define a blog, 13 out of 15 interviewees stressed interactional attributes rather than structural features. The interviewees also felt that they were

Table 1 Motives for consuming and participating in user-generated content

Motives	Definition
Social aspects	Interacting with like-minded people and searching for peer support
Information search	Reviewing other consumers' experiences intentionally or by chance
Entertainment and inspiration	Habitual reading as a leisure time activity and applying ideas to one's own life
Economic incentives	Participating in lotteries in the hope of winning something

Table 2 Motives for producing user-generated content

Motives	Definition
Self-expression	Documenting parts of one's own life and experiences
Social aspects	Communicating with friends and like-minded people and releasing emotional tension
Information dissemination	Expressing one's values, opinions, and experiences
Entertainment	Finding blogging fun and enjoyable
Economic and professional incentives	Pursuing monetary rewards or new career opportunities

a part of the blog they read in some way. Being a part of the blog is not as straightforward a concept as one might think. As Baumer et al. (2008, p. 1118) explain: 'Being part of a blog is more than consistent readership, a sense of community, or a feeling of connectedness, although it includes all those things'. In addition, different readers have their own interpretations of the concept; some readers may feel that they are a part of a blog even without participating in it.

Participation in user-generated content, particularly in user-to-user interaction, may also contribute to the development of virtual communities. Nevertheless, user-to-content interaction can also develop virtual communities, as responses from other users encourage participants to post new material (Shao 2009). Focusing on one specific format of user-generated content, namely, electronic word of mouth, Hennig-Thurau and Walsh (2003) studied motives for reading other customer's articulations on web-based consumer opinion platforms. Their study highlighted the importance of community membership and stated that people enjoy belonging to virtual communities. Virtual communities enable communication with people who share similar interests and opinions. It can also be a relief for people to know that they are not the only one struggling with certain problems (Hennig-Thurau and Walsh 2003; Hennig-Thurau et al. 2015).

Huang et al. (2008) named one of the motives they identified as the 'bandwagon effect'. This motive includes reading popular blogs and single blog entries that have gained popularity. In some cases, the reader's motives may be driven by other users' opinions rather than his or her own interests, because those who do not read a certain popular blog might feel or be treated like an outsider. Thus, this motive can be seen as containing some degree of social pressure.

According to Shao (2009), an essential motive for consuming user-generated content is information seeking, which is driven by people's desire to increase their knowledge of the surrounding world in general. Furthermore, both Baumer et al. (2008) and Huang et al. (2008) discovered that the information search is one of the motives for visiting and reading blogs. Some people intentionally read blogs in order to gain new knowledge, but consumers might well encounter a blog or another user-generated content site when searching for information. As Blackshaw and Nazzaro (2006) point out, user-generated content has dramatically influenced the concept of searching because user-generated content sites are just as likely emerge from the online search results as corporate sites.

Hennig-Thurau and Walsh (2003) found that people read other customers' online articulations in order to obtain buying-related information and to learn how to consume a product. Obtaining buying-related information takes place before the actual purchase of goods or the use of services. The experiences of others might help consumers to make decisions they otherwise perceive as risky, and at the same time, consumers feel that getting information on products and services and their quality is faster from user-generated content sites than from elsewhere (Hennig-Thurau et al. 2015). Moreover, people turn to user-generated content sites when they are having difficulties with their products and are in need of advice.

Huang et al. (2008) discovered that people read blogs as a leisure time activity without any specific purpose. Sometimes blog reading functions as a way of

preventing boredom, because it is often considered to be fun and amusing. Similarly, Shao (2009) identifies entertainment as a motive for consuming user-generated content and lists enjoyment, relaxing, killing time, and seeking emotional release as entertainment ends.

Baumer et al. (2008) also agree that entertainment is among the motives for reading blogs. Some of their interviewees described blogs as newspapers or magazines while others referred to them as diaries or journals (Baumer et al. 2008). Like browsing through a magazine, readers can read the blog entries that interest them at a convenient time and skip over entries that they do not find interesting or entertaining. Baumer et al. (2008) also point out that blog reading is often habitual in nature and can be considered part of an Internet ritual.

Seeking inspiration can also be regarded as a motive for reading blogs (Baumer et al. 2008). Blog readers are inspired by, for example, the clothes and the decorative elements they see in a blog's pictures. Blogs can inspire readers to acquire things they did not know they needed or wanted before reading the blog entry. Similarly, blogs may, for example, inspire readers to start eating healthier or to pay more attention to the ecological aspects of consumption.

Hennig-Thurau and Walsh (2003) identify remuneration, i.e. monetary compensation, as a motivational factor for reading other customers' online articulations because many opinion platforms actually reward consumers directly or indirectly. Purely monetary rewards are not, however, present in the blogging context, but bloggers may occasionally arrange product or gift card lotteries. The blogger has usually received the raffled products or gift cards directly from companies who are hoping to increase their coverage among the blog readers.

Lottery entries are usually among the most commented entries of the blog. The large number of comments that these entries receive can partly be explained by economic reasons. The consumers of user-generated content who normally only read blogs may exceptionally comment on the lottery entries in the hope of winning something. Thus, it is not the urge for social interaction but rather economic incentives that drive consumers to participate in the blog.

2.1.2 Motives for Producing

In addition to knowing why users consume and participate in user-generated content, it is important to discover why user-generated content is created. The literature review revealed five motives for producing user-generated content. These motives are summarized in Table 2 and are discussed then in more detail.

According to Shao (2009), users produce user-generated content for self-expression and self-actualization. Both concepts are ultimately related to constructing one's identity; self-expression refers to expressing one's own identity and individuality, while self-actualization refers to constructing one's identity unconsciously. Jung et al. (2007) obtained similar results when studying motives for maintaining a blog-like personal mini-homepage. Self-expression, which in

their study referred to providing personal information, was found among the motives for hosting mini-homepages.

On the Internet, users are able to carefully construct the identity they wish to convey to others (Chen 2010). Users can choose whether they want to express original or alternative forms of the self (Jung et al. 2007). Bloggers, especially in the lifestyle and fashion context, have sometimes been criticized of portraying their lives as too perfect. However, lifestyle blogs are typically positive in nature and bloggers deliberately leave certain personal or unpleasant issues out of the blog. Readers must bear in mind that a blog only portrays a glimpse of the blogger's actual life; readers only see as much as the blogger chooses to reveal.

In addition to providing personal information, the motive of self-expression refers to documenting one's everyday life and keeping a record of one's experiences (Stoeckl et al. 2007). Because blog entries are often illustrated with photos of activities, the blog can be seen as a kind of modern photo album. This is something that serves both the blogger, as the blog stores the blogger's memories, and his or her friends and relatives, who can keep track of the bloggers' activities and whereabouts through the blog (Nardi et al. 2004).

For bloggers, blogging can serve many social purposes. Keeping friends and relatives informed of one's activities serves a social purpose as well because the information in the blog reaches a large number of people efficiently (Nardi et al. 2004). Daugherty et al. (2008) suggested that producers of user-generated content are motivated by social aspects, because they feel the need to communicate with like-minded people and experience a sense of community. More precisely, Stoeckl et al. (2007) and Jung et al. (2007) discovered that the desire to communicate and to stay in touch with others is a strong motive for blogging.

Nardi et al. (2004) observed that, to some extent, blogging is a way of releasing emotional tension. For bloggers, blogs are a place where they can express themselves freely about things they feel passionate or obsessive about. Some bloggers acknowledge that certain things can be easier to communicate through a blog than through other media. In a blog entry, bloggers are able to say exactly what they wish to say without being interrupted, and they can also carefully choose the right words and the tone (Nardi et al. 2004).

Stoeckl et al. (2007) identified information dissemination as one motive for blogging. As bloggers write about their everyday life, they unavoidably share information. Information dissemination and giving advice can also be deliberate, and bloggers may even suggest specific actions for the readers to take (Nardi et al. 2004). Blog entries naturally reflect the opinions and values of the blogger. Consequently, Daugherty et al. (2008) suggest that, for the producers, user-generated content is a means of expressing their thoughts.

Hennig-Thurau et al. (2015) discovered that concern for other customers was a strong motive for articulating one's opinions in web-based opinion platforms. Information providers wanted to share their positive experiences and this way give others the opportunity to buy good products. Conversely, they also wanted to warn others of bad products and save them from having the same negative experiences. Blogs are usually quite positive in nature. If bad experiences are

expressed in blog entries, the names of the companies in question are rarely mentioned. Positive emotions and experiences are expressed more often.

An essential motive for producing user-generated content and for blogging is entertainment. Bloggers choose to blog because they find it fun and enjoyable. As in reading blogs, the actual practice of blogging can also become a habit. Blogging can be a way of passing time when being bored or when the user has nothing better to do (Jung et al. 2007; Stoeckl et al. 2007). However, as the popularity of the blog increases, the motive of passing time, which almost has a negative tone in it, becomes unquestionable. Popular bloggers are swamped with inquiries and proposals from companies, and as a consequence, they spend a great deal of their free time on blog-related activities.

An essential motive for producing user-generated content and blogging is entertainment. Bloggers choose to blog because they find it fun and enjoyable. As in reading blogs, the actual practice of blogging can also become a habit. Blogging can be a way of passing the time when bored or when the user has nothing better to do (Jung et al. 2007; Stoeckl et al. 2007). However, as the popularity of the blog increases, the motive of just passing the time recedes. Popular bloggers are swamped with inquiries and proposals from companies, and, as a consequence, they spend a great deal of their free time on blog-related activities.

Advertising on blogs and collaboration between bloggers and companies are issues that stir up powerful emotions. There have been long discussions about the acceptability and ethicality of blog advertising in the blogosphere. Some readers accept blog advertising and believe that the bloggers express their true opinions even if the blog entry is done in collaboration with a certain company. Others, by contrast, feel deceived and suspect subliminal advertising even in entries that have not been affected by companies.

Hennig-Thurau et al. (2010) identified economic incentives as a motive for articulating opinions in web-based consumer opinion platforms because, in some cases, the platform operator may actually remunerate the information provider. A few years ago, Stoeckl et al. (2007) considered economic incentives, at least in purely monetary terms, to be negligible in the blogging context. However, blogging culture has undergone some drastic changes since then. An ever increasing number of bloggers wish to turn blogging into their profession. Participation in affiliate marketing programmes offers bloggers a relatively easy way to earn money. The idea behind affiliate marketing is that bloggers, who in this context are the affiliates, place links in their blogs through which the readers move to the advertiser's website. Thus, the bloggers only participate in the marketing activity. If the reader then makes a purchase, the company will compensate the blogger according to their agreement. The compensation may, for example, be a certain percentage of the purchase price. The importance of affiliate marketing is likely to increase in the future (Duffy 2005).

More than economic rewards, however, bloggers seem to appreciate opportunities for professional advancement (Jung et al. 2007). Collaboration with companies offers bloggers new professional challenges, since they are asked, for example, to

write articles in magazines and to appear on TV shows. The professionalization of blogging can also be seen in the way bloggers view themselves.

2.1.3 Interdependence of Consuming, Participating, and Producing

Although the three user-generated content usages of consuming, participating, and producing are analytically separate, they are actually interdependent in reality. Firstly, the three activities may represent a path of gradual involvement with user-generated content. Users often begin their relationship with user-generated content as lurking consumers, but after familiarizing themselves with the activity, they start to participate by interacting with the content and/or with other users. Finally, users become producers if they publish their own work on user-generated content sites (Shao 2009).

One must bear in mind, however, that not all users follow the path of gradual involvement from consuming to participating and producing. Some users might, for example, move straight into publishing their own work from consuming user-generated content. Furthermore, there may be an involvement inequality among users, as most users only consume whereas a minority actively engages in participating and producing (Shao 2009; Courtois et al. 2009).

Ali-Hasan and Adamic (2007) and Baumer et al. (2008) point out that it is most likely that all bloggers are also blog readers, i.e. consumers, and they are possibly participators who comment on the blogs they read. Therefore, it is not possible to make a clear distinction between the roles, as one user-generated content user might play all three roles depending on the context. A comparison of the motives for consuming and participating in user-generated content with the motives for producing user-generated content also reveals the interdependence of the roles. Many of the motives, such as the social aspects and entertainment, are exactly the same. The information search and information dissemination, on the other hand, represent opposite aspects of the same matter. What sets producers apart from other users is their desire for self-expression.

2.2 Discussion Practices in Virtual Communities

de Valck et al. (2009) analysed discussion practices—i.e. what is actually being shared in a virtual community—and distinguished four categories of discussion practices, namely, celebrating similarities, sharing knowledge, negotiating community norms, and opposing values. These categories are not mutually exclusive; several discussion practices may be identified in a single posting.

Celebrating similarities emphasizes the fact that a shared interest is a fundamental part of virtual communities. Despite of the differences between the members, it is the similarities that construct a strong communal atmosphere where the members feel safe to confess behaviour and thoughts that they normally keep hidden in public

(de Valck et al. 2009). The sharing of personal information has also been identified as one of the factors affecting consumer engagement in virtual brand communities (Brodie et al. 2013). Members often use narratives when describing the development of their relationship with the brand (Schau et al. 2009). It is likely that personal information and thoughts are shared in the blogging context as well.

Sharing knowledge refers to posing and answering questions as well as providing explanations and background information. Knowledge is shared because members genuinely want to help others but also to gain prestige (de Valck et al. 2009). In brand communities, the sharing of information revolves largely around products, as members discuss how to take care of the products and how they could be modified to better suit the members' individual needs (Schau et al. 2009). In addition to recommending ways of using products, members might also recommend specific brands to other consumers (Brodie et al. 2013). In the blogging context, discussion about products is likely to be present, but it is expected that knowledge on more intangible matters—for example, issues related to parenting—is also shared.

Community members also compare their attitudes and behaviours, i.e. negotiate community norms. In addition to merely negotiating norms, members also negotiate how the norm should be put into practice (de Valck et al. 2009). This is something that is present in brand communities as well because members educate newer members about the behavioural expectations of the community (Schau et al. 2009). Community members do not always see eye to eye on everything and sometimes conflict arises. This is covered by opposing values, which often becomes concrete in a debate between two groups that have opposite opinions on a certain issue (de Valck et al. 2009). In brand communities, heated debate might develop when a brand is compared to competing brands, sometimes in a negative manner (Schau et al. 2009). de Valck et al. (2009) limited their analysis to topics about cooking and eating, and the researchers acknowledge that other discussion practices might emerge from other types of communities.

In a slightly different context, Campbell et al. (2011) studied consumer conversations around user-generated advertisements and identified four archetypes, which they labelled the inquiry, the laudation, the debate, and the flame. The archetypes vary on two dimensions: from the conceptual to the emotive and from the collaborative to the oppositionary. First, the response is conceptual when the viewer is interested in how the advertisement was created, whereas in an emotional response, the reactions to the advertisement are determined by emotion rather than reason. Second, the response can be either collaborative, when the viewer is on the side of the advertisement's creator, or oppositionary, which means that the viewer is hostile towards the advertisement and/or its creator, or, alternatively, those who are opposed to the advertisement (Campbell et al. 2011).

The inquiry, a collaborative-conceptual response, refers to a situation where the reader's response to the advertisement is rather neutral but they still want more information on its details, for example, who created it and why, who made the background music, and so on (Campbell et al. 2011). This is similar to the sharing of knowledge that de Valck et al. (2009) identified in virtual communities. The laudation is as collaborative as the inquiry but differs from it by being emotive

rather than conceptual. The laudation is positive in tone and represents praise for the advertisement in general as well as all of its components (Campbell et al. 2011). These kinds of positive statements on the blog entry, as well as what the readers see in the pictures, are likely to be present in the blogging context as well.

In the debate, the oppositionary-collaborative response, different views, and opinions are expressed of the advertisement. The discussion is constructive because opinions are validated and facts are presented. In the flame, however, the conversation is more passionate, destructive, and derogatory; it differs from the debate by being emotive rather than conceptual. The perspectives of the other viewers are not respected in the flame; instead they are met with great opposition (Campbell et al. 2011). Opposing values, a discussion frame that de Valck et al. (2009) distinguished, fall somewhere in between the debate and the flame.

Mishne and Glance (2006) are among the few researchers that have studied the kinds of comments that occur in the comment areas of blogs. They focused on exploring controversy in blog discussions and, more precisely, disputative comments that disagree with the blogger. Disputative comments were observed to be rather common, appearing in 21 % of the comment threads. The researchers also noticed that disputative comments were longer and appeared especially in political posts, implying that topics which people feel strongly about are more likely to cause disputes.

What is not highlighted in the results of de Valck et al. (2009) and Campbell et al. (2011) is the idea of peer support. Both studies acknowledge that information is being shared, but this is not analysed further. However, Schau et al. (2009) point out that in brand communities, members do in fact lend emotional support to other members.

3   Synthesis of the Theoretical Framework

The motives for engaging in user-generated content (see, e.g. Baumer et al. 2008; Hennig-Thurau and Walsh 2003; Hennig-Thurau et al. 2015; Huang et al. 2008; Shao 2009; Stoeckl et al. 2007) are included in the framework because examining why consumers engage in user-generated content might help us to deduce what is actually being shared. The outcomes of engaging in user-generated content are the discussion practices that were formulated largely based on the literature review on social interaction online and the discussion practices around user-generated content (see, e.g. Nardi et al. 2004; Morrison 2011; Herring et al. 2005; de Valck et al. 2009; Campbell et al. 2011).

In this study, the discussion practices of social networking and drawing inspiration are derived largely from the motives of consuming and participating in user-generated content. Social networking refers to fulfilling social interaction needs and building communities through blogging (see, e.g. Shao 2009; Huang et al. 2008; Baumer et al. 2008). Drawing inspiration is portrayed as its own discussion frame because it is expected that readers draw inspiration from the blogger, sometimes

unintentionally, when reading the blog as a leisure time activity. Hence, the idea of entertainment is embedded in drawing inspiration (see, e.g. Huang et al. 2008; Baumer et al. 2008).

Sharing knowledge is used in this study to refer to both posing and answering questions (see, e.g. Shao 2009; Baumer et al. 2008; Huang et al. 2008; de Valck et al. 2009; Campbell et al. 2011). Providing peer support has been raised as an individual discussion frame because searching for and providing peer support is expected to be prevalent in many blogs (see, e.g. Morrison 2011; Schau et al. 2009). However, as peer support is based on receiving support from those who are in a similar life situation, celebrating similarities (see, e.g. de Valck et al. 2009) is embedded in it. Negotiating norms refers to presenting one's thoughts and opinions and constructive discussion (see, e.g. Campbell et al. 2011; de Valck et al. 2009). Opposing values, on the other hand, refer to hostile comments and heated debate in which the opinions of others are not properly respected (see, e.g. Campbell et al. 2011; de Valck et al. 2009).

The theoretical framework functions as a kind of interpretative framework that does not prevent new themes emerging from the data but only serves as a starting point for analysis. The main emphasis in this study is specifically on the message content of blog comment areas. As Baumer et al. (2008) point out, different blog groups may differ from each other quite significantly. Previous research was not focused on the blogging context, and therefore, the discussion practices are treated as preliminary information. It is noted that the discussion practices can vary to a great extent depending on the context.

4   Conclusions

The purpose of this study was to create a theoretical framework for analysing blogs as user-generated content. Blogs are a part of a larger phenomenon of user-generated content, which refers to all different forms of media content that are publicly available on the Internet and are created by end users. User-generated content has fundamentally changed the world of entertainment, communications, and information by providing different peer-to-peer and information search tools. The popularity of blogs in the blogosphere has rocketed during the past couple of years.

Bloggers and blog readers are intimately related through the reading and writing—and commenting on—of blog entries. Virtual communities in general have redefined the concept of personal relationships because in the online environment, users have the opportunity to carefully construct their virtual identities and interact anonymously. Blogging is socially interactive and community-like because the comment feature enables conversational exchanges between and among bloggers and readers.

The theoretical framework for this study has been created from the motives of users for engaging in user-generated content and the outcomes of doing so. The

main motivations for consuming and participating in user-generated content are social aspects, the information search, entertainment and inspiration, and economic incentives. The motivations for producing user-generated content are self-expression, social aspects, information dissemination, entertainment, and economic and professional incentives. Discussion practices form the basis for the outcomes of engaging in user-generated content. The discussion practices in the context of user-generated content are social networking, drawing inspiration, sharing knowledge, providing peer support, negotiating norms, and opposing values.

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The Impact of Independence and Brand Personality on Brand Evaluations Among Biculturals

Umut Kubat

Abstract This research examines bicultural (people who identify with two distinct cultures equally) consumers' reactions to sincere and sophisticated brands and the role of independent self-construal in this relationship. Consumers are known to have a strong relationship with brands congruent with their identities. People with predominantly independent self-construal see themselves as independent, distinct from the group, and tend to place high value on uniqueness, accomplishments, and achievement. Sophisticated brands are considered as upper class and charming which may symbolize high achievement; therefore, one would expect that biculturals with a more accessible independent self-construal are more likely to have a higher brand liking toward sophisticated brands compared to less independent ones. This hypothesis is examined across two studies, one of which is a survey and the other is an experiment where brand personality was manipulated. The results show that biculturals' brand evaluations vary with the level of independent self-construal. Specifically, more independent biculturals evaluate sophisticated brands more favorably than less independent biculturals. There is no significant effect of independent self-construal on evaluations for a sincere brand.

1 Introduction

The aim of this research is to examine bicultural consumers' reactions to sincere and sophisticated brands and the role of independent self-construal in this relationship. "Sincerity" and "sophistication" are chosen for the brand personalities as they are common to participants regardless of their cultural background (Aaker et al. 2001).

One type of acculturation is biculturalism and biculturals identify with both home and host cultures equally (Berry 2005). Culture also affects how individuals

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perceive and construct their self which can be conceptualized as independence and interdependence (Markus and Kitayama 1991). Independent people view themselves as an independent entity, whereas interdependent people view the self in relation to others (Singelis 1994). Previous research has shown that biculturals may have higher scores on both independence and interdependence (Yamada and Singelis 1999). Therefore, both independent and interdependent self-construals can be accessible within these groups.

Consumers are known to form strong relationships with brands that have associations that are congruent with their self-concept (Sirgy 1982). Individuals tend to evaluate a brand more positive if the brand personality of the brand is perceived as similar to their own personality. Some studies have shown that independent self-construal measures are positively related to status and achievement motivations (Brutus and Greguras 2008; van Horen et al. 2008). Sophisticated brands are considered as upper class and charming which may symbolize high achievement; therefore independent self-construal and sophistication should have a positive relationship. However, a sincere brand is defined with attributes such as family orientation and friendliness. Recent research has suggested that biculturals can move between their two cultural systems in response to the cultural cues in the environment and this process is called as "cultural frame switching" (Hong et al. 2000). One would expect biculturals to have equal tendencies toward both sophisticated and sincere brands as they represent either Western or Eastern values. Then, the type and the dominancy of self-construal may show the affinity toward brands either sincere or sophisticated. This research tries to explore the effect of independent self-construal on evaluations for sincere or sophisticated brands. This research focuses on the effect of independent self-construal because it is more related with the host culture values (i.e., the USA), and biculturals are exposed to cues related with independence during daily life.

2 Theoretical Background

2.1 Brand Personality

Brand personality has been formally defined as "the set of human characteristics associated with a brand" (Aaker 1997). Brand personality can be considered as one of the central concepts in the branding literature. Brand personality is an important concept because it is less constrained by physical attributes. While a brand's physical characteristics such as price can change frequently, a brand's personality tends to be relatively enduring and resistant to change (Biel 1993). Brand personality also helps to foster a strong relationship between the consumer and the brand (Aaker 1997). In addition, it serves as a vehicle for representing and cueing functional benefits and brand attributes in consumers' minds (Aaker 1997). Therefore, it can serve as a source of sustainable competitive advantage for the firm (Aaker 1997).

Because brands acquire symbolic meaning, they can add symbolic meaning to consumer's life through their status as partners in a relationship (Caprara et al. 2001). The meaning conveyed to the customer and expressed to others by the consumers, by Armani, Hollister, or Levis jeans, is totally different. In this respect, brand personality fulfills a self-expressive function for some consumers (Aaker 1996). Consumers construct and sustain their social self in part by using products or brands whose cultural meanings reflect the person they are or want to be (McCracken 1989). For this reason, they have a favorable attitude and purchase intention toward a brand which is perceived to be congruent with their self-concept either actual or ideal (Escalas 2004). Thus, the brand personality may establish the basis for a relationship even a friendship between the consumer and the brand by creating liking toward the brand (Aaker 1996).

To measure brand personality, the predominantly used concept is the Aaker's (1997) Brand Personality Scale that consists of five dimensions: sincerity, excitement, competence, ruggedness, and sophistication. In this paper, sincerity and sophistication are selected as two brand personalities because of their prominence in the marketplace. Also, as culturally universal brand personality dimensions, both sophistication and sincerity should be equally accessible and familiar to participants regardless of their cultural background (Aaker et al. 2001). Sincerity refers to brand characteristics such as being down-to-earth, honest, wholesome, and cheerful. Traits of nurturance, warmth, family orientation, and traditionalism are also characteristics of a sincere brand. The other brand personality, sophistication, refers to characteristics such as being upper class and charming. Sophistication represents images of wealth and status.

Studies on brand personality found evidence of its influence on brand preference (Biel 1993), brand relations (Aaker 1997), brand attachment (Swaminathan et al. 2009), and brand attitude (Kim et al. 2001). It is still important from both a managerial and a theoretical point to understand which brand personality traits are going to matter certain types of consumers. One of such differences could be self-construal.

2.2 Independent Self-Construal

Self-construal refers to how people perceive themselves in relation with others. People with predominantly independent self-construal (independents) construe the self as an individual and separate from others, whereas interdependents construe the self as fundamentally connected to others and are defined by relationships with others (Markus and Kitayama 1991). Aaker and Schmitt (2001) have shown that individuals with an independent self tend to self-express by demonstrating their points of differentiation, while those with interdependent self tend to self-express by demonstrating points of similarity. For individuals with an independent self, behaviors were driven by egocentric internal desires (Howard et al. 2007). Therefore, they show behavioral consistency across different social and interpersonal

situations (De Mooij 2010). Independents tend to place high value on uniqueness, individual accomplishments, and achievements (Zhang and Shrum 2009). The expression of this individuality can be achieved through the consumption of expressive or luxury goods which others may not be able to afford (Millan and Reynolds 2014). Independents tend to be guided in their lives by ambition and personal success (Schwartz 1994) which are a means of gaining high status and independence (Millan and Reynolds 2014). Thus, the independent self seems to be positively related to using clothing status symbolism. Clothing often represents an important symbolic consumption area for consumers (Mullarkey 2001; O'Cass 2001) as clothing brands may be a primary means of symbolically constructing and communicating their personal and social identity (Mullarkey 2001). Hence, clothing brands are selected based on the purpose of this research.

Both aspects of self-construal coexist within a single individual (Markus and Kitayama 1991), and biculturals may have higher scores on both independence and interdependence (Yamada and Singelis 1999). As biculturals identify with both and home cultures and move between their cultural meaning systems in response to the cultural cues in the environment, they should have equal liking toward both sincere and sophisticated brands. In that case, the type and strength of the self-construal may show the tendencies toward the brands. As said before, consumers prefer self-congruent brands. Characteristics of sophistication and independence seem to match up with each other. Thus, it is hypothesized that:

H1: For a sophisticated brand, biculturals high in independence will have higher evaluations compared to those low in independence.
H2: For a sincere brand, biculturals high in independence and biculturals low in independence will not differ in brand evaluations.

3   Study 1

The primary purpose of Study 1 was to examine the effects of the relationship between independent self-construal and brand personality on brand evaluations.

3.1   Pretest

A pretest was conducted to select two brands that were distinctively associated with two selected brand personalities (sincerity and sophistication). Sample of the second pretest was comprised of $N = 130$ "multicultural" (Asian or Hispanic origin) individuals living in the USA. Original brand personality item list was drawn from Aaker (1997). Aaker's Brand Personality Scale, which measures brand personality traits with five dimensions, has exhibited reliability, validity, and generalizability across multiple product categories (Aaker et al. 2001; Austin et al. 2003; Sung and

Tinkham 2005). Brands were kept if they obtained a mean score above 5 on a specific personality dimension (on a 7-point scale). Only the brands (i.e., Calvin Klein, Gap) which were significantly higher in only one personality dimension (sophistication or sincerity) are included in the study. In addition, these brands were significantly different from each other in sophistication (5.15 vs. 4.61; $F(1, 127) = 2.05$, $p < 0.05$) and sincerity (4.55 vs. 5.12; $F(1, 127) = 2.44$, $p < 0.05$).

3.2 Methodology

Design and Procedure: The study was a 2 (brand personality: sincere, sophisticated) $\times$ 2 (independent self-construal: low, high) within-subjects design. Participants were multicultural individuals ($N = 260$) living in the USA who were drawn from an online panel. Participants were prequalified on the basis of their responses to two questions: "Are you living in a country other than your country of origin?" "Were one or both of your parents born in a country other than the USA?" After that they responded to brand familiarity questions.

Cultural Life Style Inventory (Lerman et al. 2009; Mendoza 1989) was used to assess acculturation. All items with factor loadings less than 0.60 were removed from the scale. The psychometric characteristics of the final acculturation scale (20 items) were satisfactory with a Cronbach's alpha of 0.85. Participants received a score based on their responses to CLSI intended to assess their affiliation to the home culture, host culture, or both. For example, the response options for the item asking about the types of newspapers and magazines participants read were (a) home language only, (b) mostly in home language, (c) English only, (d) mostly in English, and (e) both English and home language about equally. Another question asked about the types of foods they ate: (a) native foods (only), (b) mostly native foods, (c) host country foods (only), (d) mostly host country foods, and (e) both kinds of foods about equally. Participants who indicated either "a" or "b" to the questions received a score of 1 for home country affiliation; similarly, participants who indicated either "c" or "d" received a score of 1 for host culture affiliation. Finally, those who indicated option "e" received a score of 1 for biculturals. Participants' response scores across were summed across a series of 20 questions. If a participant had a total bicultural score that was greater than the home and host country affiliation scores, that person was deemed as a bicultural. Given the focus of this research, biculturals ($N = 150$) were kept for further analysis. The average age of bicultural participants was 31. Of the sample, 62 % were men, 58 % were single, and 47 % had a bachelor's degree or higher.

Independent self-construals were measured with a shortened scale adapted from Singelis' (1994) Self-Construal Scale (7-point scale where 1 = strongly disagree and 7 = strongly agree). All items having a factor load less than 0.60 have been removed from the scale. The reliability analysis of the final scale supported internal consistency (six items; $\alpha = 0.82$).

Brand evaluations were measured using three items on a 7-point scale: "I like this brand," "I am strongly related to this brand," and "this brand has a lot of meaning to me" ($\alpha = 0.91$).

3.3   Results and Discussion

Brand Evaluations: Regression analyses were used to test the hypotheses with gender, age, and brand familiarity as covariates. The overall model was significant ($F(7, 140) = 4.95$, $p < 0.001$). The main effects of brand personality ($\beta = 0.18$, $t(140) = 2.54$, $p < 0.05$) and independent self-construal were also significant ($\beta = 0.50$, $t(140) = 2.94$, $p < 0.005$). Results also revealed a significant two-way interaction of brand personality and independent self-construal ($\beta = 0.16$, $t(140) = 2.11$, $p < 0.05$).

To further examine the interaction, post hoc probing procedure of Aiken and West (1991) is used by plotting mean brand evaluations for low and high independent participants. In support of hypothesis 1, for the sophisticated brand, more independents had more favorable evaluations for the sophisticated brand compared to less independents ($M_{High\ Independent} = 4.63$, $M_{Low\ Independent} = 4.00$; $t(140) = 3.39$, $p < 0.005$), but for the sincere brand, there was no significant effect of independent self-construal on brand evaluations ($M_{High\ Independent} = 4.03$, $M_{Low\ Independent} = 3.99$; $t(140) = .21$, $p > 0.1$). This result supports hypothesis 2. Figure 1 depicts the findings.

The results of this study reveal that brand personality moderates the effect of independence on brand evaluations. Specifically, high independent bicultural consumers react more favorably to a sophisticated brand compared to low independents. This effect is not valid for sincere brands. Evaluations for a sincere brand are
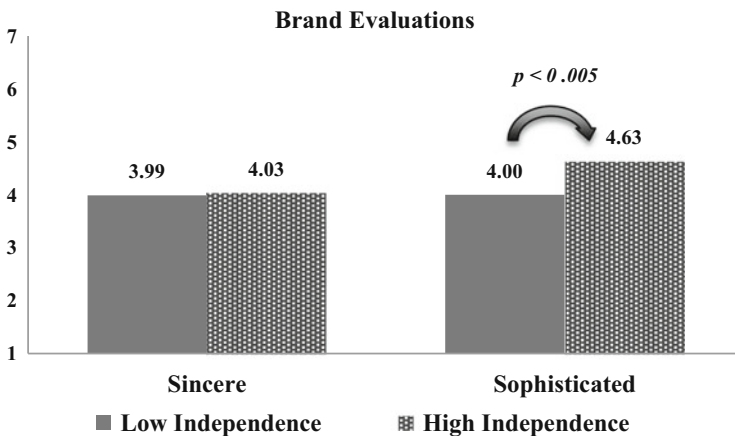
Fig. 1 Study 1: Effect of independence on brand evaluations: the impact of brand personality

not affected by the independent self-construal. Study 2 replicates and extends these findings by manipulating brand personality (i.e., sincere, sophisticated).

4 Study 2

Study 1 explores the effects of independent self-construal and brand personality on brand evaluations. Study 2 replicates these effects by manipulating brand personality (i.e., sincere, sophisticated) of a brand (i.e., Diesel) which is not perceived as sincere or sophisticated.

4.1 Methodology

Design and Procedure: The study was a 2 (brand personality: sincere, sophisticated) × 2 (independent self-construal: low, high) design with type of brand personality as a between-subjects factor. Participants were Hispanic-origin individuals ($N = 260$) living in the USA who were drawn from an online panel. Participants were prequalified in a similar way that prequalified them on the basis of their responses to the same type of questions as in Study 1 ("Were you born in a Spanish-speaking country?", "Were one or both of your parents born in a Spanish-speaking country?"). Participants then saw a print ad that depicted either a sophisticated brand or a sincere brand (see Figs. 3 and 4). Brand evaluations were measured using three items on a 7-point scale: "I like this brand," "I have positive opinions toward this brand," and "this brand is a favorable brand" ($\alpha = 0.82$).

Biculturals ($N = 96$) were identified based on their responses to the CLSI, using the same method as in Study 1. Independent self-construals were measured with the same items adapted from Singelis' (1994) Self-Construal Scale ($\alpha = 0.78$). The average age of bicultural participants was 30, 46 % were men, 45 % were single, and 47 % had a bachelor's degree or higher.

4.2 Results and Discussion

Manipulation Checks: To examine whether the two brands were significantly different in brand personality, we analyzed the responses to the questions about brand personality (Aaker 1997). Analysis of variance revealed that there was a significant difference in sincerity between the two manipulation conditions ($M_{\text{Sincere}} = 4.67$, $M_{\text{Sophisticated}} = 4.23$; $F(1, 88) = 8.40$, $p < 0.01$) and in sophistication ($M_{\text{Sincere}} = 4.31$, $M_{\text{Sophisticated}} = 4.61$; $F(1, 88) = 4.09$, $p < 0.05$).

Brand Evaluations: Regression analyses were used to test the hypotheses with gender, age, and brand familiarity as covariates. The overall model was significant ($F(5, 90) = 10.43$, $p < 0.001$). The main effects of brand personality ($\beta = 0.35$, $t(90) = 1.90$, $p < 0.1$) and independent self-construal were marginally significant ($\beta = 0.25$, $t(90) = 1.62$, $p < 0.1$). These effects were qualified by a significant interaction of brand personality and independent self-construal ($\beta = 0.67$, $t(90) = 3.04$, $p < .005$).

To further examine the interaction, post hoc probing procedure of Aiken and West (1991) is used by plotting mean brand evaluations for low and high independent participants. In support of hypothesis H1, participants high in independence had more favorable evaluations for the sophisticated brand compared to participants low in independence ($M_{High\ Independent} = 3.94$, $M_{Low\ Independent} = 3.20$; $t(47) = 2.68$, $p < 0.01$), but for the sincere brand, there was no significant effect of independent self-construal on brand evaluations ($M_{High\ Independent} = 3.68$, $M_{Low\ Independent} = 4.08$; $t(43) = 1.51$, $p > 0.1$). Figure 2 depicts the findings.

In order to support the results, Hayes' (2013) bootstrapping method is applied using the process macro. Results have shown that the effect of self-construal on brand evaluations is moderated by brand personality such that for the sophisticated brand condition, the effect was significant with a 95 % CI wholly above zero [$\beta = 0.51$; SE $= 0.15$; CI $= 0.25$ to 0.76]; but for the sincere brand condition, there was no significant interaction effect [$\beta = -0.04$; SE $= 0.160$; CI $= -0.31$ to 0.23] of independence and brand personality.

The results of this study supported the evidence that brand personality moderates the effect of independence on brand evaluations. Specifically, bicultural consumers high in independence react more favorably to a sophisticated brand compared to less independent consumers. This effect is not valid for sincere brands. Evaluations for a sincere brand are not affected by the independent self-construal.
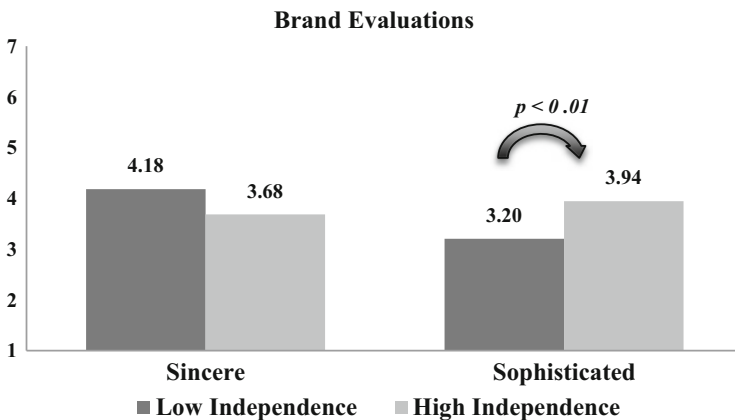
Fig. 2 Study 2: Effect of independence on brand evaluations: the impact of brand personality

5 General Discussion

This research illustrates how brand personality can affect brand evaluations based on a bicultural individual's independence construal of self. The findings across two studies suggest that when independence is high, consumers evaluate a sophisticated brand favorably, but this effect is not valid for sincere brands. Evaluations for a sincere brand are not affected by the independent self. These findings are congruent with self-congruity theory (Sirgy 1982). According to the self-congruity theory, consumers form strong relationships with brands that have associations that are congruent with their self-concept. Independents value uniqueness and differentiation. A sophisticated brand also symbolizes uniqueness which matches with the values of an independent individual. This research revealed that these effects are also prevalent among bicultural individuals who do not particularly value differentiation. Self-construal is malleable and can be made temporarily more accessible or salient in response to the cues in the environment (Lee and Tiedens 2001). Brand managers can prime independent self-construal in advertising for a sophisticated brand while targeting both monocultural and bicultural consumers. This will help them to elicit favorable attitudes toward their brands from their target markets and limit or reduce the negative ones.

This research is not without its limitations. One potential limitation is that self-construal is a measured variable. Future research can focus on manipulating both self-construal and brand personality to extend and validate the results in this research. Extending the findings from this research to other types of product categories (e.g., utilitarian goods) may provide additional insights. Future research should also repeat the studies for the interdependent self-construal, as it seems to have an effect on evaluations for a sincere brand. Also, results should be replicated among different cultural groups.

Future research could broaden the findings by identifying whether these results arise from independent consumers' placing importance to hedonic values or need to gain higher status. In doing so, a richer theory regarding independence and brand personality could be developed.

Appendix

See Figs. 3 and 4.

Fig. 3 Sincere brand ad

Fig. 4 Sophisticated brand ad

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Natural Resources Management in Tourism: Dimensions and Impact of Tourist Offer in the Southeastern Europe National Parks

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Abstract Sustainable tourism in national parks and other protected areas is among the fastest growing segments of tourism. Two exceptional natural entities in the Southeastern Europe only 40 km away from each other, Una National Park (Bosnia and Herzegovina) and Plitvice Lakes National Park (Croatia), have very similar natural features (almost identical flora and fauna, specific travertine–tufa formations, clean water, and preserved natural environment) that create conditions for the development of tourism in this particular region. The main purpose of this paper is to evaluate tourist offer in these protected areas and determine the causes of differences among tourism development of these national parks. Biodiversity of these two territories was compared, along with calculation of absolute and relative number of species, and comparative analysis was conducted in terms of tourist offers in order to determine if elements of management and offer creation are more important than the natural resources characteristics in achieving high level of tourist satisfaction. Practical implications of the research highlight the importance of developing nature-based tourist offers in the particular region as well as the significance of consistency in terms of tourist services delivery. Advantages of cooperation between parks and creation of mutual tourist services are also considered and discussed.

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1 Introduction

Tourism offer that is principally based on the unique natural resources in a particular earth region (often called nature-based tourism) can be compound of complex interfaces between the business management models and tourism industry practices, strategies, and activities (Coghlan 2012). The importance of natural resources management in national tourism strategic planning is becoming greater as governments across the globe and other institutional bodies that take active role in policy-making process are discovering innovative approaches to improve the planning and execution by advocating the public right on efficient and effective natural resources management because it is vital for country's natural resources sustainable development, including economic growth and nature perseverance (Lodhi and Makki Majid 2010). In order to successfully deal with complex issues of natural resources management that have national significance, e.g., in the case of tourist offer in national parks, participatory approach, which involves different stakeholders in the development of integrated solutions, prevails nowadays due to the benefits of this particular methodology that involves combination of academic knowledge and improving quality by using relevant nonscientific sources of knowledge and experience, enhancing the legitimacy and credibility by accounting for the diversity and widening the basis of support for the implementation (Van Der Wal et al. 2014). The concept of tourism sustainable development in regard to natural resources is crucial public policy of the current century representing the new paradigm balance of community, economy, and the environment based on philosophy that highlights futurity, equity, globalism, and biodiversity that guide political and business decision-making process (Cetinkaya et al. 2014). Samdin et al. (2013) identify two issues related to designation of national parks as public tourism attractions, free riders, and overusage issues, due to their characteristics including noncompetitive consumption and non-exclusion in nature. In order to create an effective tourist offer, managers at national parks and other nature-based tourism attractions need to adequately address these issues and create strategies that will solve the problem.

These issues are related to the sustainability of natural resources in the ecotourism sector with effect on the utilization of national parks, especially efficient pricing policy in developing countries such as Croatia and Bosnia and Herzegovina because nature attraction visiting price is irrelevant compared to the utility obtained by tourists. Sustainable ecotourism highlights the importance of continuous monitoring of any tourist offers and strategies suggesting that some type of impact analysis with proper planning and implementation can determine the level of consistency between tourism attraction development and perseverance of natural resources objectives keeping the negative impacts to a minimum (Almeyda et al. 2010). Community-based ecotourism represents an imperative mean in which citizens of particular geographical region can establish and sustain authority and regulatory mechanisms over vital natural resources, and it has been identified with tourism practices that are aimed at travel areas with natural attractions, such as

national parks rather than urban sites, that highly contribute to environmental, including biological, conservation and resident livelihoods (Farrelly 2011). Community-based approach to establishing sustainable strategies for developing natural sites has been predominantly influential in endeavoring scholarship fundraising, supporting the proposition that without the participation of local communities in decision-making process, tourism offer development could not be sustainable (Bianchi 2003). Natural resources management in the case of national parks is a highly challenging assignment because of the inherently incompatible values and objectives related to the protection of natural resources and creation of profitable tourist offer. These challenges require creation of management practices that will optimally balance between two opposing aims, protecting natural environment base and providing access to tourists, often visitors from foreign countries who come to enjoy nature and landscape. In national parks, conservation of natural resources is mostly considered superior to visitor access and tourism development (Haukeland 2011). Having that in mind, management in national parks should evaluate their development strategy and its impact on nature regardless of profit potential.

2   Literature Review

Tourism development and natural heritage are related in many ways. Increasing pressures on nature due to mass tourism led to the development of a wide range of selective tourism form concepts. Nowadays, in the relevant literature, there are encountered terms such as ecotourism, tourism in protected areas, sustainable tourism, etc. Tourism of protected areas, especially in national parks, is among the fastest growing parts of tourist demand in the global tourist market. Establishment of protected nature areas according to previous research in the field of tourism sector confirmed that these actions can significantly increase the number of visitors. "New tourists" are expressively different from the classical tourists that were part of mass tourism. They are travelers with higher education who want to discover new cultures and see something different. They do not expect only entertainment, but they also travel with the intent to expand their knowledge and competencies. Further, they understand the concept of protected areas and do not have a problem with respecting the rules and policies, and this type of nature protection is actually desirable for them.

Protected areas, especially national parks as a very strict form of protected area, have a substantial role in preserving natural, cultural, and historic heritage from the pressures of tourism development. The problem of tourism management in such geographical regions is becoming increasingly evident due to various issues, including external and internal pressures (Hanke 2004). Tourism of protected areas can have various positive and negative impacts. It increases revenues but, on the other hand, for the local community and economy is very often considered as a threat which can cause various issues. Positive impacts include environmental,

Table 1 Positive impact of tourism development

Economic	Social/community	Environmental
Increased incomes for the protected area and for locals (job opportunities, tickets, souvenirs, homemade products, etc.)	Encourages local people to value their local culture	Education on geographical processes and biodiversity conservation Understanding value of nature in terms of economy
Stimulates locals and diversifies their economy	Improves local facilities and infrastructure	Transmits conservation values through education
Encourages the local manufacture of goods and services (traditional food, products, accommodation, locals can work as guides)	Encourages the development and conservation of culture	Helps to communicate and interpret the values of nature
Generates local tax revenue embracing national growth	Encourages people to learn about nature protection and languages and to meet new cultures	Supports research and development of good nature protection practices
Enables employees to learn new skills and competencies through seminars and different projects	Physical health improvements through recreational exercise, promotes aesthetic, spiritual, health, and other values	Helps develop self-financing mechanisms for protected area so they do not depend on the state budget

Source: Eagles et al. (2002), Maller et al. (2009), own tabular presentation

economic, and social/community benefits and they are summarized in Table 1 shown below (Eagles et al. 2002; Maller et al. 2009).

Excellent management practices are crucial aspect for organization of protected areas, especially when it comes to avoiding and mitigating negative impacts. In order to track negative changes and try to minimize them as much as possible, it is important to establish monitoring of all nature phenomena and processes which are affected by an increasing number of visitors. Therefore, carrying capacity study for every protected area must be developed as a part of the comprehensive management plan. But, it is equally important as well for managers that are involved in strategy and tourist offer creation to act in accordance with recommendations of carrying capacity study. Many researchers in this field studied various tourism forms and their impact on natural resources. For the purposes of this paper, several studies and papers have been reviewed. Due to numerous scientific articles written on the topic, there have been momentous scientific and technical contributions to the study of nature in terms of protection and the establishment of protected natural areas; few will be mentioned, but not with the intent to diminish the importance of the others (e.g., Spenceley 2003; Buckley 2004; Knight and Gutzwiller 1995; Newsome et al. 2013).

We cannot forget that the tourism sector represents one of the main factors in transforming national economies and advocating sustainable development of natural resources as well as the business entities that offer tourist services in these protected areas. Considering the dynamics and turbulence of business environment change in the current century, only tourism companies that constantly keep on

innovating offerings to visitors can successfully adapt to a new paradigm. Nagy (2012) identified three dimensions of innovation in research focused on review of innovation in tourism sector, and those are human dimension, financial dimension, and organizational dimension. Involvement of employees and tourists in the process of innovation is an aspect of human dimension. Cost, investments, sales, and profit maximization regarding tourism innovation fall under financial dimension. Tourism management and operational activities of companies are aspects related to organizational dimension. In order to manage a protected area effectively, all three factors need to be evaluated very carefully. On the other hand, sustainability was recognized as a separate factor of innovation in tourism sector by Iordache (2015), who further categorized this particular factor into economic (planning and management with the aim of preserving environment quality), social (participation privilege of local residents in various operations related to the visitor consumption), and environmental (complying with capability of natural region and air protection by maintaining biodiversity) dimensions.

Since biodiversity, which varies greatly in different geographical parts of the world, represents an asset to the tourist attraction, its maintenance is vital in sustainable development and conservation of healthy ecosystem (Joshi 2014). Ecotourism is focused on visiting natural regions featuring unique natural resources, including delicate, immaculate, and relatively unobstructed environment where flora, fauna, and cultural heritage are supreme attractions. The majority of national park visitors in captive facilities of undisturbed nature contribute to promoting public awareness about biodiversity and its values. Although declaring protected areas and creating national parks can represent a strategy aimed at increasing benefits and maintenance of natural resources, many social features associated to biodiversity decrease, such as land clearance, pollution, and change in climate, are related to tourism development (Gossling et al. 2010). Management strategies with the purpose of harmonizing biodiversity conservation and tourism development suggest establishment of the so-called national integrated protected areas system that would integrate tourism operations as a source of substitute livelihoods for local and indigenous populations living both inside and adjacent to the protected areas. As an illustrative example of social benefit of natural resources in sheltered regions, Catibog-Sinha (2010) states that research of tourism management in community-based marine protected areas has demonstrated that protecting coral reef not only adds premium to tourist experience but also helps sustain higher fish production, which creates higher economic value for local residents. Thus, local communities in the protected areas very often have benefits that are in relation to tourism development such as increased employment rate of local workers who participate in tourist operations.

3   Methodology

The main objective of the research was to evaluate natural resources and tourism offer of two astonishing natural areas in the Southeastern Europe, Una National Park located in the western part of Bosnia and Herzegovina and Plitvice Lakes National Park located in the central region of Croatia. These two national parks are interesting, primarily because of the very small distance (only 40 km away), almost identical natural characteristics, yet so big difference in tourism development. Similarities of the nature base of these regions will be analyzed and compared using theoretical framework presented in the literature review regarding sustainable tourism development. Specific travertine–tufa formations that are among the rarest in Europe, clean water, and preserved natural environment are the supreme reasons for the establishment of these regions as national parks. Flora and fauna with the mentioned characteristics create conditions for further protection, potential scientific research, and development of nature-based tourism. Natural resources analysis in terms of geographical and environmental factors is then enriched with comparative analysis of social impacts in the context of business models used in creation of tourist offers in the case of these national parks. Dimensions of tourist offer in these protected areas are relevant for the sustainability of natural resources, and the objective was to examine their impact on the business performance with operational activities located in this tourist attraction region as well as nature protection strategies that conflict with tourist offer.

Since level of tourist satisfaction and loyalty depend on the quality of tourist services, the application of management principles in the offer creation is discussed in terms of identifying critical elements of the tourism strategy in the protected area. Protected areas require customized tourism strategies due to the dual goals of achieving economic independence as well as natural biodiversity protection. Given the sensitivity of tourists who negatively react to any inconsistency with the marketing strategy and tourist services delivery, it is imperative for tourist agencies and other stakeholders involved in the process of strategy creation to understand the market demand and primary reasons for which tourists select a particular natural area as a travel destination. Data was collected from the two national parks, and comparative factor analysis of their tourist offers was done in order to determine if elements of business management and organization, offer creation, and tourist marketing are more important than the natural resources features in achieving high level of tourist satisfaction and retention as well as the influence of verbal recommendation (also called word-of-mouth advertising) in the increasing number of tourists.

Biodiversity analysis of these territories was conducted on the basis of available relevant biological studies of this particular region in the Southeastern Europe. Plant and animal species important for tourism offer creation in terms of perceived value and attractiveness were presented, along with endemic species. They were categorized in accordance with their taxonomic affiliation in order to perceive the biodiversity extent and image of these territories. Afterward, biodiversity of these

two territories was compared, along with calculation of absolute and relative number of species and their share in the overall biodiversity index. Comparison analysis is represented in graphs due to better visibility of important differences. Biodiversity analysis was carried out using BioDiversity Pro 2.0 software, and Shannon–Weaver biodiversity index was calculated for each tourist destination. Moreover, cluster analysis was conducted in the form of a dendrogram in which similarities or dissimilarities of represented species in these national parks were compared. In line with biodiversity analysis, comparison of competitiveness between these national parks was carried out in accordance with different criteria of tourism offer that were graded using the 5-point Likert scale. Parameters regarding natural factors such as biodiversity indices that were calculated contribute to better understanding of the importance and attractiveness of natural resources as part of tourism offer, and they also contribute to raising awareness about the importance of sustainable development. In the end, advantages of cooperation between national parks and creation of mutual tourist services are also considered and discussed.

4   Results of Comparative Analysis of National Parks Plitvice Lakes and Una

Proclaimed in 1949 and listed to the UNESCO's World Natural Heritage List in 1979, Plitvice Lakes National Park is the oldest national park in Croatia and certainly the most famous. Its main purpose as a protected area is scientific and educational, but with time Plitvice became actuator of regional development mainly through tourism. Unlike the Una National Park, Plitvice Lakes National Park has over 60 years of tradition and experience in terms of management of protected area and tourism development. Both Una National Park and Plitvice Lakes National Park are members of the EUROPARC Federation, a network for European natural and cultural heritage created to improve management of protected areas in the Old Continent through international cooperation, through exchange of ideas and experiences, as well as by influencing policy making regarding the subject matter. On the other hand, Una National Park was recently established and has been officially in existence since 29 May 2008 as a third national park in Bosnia and Herzegovina with Sutjeska and Kozara. However, some general establishment procedures are yet to be finalized.

The idea of protection of Una river basin emerged back in the 1960s, but serious activities were undertaken by the Tourist Office of Bihac Municipality, as well as many researchers and nature lovers in 2001. National Park Una covers the area of the upper Una river basin as well as the area of the Unac river. Una National Park and Plitvice Lakes National Park represent a unique nature habitat for many flora and fauna species. Una is a part of Una–Korana plateau. Geomorphologically, Una National Park is significant for its karst and calcareous sinter formations and

hydrography, which with Plitvice creates unique wider range phenomena. In cultural and historical aspect, Una National Park is also known for its archeological findings and monuments that are not well presented to tourists. Regardless of almost identical geographical and natural characteristics, there are significant differences in tourism development of Una and Plitvice national parks that will be presented in the following sections of the paper.

In the recent years, several cross-border projects in the field of ecotourism and sustainable development of protected areas have been realized in cooperation with national parks Una and Plitvice Lakes with the objective of promoting new international partnerships and agreements that will empower this unique geographical region for global tourism operations. The paper explores biological biodiversity, geographical location, and tourist offer for both, Plitvice Lakes and Una national parks, in order to determine if one of the tourist attractions has richer biological base and its influence is examined in terms of the organization and management, service quality, development of infrastructure, education, and research. These national parks in the Southeastern Europe offer some mutual services due to only 30 min of driving distance that enable them better positioning in the international tourism market (Figs. 1 and 2).

4.1 Biodiversity of Wildlife in Plitvice Lakes National Park

Plitvice Lakes is the most famous and popular national park in Croatia. Legend says that it was formed after a great drought when the Black Queen answered the prayers of people and animals and gave them a natural paradise on earth with plenty of water. The total area size is 29,685 ha, where lakes make up 200 ha and forests 13,320 ha, with the rest being pastures and other surfaces. Plitvice Lakes lies at 600 m above sea level. The lowest point is 367 m at the Koranski bridge and the highest point is 1279 m at Seliški vrh Mt. The National Park consists of 16 lakes which gradually cascade into one another on a 5460 m long straight line. The lakes are divided into Upper and Lower Lakes (Njavro 2005). Plitvice Lakes is a unique natural region with a specific karst hydrography of immeasurable value for nature, apart from its rich flora and fauna. Due to its diversity, Plitvice Lakes National Park was inscribed on the World Heritage List in 1979. Plitvice Lakes is located on the border between two climate regions, maritime and continental, where alternate humid maritime air and continental air currents meet (Nikolic and Topic 2005).

Due to high biodiversity of wildlife and the presence of relict, endemic, rare, and protected species, many of which are listed in the Red Book of plant species of Croatia and IUCN Red List of endangered plant species; this national park is an extremely valuable area in terms of flora and fauna, not only in Croatia but also in Europe and the world (Nikolic and Topic 2005). According to the publication National Park Plitvice Lakes Management Plan published in 2007 by the Croatian Ministry of Culture, in which a research was carried out and a wildlife inventory was made, this area is rich in endemic and endangered species. Due to its extreme
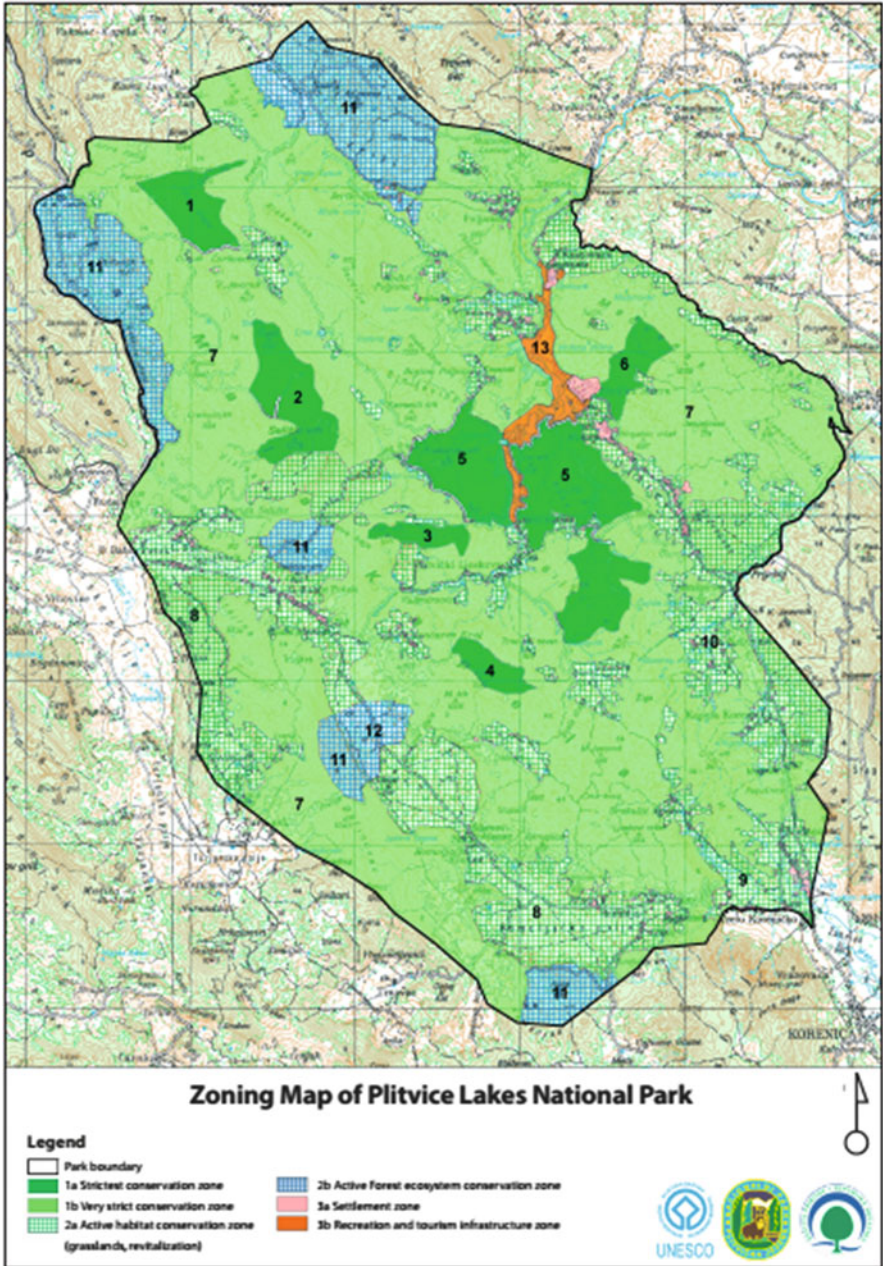
Fig. 1 Plitvice Lakes National Park zoning map. *Source*: Ministry of Culture of the Republic of Croatia (2007)

Fig. 2 Martin Brod, Una National Park. *Source*: Authors, Photo taken May 29 2013

level of endangerment, Plitvice Lakes National Park became a member of Karst Ecosystem Conservation (KEC) Project (IBRD GEF TF 050539 HR) of the Global Environment Fund (GEF). The basic aim of this project is the protection of biodiversity and implementation of sustainable development in local communities based on available natural resources. The current state of animal and plant species was estimated through this project (represented in Table 2).

According to Table 2, the total number of plant and animal species living in this territory is approximately 2015, out of which 645 belong to fauna and 1370 belong to flora, i.e., 32.01 % of overall wildlife of Plitvice Lakes National Park is fauna and 67.99 % is flora. Some of the mammals living in the National Park and contributing to its tourism attractiveness are brown bear *Ursus arctos* Linnaeus, 1758, that is also the trademark of this National Park. Apart from brown bear, other large carnivores living in this region are lynx (*Lynx lynx* Linnaeus, 1758), wildcat (*Felis sylvestris* Schreber, 1775), and wolf (*Canis lupus* Linnaeus, 1758), which are endangered (IUCN Red List) and protected animals. Other registered animals in the park are solitary animals and smaller populations of foxes (*Vulpes vulpes* Linnaeus, 1758), badgers (*Meles meles* Linnaeus, 1758), pine martens (*Martes martes* Erxleben, 1977), beech marten (*Martes foina* Erxleben, 1977), polecats (*Mustela putorius* Linnaeus, 1758), least weasels (*Mustela nivalis* Linnaeus, 1758), and short-tailed weasels (*Mustela ermine* Linnaeus, 1758). Large herbivores represent a special tourism attraction for visitors, and they are roe deer (*Capreolus capreolus* Linnaeus, 1758) and red deer (*Cervus elaphus* Linnaeus, 1758). Moreover, the presence of wild boar (*Sus scrofa* Linnaeus, 1758) has been recorded. The abovementioned research registered a variety of amphibians and reptiles in the park, of which

Table 2 Plitvice Lakes National Park wildlife biodiversity

Taxonomic groups	Number of species	Number of endemic and endangered species in the EU[a]	%, share of overall number of species
Mammals	50	5	2.48
Birds	161	38	8.00
Amphibians and reptiles	24	3	1.19
Freshwater fish	7	3	0.35
Crabs	2	1	0.09
Insects (total)	401[b]	3	19.9
Spiders	[c]	[c]	/
Vascular plants	1370	25	67.99
Lichenes	[c]	[c]	/
Total	ca 2015	78	100

Source: Ministry of Culture of the Republic of Croatia (2007), own calculations
[a]Directive on the conservation of natural habitats and of wild fauna and flora (Council Directive 92/43/EEC)
Directive on the conservation of wild birds (Council Directive 79/409/EEC)
[b]Incomplete inventory of taxonomic groups
[c]Unexecuted inventory of taxonomic groups

especially interesting are populations of Italian crested newt (*Triturus carnifex* Laurenti, 1768) and Alpine salamander (*Salamandra atra* Laurenti, 1768), species characteristic for the region of the Alps and the western Dinaric Alps. Also present is nose-horned viper (*Vipera ammodytes* Linnaeus, 1758).

There are eight species from the order of Chiroptera Blumenbach, 1779, that are being reproduced in the National Park. Other species significant for tourism are western barbastelle (*Barbastella barbastellus* Schreber, 1774), long-fingered bat (*Myotis capaccinii* Bonaparte, 1837), and species that use park's caves as shelters (*Miniopterus schreibersii* Kuhl, 1817; *Rhinolophus euryale* Blasius, 1853; *Rhinolopus ferrumequinum* Schreber, 1774) (Djulic and Tvrtkovic 1979; Djulic 1994). There are 321 butterfly species mapped in the National Park, of which there are 76 species of true butterflies and 245 species of moth butterflies. Representatives of true butterflies are of significant tourism importance because they contribute to the landscape with rich vegetation during sunny days leaving tourists speechless (Koren 2010). There are three interesting species from the family of common blue butterflies which are listed in IUCN Red List of Threatened Species, Red Data Book of European Butterflies, and Red List of Threatened Plants and Animals of Croatia. These three species are very interesting because of their specific developmental life cycle, i.e., the type of symbiosis they develop with ants as well as the connection with a specific plant species, where females lay eggs and they represent a taxonomic character for each species. Large blue butterfly (*Maculinea arion* Linnaeus, 1758) lays its eggs on thyme (*Thymus* spp.), mountain alcon blue (*Maculinea rebeli* Hirschke, 1904) lays its eggs on star gentian (*Gentiana cruciata* L.), and alcon large blue (*Maculinea alcon* Denis &

Schiffermüller, 1775) lays eggs on the marsh gentian (*Gentiana pneumonanthe* L.) (Koren 2010).

Ornithofauna of the National Park is comprised of 161 bird species, of which 103 species are permanent park residents. There are numerous bird species living in forests. The Red List of Threatened Plants and Animals of Croatia includes 38 species: 1 species in the category of critically endangered species (CR) (short-eared owl, *Asio flammeus* Pontoppidan, 1763, which is an irregular nesting bird in the Park), 6 species in the category of vulnerable species (VU) (peregrine falcon, *Falco peregrinus* Tunstall, 1771; European honey buzzard, *Pernis apivorus* Linnaeus, 1758; Eurasian pygmy owl, *Glaucidium passerinum* Linnaeus, 1758; and corn crake, *Crex crex* Linnaeus, 1758, which are regular nesting birds; black stork, *Ciconia nigra* Linnaeus, 1758; and common sandpiper, *Actitis hypoleucos* Linnaeus, 1758, which are irregular nesting birds in the Park), 12 species in the category of near-threatened species (NT), and 22 species in the category of least concern species (LC) (Rucner 1998; Lukac 2001). Birds in this geographical region have very specific characteristics, including bird song and color, which greatly contribute to the tourist attractiveness of the Plitvice Lakes National Park.

As part of KEC Project, which included field research from 2004 to 2006, 1370 plant species were identified, some of which are very medicinal, aromatic, and ornamental. In accordance with the types of habitats and other factors that influence the development of endemic flora, the number of endemic species in the Park is relatively low, and it makes up about 1.7 % of the overall flora. The number of taxa, i.e., the overall flora, surely must be larger since the process of making inventory was disproportionate in the first part of the year. An extraordinary diversity of orchids mostly contributes to tourism attractiveness of this park. Many of them are rare and endangered. The total of 50 taxa of orchids was registered representing less than one third of all Croatian orchids, and European taxa of lady's slipper orchid (*Cypripedium calceolus* L.), growing in park's forests, have the most numerous populations in Europe (Segulja and Krga 1990; Segulja 2000, 2005). The abovementioned parameters clearly corroborate the opulence of biodiversity and uniqueness of this park. Plitvice Lakes National Park is thus the initiator of sustainable development in the region, and, together with Una National Park, it offers new experiences to visitors as well as opportunities for education and scientific research.

4.2   Biodiversity of Flora and Fauna of Una National Park

Una National Park, or as local inhabitants call it "the last European paradise," covers the area of the canyon of the upper course of the Una river, upstream from Lahovo, then the area of the canyon of the upper course of the Unac river until its mouth into the Una upstream from Drvarsko Polje and the area between Una and Unac. A very heterogeneous complex of abiotic ecological factors in the territory of

19,800 ha resulted in the appearance of a large and unique biodiversity of flora and fauna. According to the law of Federation of Bosnia and Herzegovina, Una National Park covers a strictly and targeted protected area without or with a moderate anthropogenic influence, which additionally enables sustainability and development of a natural biodiversity of flora and fauna only in line with the rules of natural environment (Official Gazette of BiH, 2008, Law on "Una" National Park, No 33/03).

The studies carried out by the Croatian State Institute for Nature Protection within the project "Assess and protect Una river—unique networking argument (U.N.A.)" as part of Adriatic New Neighbourhood Programme INTERREG/ CARDS-PHARE estimated that the biodiversity of flora and fauna of Una National Park has the most heterogeneous characteristics in this part of Europe. This scientific study determined that there are 898 plant and animal species in Una National Park, out which 325 animal species, 397 plant species, and 23 lichen species, many of which are endemic, endangered, and protected species. Although a comprehensive inventory of biodiversity of flora and fauna of Una National Park was not made through this project's study, the obtained information show a great natural potential and touristic attractiveness of this area. Moreover, this study has shown that the main precondition for the development and integrity of biodiversity of wildlife in this National Park is conservation of water quality and the natural course of the Una river (Dumbovic et al. 2009). The estimated biodiversity of plant and animal species according to the aforementioned study is presented below (Table 3).

According to the publication *National Park Una—Biodiversity, Abundance in Culture and Tradition* published in 2011 and funded by the Ministry for Foreign Affairs of Finland, 48 taxa of macroscopic invertebrates were recorded on

Table 3 Biodiversity of flora and fauna of Una National Park

Taxonomic groups	Number of species	Number of endemic and endangered species in the EU[a]	%, Share of overall number of species
Mammals	22	10	2.4
Birds	56	9	6.3
Amphibians and reptiles	18	13	2.0
Freshwater fish	37	13	4.2
Crabs	1	/	0.1
Insects (total)	ca. 286	12	31.8
Spiders	58	/	6.4
Vascular plants	ca. 397	/	44.2
Lichenes	23	/	2.6
Total	ca. 898	57	100

Source: Dumbovic et al. (2009), own calculations
[a]Directive on the conservation of natural habitats and of wild fauna and flora (Council Directive 92/43/EEC)
Directive on the conservation of wild birds (Council Directive 79/409/EEC)

travertine waterfalls of Una, out of which 12 species belong to the order of mayflies Ephemeroptera Hyatt & Arms, 1891; 11 species to the order of Plecoptera Burmeister, 1839; 31 species to the order of Trichoptera Kirby, 1813; and 22 species from the order of Odonata Fabricius, 1793. The order of Odonata Fabricius, 1793, represents a specific biological order that is an inexhaustible source for scientific research because of its variety of species and hybrids. Particular biotic and abiotic factors enable intersection of various sorts of animals with similar genetic structure, but different species, and for that reason, the order of Odonata Fabricius, 1793, is responsible for the great level of biodiversity in this park.

Considering the established existence of aforementioned aquatic organisms in this territory and their specific biological characteristics (narrow ecological valence), these organisms represent bioindicators of clean waters, which are a clear evidence that environmental changes as the result of anthropogenic influence are minimal and that the water is of high quality and potable (Matonickin et al. 1999; Dumbovic et al. 2009). Una National Park also holds organisms from the order of anurous amphibians Anura Fischer von Waldheim, 1813, some of which are very rare and endangered such as *Bombina bombina* Linnaeus, 1761 (fire-bellied toad), and *Hyla arborea* Linnaeus, 1758 (European tree frog). From the order of Caudata Scopoli, 1777, this locality is the home of *Triturus carnifex* Laurenti, 1768; *Salamandra atra* Laurenti, 1768; and *Proteus anguinus* Laurenti, 1768. Olm is endemic to Bosnia and Herzegovina, Croatia, Montenegro, and Slovenia and represents a significant tourist attraction in this territory. These species of amphibians are protected by the Bern Convention (Appendix II, strictly protected species) and by the European Habitats Directive (Annexes II and IV). They are also protected by the Ordinance on proclamation of wild taxa protected and strictly protected (NN 07/06), where they are classified as "strictly protected taxa."

Among reptiles, Una National Park is home mainly to continental species such as endemic to Dinaric karst, blue-throated keeled lizard *Algyroides nigropunctatus* Duméril & Bibron, 1839. This species with a specific and intensive color on the neck and abdomen is characteristic for Mediterranean climate and coastal area, and it represents a natural attraction in this region (Böhme et al. 2005). Moreover, this location is home to endemic to the Balkan Peninsula, *Vipera berus bosniensis* Boettger, 1889, or Bosnian viper of yellow and brown color with broken-up stripes on its back, as well as endemic to Eastern Alps, Horvath's rock lizard, *Iberolacerta horvathi* Méhely, 1904, and *Vipera ursinii* Bonaparte, 1835. According to the Convention on conservation of wildlife and natural habitats, this region is home to strictly protected species of reptiles such as European pond turtle, *Emys orbicularis* Linnaeus, 1758; Hermann's tortoise, *Testudo hermanni* Gmelin, 1789; green lizard, *Lacerta viridis* Laurenti, 1768; nose-horned viper, *Vipera ammodytes* Linnaeus, 1758; slow worm, *Anguis fragilis* Linnaeus, 1758; and grass snake, *Natrix natrix* Linnaeus, 1758.

Out of about 20 mammal species living in Una National Park, nine belong to order of bats, Chiroptera Blumenbach, 1779. Colonies of Geoffroy's bat, *Myotis emarginatus* Geoffroy, 1806, and greater horseshoe bat, *Rhinolophus*

ferrumequinum Schreber, 1774, were discovered in a church attic in Kostajnica. Out of order of rodents, Rodentia Bowdich, 1821, five species live in this territory: alpine pine vole, *Microtus multiplex* Fatio, 1905; (endemic) garden dormouse, *Eliomys quercinus* Linnaeus, 1766; coypu, nutria, *Myocastor coypus* Molina, 1782; harvest mouse, *Micromys minutus* Pallas, 1771; and *Dinaromys bogdanovi* V. et E. Martino, 1922 (Krystufek 2008; Dumbovic et al. 2009).

Una National Park is inhabited by the three largest European carnivores from the order of Carnivora Bowdich, 1821, and those are gray wolf, *Canis lupus* Linnaeus, 1758; lynx, *Lynx lynx* Linnaeus, 1758; and brown bear, *Ursus arctos* Linnaeus, 1758. A significant population of otter, *Lutra lutra* Linnaeus, 1758, was registered. Ornithofauna of this region is represented with 56 bird species. Two of the most endangered species of mosaic agricultural landscape were registered in this region—corn crake, *Crex crex* Linnaeus, 1758, and European roller, *Coracias garrulus* Linnaeus, 1758. Along the Una river, there are numerous bird species living alongside preserved rivers and natural riverbanks, such as common sand-piper, *Actitis hypoleucos* Linnaeus, 1758, and the bird with a particular call as a tourist attraction and experience of this region, common kingfisher, *Alcedo atthis* Linnaeus, 1758. Ichthyofauna of the Una river and its tributaries is represented with about 37 fish species, although it cannot be claimed that this is the final number. When it comes to the number of populations, the Una is one of the most important rivers for conservation of populations of Balkan loach, *Cobitis elongata* Heckel & Kner, 1858 (IUCN Red List of Threatened Species 2006), and *Sabanejewia balcanica* Karaman, 1922 (IUCN Red List of Threatened Species 2008). Numerous populations and high incidence were registered for large-spot barbel, *Barbus balcanicus*. Based on the number and frequency of species, the dominance of barbels and other rheophilous cyprinids can immediately be noted (Dumbovic et al. 2009).

Geomorphological land structure, terrain configuration, as well as difference in sea level resulted in great diversity of fauna of this National Park. According to the study carried out within "Assess and protect Una river—unique networking argument (U.N.A.)" as part of Adriatic New Neighbourhood Programme INTERREG/CARDS-PHARE, 397 species of vascular plants were registered. There are 177 medicinal plants and 105 potentially medicinal, vitaminous, edible, and aromatic plant species registered. Endemic species such as *Gentiana lutea* L., *Gentiana punctata* L., *Leontopodium alpinum* Cass 1922, *Pinus mugo* Turra, and *Campanula unensis* L. with their intensive colors and scents contribute to the landscape and tourism attractiveness of this National Park (Dumbovic et al. 2009). With its characteristics, Una National Park is a unique region in Bosnia and Herzegovina and even in Europe, where a harmonious interaction between flora and fauna and the tradition of inhabitants was achieved.

4.3   Tourism Development in Plitvice and Una National Parks

Protected areas are geographical regions of special value established to protect the integrity and diversity of nature against human destruction. The inhabitants who live in the protected area demand development, which enables the modern way of life. Due to conflict of interest between the park management and the local inhabitants, there often arise conflict situations and dissatisfaction on both sides. In order to enable sustainable development of protected areas, it is necessary to find the management models that can provide nature preservation and economic development at the same time. Observed in this way, tourism can become generator of the local economy and provide profit to the protected area. Many researches throughout their studies confirmed that tourism can have a positive influence on the nature conservation (Goodwin and Roe 2001; Hochtl et al. 2005; Nyaupane and Thapa 2006) and at the same time help local communities that often see nature conservation as a threat to economic development for local people.

Plitvice Lakes and Una national parks represent a unique combination of environmental and cultural values that signify grounds for sustainable tourism development on the basis of activities, in accordance with the spatial plans of special purposes and management plans of national parks. The European Parliament awarded the Certificate for Sustainable Tourism to Una National Park. This is the first protected locality in Bosnia and Herzegovina which received the European certificate for sustainable tourism. According to the biodiversity analysis, Plitvice Lakes and Una national parks have almost the same nature basis potential for tourism development. Analyzed characteristics, presented in Table 4, confirm that both, Plitvice National Park and Una National Park, have the potential for environment and culture uniqueness which are crucial for tourism development. Also, Plitvice and Una cooperation was encouraged throughout several international projects that include tourism as the most important development activity.

When it comes to tourist statistics of observed national parks, several considerations must be taken into account. As one of the most visited tourist destinations, Plitvice Lakes is well known and very popular among foreign tourists. According to the reports of the Plitvice Lakes Tourist Board, in August 2010, a record was reached in terms of number of visitors per month (282,325 visitors), which was almost 30 % of total annual visitation rate. Plitvice Lakes National Park in 2014 was visited by 1,184,449 tourists, which is slightly lower (0.4 %) compared to 2013. Very good results have been achieved in October 2014 during a special tourist offer called Family Week. On the other hand, in Una National Park, visitation rates are much different. Not all tourist pay the entrance fee because the large area of the park is "free" for visits as well as certain activities. In 2013, 23,000 visits with paid tickets were registered. Estimated value of total visits for last year was around 40,000 due to inefficient organization and entrance payment system in Una National Park. In the case of Plitvice Lakes National Park, the growing number

Table 4 Characteristics of tourism in Plitvice Lakes and Una national parks

Plitvice Lakes National Park	Una National Park
Long tradition (established in 1949)	New on the market (established in 2008)
Good management (well organized, marked paths and entrances)	Insufficient organization (no exact statistics about the visitors, not all tickets are paid, etc.)
Developed recreation, ecotourism, educational tourism, etc.	Possibilities for the development of adventure tourism, ecotourism, recreation, etc.
Tourist brand—well known on domestic and foreign tourist market	Not recognized on foreign market due to lack of marketing activities
Organized tourist offer (cooperation with more than 900 tourist agencies, agents, and tour operators)	Not enough tourist activities (the most famous are Una regatta, canoeing, and rafting)
Finances itself	Depends on foreign funds, projects, and the state
Invest in marketing activity (updated web page, different tourist brochures, prospects, maps)	Started marketing campaign (cooperation with Plitvice Lakes National Parks)
Cooperation of the two national parks will strengthen the position of Plitvice Lakes and positively influence tourism development of Una	

of tourists is of concern in terms of area management, pressures on the nature, and conservation of the exceptional biological species.

When compared to Una, Plitvice Lakes National Park is more independent as a protected area that finances itself generating all necessary income via tourism activities. Una National Park depends on the state and canton budget, international projects, etc. Plitvice Lakes National Park has well-developed tourism infrastructure that includes four hotels, several restaurants, souvenir shops, and two camp sites as well as private registered accommodation. In the wider area of Una, there are two hotels, three pensions, and a private accommodation (including Martin Brod and Kulen Vakuf—total of 35 beds). The most attractive tourist area of Plitvice Lakes National Park is the lake zone that represents recreational and tourism zone, where almost all tours start. There are several different tourist programs, and most of them include an electric boat ride on Lake Kozjak. Tourists can walk around the Park on marked trails by foot or take a ride on tour trains. At the moment in the Una National Park, fly-fishing and rafting are the most popular activities. Analyzed nature elements of Una National Park can provide basis for the development of adventure tourism (rafting, kayaking, cannoning, trekking, hiking, biking, etc.). In order to develop sustainable tourism in Una and Plitvice Lakes national parks, it is necessary to make market segmentation and selection of target groups for which the tourist offer needs to be customized. This is important for several reasons. This geographical area that is perfect for certain tourism activities (fly-fishing, bird-watching, walking, canoeing, cycling, etc.) will focus on marketing activities specifically on a certain segment of tourists enabling efficient use of funds intended for promotion or improvement of the tourist product. On the other hand, natural park area will be adjusted only for certain activities, which will further protect zones that would be endangered due to "spontaneous" tourist visits.
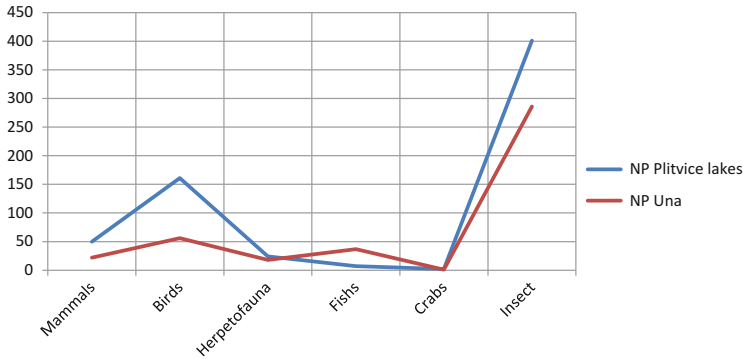
4.4 Comparative Analysis of Biodiversity of National Parks Plitvice Lakes and Una

The processes of natural selection and speciation are frequently related to geological processes and directly impact changes in local flora and fauna (Lelo 2013). Given the factors that influence ecosystems in Una National Park and Plitvice Lakes National Park, it can be concluded that they are very similar and that they are directly responsible for the emergence and existence of a large number of registered species of flora and fauna of these ecosystems. According to Lelo, organisms can live and evolve in locations with a sufficient amount of resources, which enable them to use the acquired energy for growth and reproductions and not only for maintaining metabolic activities for survival which is the case in this territory. Through partial inventory of Una National Park, carried out in 2009 in accordance with Adriatic New Neighbourhood Programme INTERREG/CARDS-PHARE, 325 animal species were registered which were grouped in four classes (Table 5), while through full inventory, carried out in 2007 in the publication *Plitvice Lakes National Park Management Plan*, 654 animal species were registered (Table 1). A comparative overview of biodiversity of fauna in Plitvice Lakes National Park and Una National Park is given in Fig. 3.

In the territory of Plitvice Lakes National Park, 50 species from the class of mammals are registered, i.e., 2.48 % (Table 2), while in the territory of Una National Park, there are 22 species of mammals, i.e., 2.40 % (Table 3) out of the total wildlife biodiversity. Eight percent of the total biodiversity of Plitvice Lakes National Park falls under the category of Aves, i.e., it is represented with 161 species, while the total share in Una National Park is 6.3 % or 56 species. The share of herpetofauna in Plitvice Lakes National Park is 1.19 %, while in Una National Park, it is 2 %. Ichthyofauna in Plitvice Lakes National Park makes up only 0.35 % of the total population, i.e., seven species, while ichthyofauna in Una National Park is numerous, i.e., there are 37 described species or 4.2 % of share in the overall biodiversity. The class of insects is an abundant group of animals in Plitvice Lakes National Park with 401 species or 19.9 % of the total share, given that some orders of insects were not inventoried, while in Una National Park this class is a dominant link in the biodiversity with the share of 31.8 % or 286 described species. During the study, spiders in Plitvice Lakes National Park were not inventoried, but in Una National Park there are 58 species or 6.4 % (Tables 2 and 3).

Table 5 General information about national parks Plitvice Lakes and Una

	Plitvice Lakes National Park	Una National Park
Location of the National Park	Lika-Senj and Karlovac County, Croatia	Municipality of Bihac, Bosnia and Herzegovina
Size (in hectares)	29,685.15 ha (after spatial extension in 1997)	Over 19,800 ha (potentially 34,700 ha)
Foundation time	Initially in 1949 (UNESCO's Natural Heritage List in 1979)	Recently, 28 May 2008 (not yet recognized by UNESCO)

Fig. 3 Biodiversity of fauna in national parks Plitvice Lakes and Una
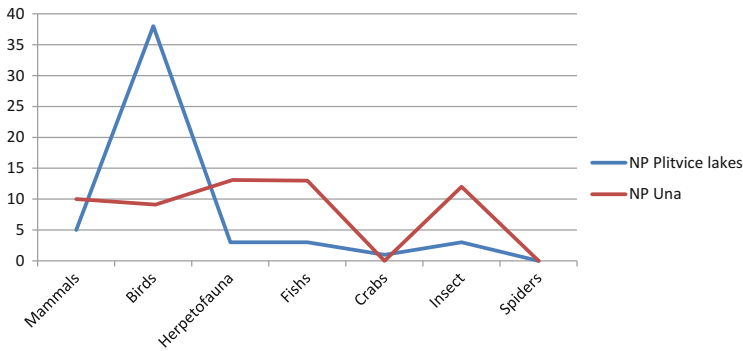
Fig. 4 Comparison of endemic fauna species in national parks Plitvice Lakes and Una

Comparative analysis determined that both national parks are abundant in endemic species of fauna. Endemic species are taxa that have evolved in this territory and have never expanded to other territories or taxa that have a limited distribution and survival in only a certain area (Nikolic 2013). A comparative overview of endemic species is given in Fig. 4.

During the aforementioned studies, 78 endemic and endangered fauna species were registered in Plitvice Lakes National Park (Table 2) and 57 in Una National Park (Table 3). As shown in Fig. 2, Plitvice Lakes National Park has more endemic and endangered representatives of mammal fauna and herpetofauna, while Una National Park has significantly more species in other mapped classes. According to references used, flora species in Plitvice Lakes National Park were mapped systematically over a long period, while species in Una National Park have still not been systematically and completely mapped. A comparative overview of flora biodiversity in accordance with the aforementioned data in national parks Plitvice Lakes and Una is given in Fig. 5.

Flora of Plitvice Lakes National Park is represented with 1370 described species which make up 67.99 % of the overall share of biodiversity, in which there are
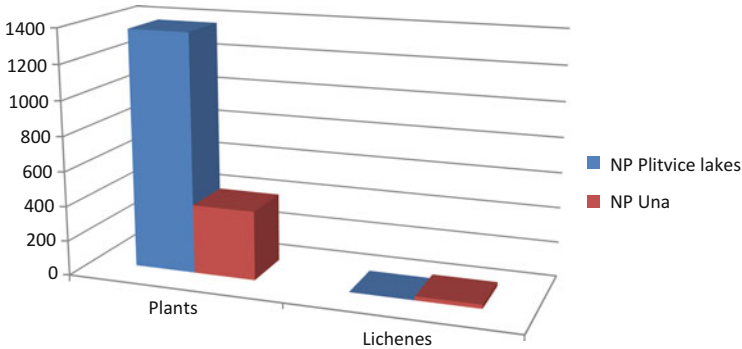
Fig. 5 Comparison of flora biodiversity in national parks Plitvice Lakes and Una
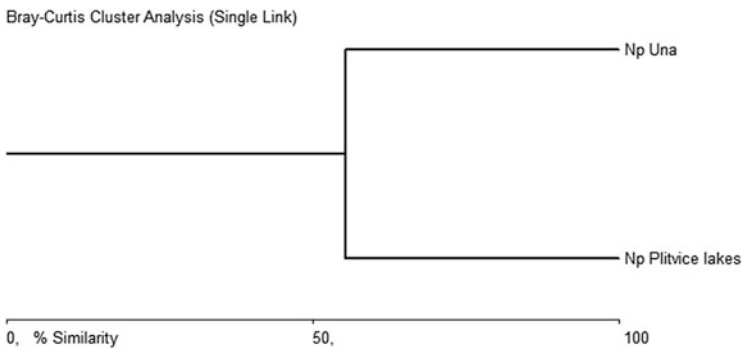
Fig. 6 Cluster analysis of species similarity

57 endemic and endangered species. The total number of mapped plant species in Una National Park is 397 vascular plants, i.e., 44.2 % of the total share. Apart from a large number of biodiversity species, according to the aforementioned parameters from the cluster analysis, the ecosystems of national parks Plitvice Lakes and Una show a high similarity of taxa with represented species in regard to the overall biodiversity of taxa in both localities. According to similarity species dendrogram, both localities belong to the same class with the similarity coefficient higher than 50 %, which is expected given the similarity of abiotic ecological factors that influence both observed territories, and directly influence the development and sustainability of wildlife (Fig. 6).

After calculating the Shannon–Weaver diversity indices for both localities in BioDiversity Pro 2.0 software, Una National Park showed higher biodiversity index value, i.e., 0.462, while diversity index value for Plitvice Lakes National Park is 0.419 (Fig. 7).

The analyses indicate slight differences in taxa biodiversity with represented species as well as a very diverse and numerous plant and animal world, which is one of the basic arguments for touristic development and attractiveness of these
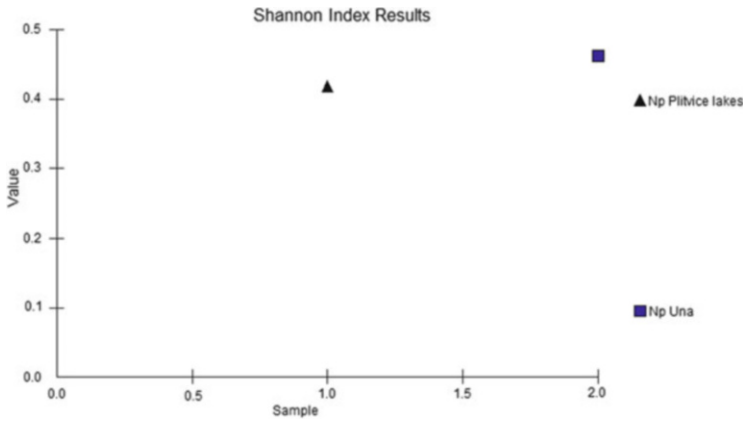
Fig. 7 Shannon–Weaver diversity indices

territories. With all of its characteristics, Plitvice Lakes and Una represent specific and unique natural complexes in the world whose natural resources, apart from tourism, can meet educational and scientific needs of visitors. However, natural resource biodiversity cannot represent a permanent backbone of economic development of a country, but only a stronghold for selecting a production orientation. Using natural resources as a developmental factor requires a strategy of its planned usage. This strategy of using natural resources, as a factor of development, must take into account technological, economic, social, and other aspects.

4.5 Tourism Competitiveness of the Plitvice Lakes and Una National Parks

The competitiveness of a tourist destination on the global market is most closely associated with the different business-related elements of the tourist offer, including the number and quality of accommodation and restaurants, natural and cultural heritage, state of infrastructure as well as hospitality, value for money, legal solutions regulating tourism activities, availability, tourist signalization, etc. Furthermore, to make national parks competitive, in the international or domestic market, tourist destination needs to include various mutually complementary elements of tourist offer which are compatible in an adequate manner. In line with previous indications with the intention to give objective review of today's competitive capacity of tourism in the Plitvice Lakes and Una national parks, it is necessary to define key areas affecting the competitiveness of a destination as well as the so-called key success factors that influence the quality level of each key determinants of destination competitiveness. Only then, it is possible to assess the competitive ability on the basis of qualitative evaluation of the achieved level of

Table 6 Competitiveness analysis of National Parks Plitvice Lakes and Una

Elements of competitiveness	Plitvice Lakes	Una
Availability		
Roads leading to national parks	4.5	3
Settlement availability	4	3
Proximity of the international airport	4	3
Rail connection	4	3
Resource-attraction base		
Landscape diversity	4.5	5
Cleanliness	5	4
Quality of the environment	5	5
Peace and quiet	4	5
Accommodation facilities		
Number of accommodation facilities	5	3
Layout and arrangement of accommodation facilities	5	3
Quality of offer	4.5	3
Additional services offer in accommodation facilities	4	2
Quality and variety of food and drinks in accommodation facilities	4	3.5
Locally produced food in facilities	4	4
Other services		
Presence of special activity organizer	5	3.5
Availability and professionalism of the tour guides	5	4
Existence and diversity of events	4.5	4
Availability and abundance of sports facilities	3.5	4
Availability of bicycle paths	4.5	3
Availability of marked hiking trails	5	3.5
Arranged sight-seeing points	5	3.5
Souvenirs	5	2.5
Marketing and tourist information system		
General impressions on Plitvice Lakes and Una as a tourist destination	5	4
Diversity and quality of tourist brochures	5	4
Availability of tourist info centers	5	3
Quality of online information available	5	3.5

development of each of the previously defined key success factors. Table 6 includes evaluation approach which implies that the competitiveness of tourism in the area of Plitvice Lakes and Una is not evaluated in relation to other (potentially competing) tourist destinations, but more in relation to the ideal state of integrated tourist offer. Assuming that all of the key success factors of a tourist destination have reached the highest level hypothetically, tourist attraction should also achieve the maximum competitiveness due to which it would be superior to all the tourist destinations, in which individual success factors have not necessarily yet reached the highest level.

From the evaluation of the competitiveness level of national parks, it is evident that the weakest dimension in the tourist offer in case of Una includes additional services offer in terms of accommodation facilities because current accommodation should be increased in order to better meet the real market tourist demand for this particular attraction. The lowest evaluated dimension in the case of Plitvice Lakes tourist offer includes the availability and abundance of sports facilities and, in general, the development of adventure/sports tourism compared to Una National Park that has well organized this particular part of the tourist offer.

As geographical areas that directly and indirectly contribute to the quality of services, evaluation of competitiveness of tourism offer in the national parks is shown (Table 6) in terms of availability, resource-attraction base, accommodation, marketing, and tourist information system, as well as other services, which include diversity and scope of supply and the presence of organizer of special activities, tourist guides, tourist brochures, and souvenirs, and they were graded on a Likert scale from 1 to 5, where 1 is very poor and 5 is excellent. Data shown in the table was obtained by field research and talking with the workers of the Tourist Board of Plitvice Lakes and Una-Sana Canton. From the results of the evaluation, it can be concluded that Plitvice Lakes has better organized tourist offer portfolio.

5   Conclusion and Discussion

Evaluation of natural resources biodiversity and tourism offer of two wonderful geographical regions in the Southeastern Europe, Una National Park located in the western part of Bosnia and Herzegovina and Plitvice Lakes National Park located in the central region of Croatia, has shown that these two national parks have a unique location as well as biodiversity indices which represent solid ground for competitive advantage development for specific forms of tourist offer in the international market such as ecotourism, nature-based tourism, and sustainable development of natural resources. The distance between these two tourism attractions is only 40 km away from each other, and they also have very similar, almost identical, natural characteristics such as flora and fauna, but yet a so big difference is present in terms of tourism management and organization and development of specific tourist services. It is evident, from the comparative analysis of competitiveness of these tourist destinations, that the weakest dimension in the tourist offer in the case of Una National Park is related to additional services offer in terms of accommodation facilities capacity because the current accommodation should be increased in order to better meet the real tourist market demand for this particular attraction and the lowest evaluated dimension of Plitvice Lakes National Park tourist offer includes the availability and abundance of sports facilities and, in general, the development of adventure/sports tourism, which is in Una National Park one of the most popular segments of tourist offer, including activities such as fly-fishing and rafting. Further, these two protected geographical areas directly and indirectly contribute to the quality of tourist offer in this particular part of the world, and the comparative

evaluation of competitiveness of tourism in the national parks Una and Plitvice Lakes has shown that there is an enormous development opportunity in creation of complementary tourist products and services due to minimal terrestrial distance. In the recent years, several cross-border projects in the field of ecotourism and sustainable development of protected areas have been realized in cooperation by these two protected areas with the objective of promoting new international partnerships and agreements that will empower this unique geographical region for global tourism demand operations. Hence, future cooperation between these national parks is highly desirable by creating mutual tourist offer that would be based on the strengths of each tourist attraction. These partnership strategies and hybrid tourist offer would be beneficial for both parties involved by exchange of experiences and knowledge that would result in a more efficient and effective organizational learning, increase level of protection and conversation of natural resources biodiversity, and empowerment of brand in ecotourism specific only for this unique location that is abundant in endemic species.

Tourism development in the region of Una National Park urgently needs a precise strategy for the sustainable development and promotion of tourism and finalization of tourism offer in order to affirm national parks as a competitive tourism destination which includes entrance pricing policy, enhancement of marketing activities, quality improvement of tourism facilities, training for travel staff, more adequate tourist destination signalization, and expansion of existing and development of new accompanying infra- and superstructure, including accommodation and catering facilities, as well as better organized spatial planning of the area. Since tourism is not adequately incorporated in the overall economic structure of the Una-Sana Canton, the most intensive activities should be aimed at strengthening the human potential and capacity and also the accommodation facilities, which will enable proper diversification of the tourist offer and its promotion, and increasing the share of tourism in the national economy. It is also necessary to monitor tourist flows and trends in the region due to the relatively small size of tourist market in Bosnia and Herzegovina. Promotional activities and recommendations of friends and family (or the so-called word-of-mouth marketing) have a crucial influence in brand recognition by international tourists that are sources of financial capital necessary for sustainable development. Therefore, redesign of management structure is necessary in creating grounds for an effective team of managers and travel workers that could influence brand creation of the Una National Park.

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Between Teaching, English Language, and Supervisor: Young Business Scholars Under the Pressure of Transforming Academia

Anna Ligia Wieczorek and Maciej Mitręga

Abstract Research on factors that have an influence on scholars' success has a rather long tradition, but only recently has this research field become a hot topic in management research, which means that our knowledge of the determinants of success in business academia is fairly new and fragmented. The study presented in this paper contributes to this knowledge by empirically testing the influence of selected factors on research productivity of young business scholars working in Visegrad countries (the Czech Republic, Hungary, Poland, and Slovakia). The research productivity is defined and measured through scholars' publication scores, including publications in journals with JCR's Impact Factor (IF). The study suggests that among key determinants of the success of a business scholar from Visegrad area, there are English language skills and teaching load. Surprisingly, productivity of young business scholars seems not to be leveraged much by the recognizability of their supervisors. Moreover, contrary to some other studies, teaching load correlates positively with research productivity. At the end of the paper, the results of empirical study are discussed in the context of prior studies and specific features of academia in postcommunist countries.

Keywords Research productivity • English language • Teaching • Supervisor • Academia

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1 Introduction

Academia is nowadays facing institutional changes all over Europe, and these changes, in turn, affect professional development of scholars (Hicks 2009). Their productivity is now assessed in the context of promotional procedures, and especially young scholars from so-called non-Western countries which lack research tradition directed at publishing papers in respectable scientific journals, i.e., with JCR's Impact Factor (IF), find it difficult to meet the criteria of contemporary academic promotion. Impact scores cover only journals written in English which vastly originate from the USA and Great Britain, which, in turn, clearly shows that publishing in good journals is closely connected with the English language (Stremersch and Verhoef 2005).

On the one hand, the productivity of scholars itself and its determinants have quite long research tradition (e.g. Wanner et al. 1981); however, only recently the research productivity of scholars became the "hot topic" in management and organizational studies, in view of the fact that so-called publish or perish culture has become a dominating culture in leading academic institutions and international competition between universities and scholars themselves increased dramatically (Ferris et al. 2008; Miller et al. 2011; Valle and Schultz 2011). Previous studies relating to productivity of scholars were mainly Western countries oriented (Lee and Bozeman 2005; Flynn et al. 2011), but as Hedjazi and Behravan (2011) and Önder and Kasapoğlu-Önder (2011) imply, few studies in this area that were based on research conducted in very different cultural and institutional contexts suggested that there are some important country-specific factors. This way, the international validity of the prior, Western-oriented, studies may be questioned.

We can specifically witness a lack of studies devoted explicitly to factors contributing to productivity and career development of scholars from postcommunist countries, such as Visegrad countries (V4), embracing Poland, the Czech Republic, Slovakia, and Hungary. Due to long period of communism and "iron curtain," the V4 scholars were isolated till the 1990s from Western scientific literature, English language, and, even more importantly, Western academic culture. As a result, they are in worse position while facing new demands for academic promotion than their colleagues from more developed, Western countries. Taking that into consideration, we decided to investigate how Visegrad scholars in various business disciplines find their way to newly defined academic promotion, frequently without institutional support (because of the lack of Western research tradition and the lack of appropriate training programs), being forced to publish in English and combine teaching load with research and international cooperation, which is of vital importance when it comes to publishing in IF journals.

2 Research Approach and Respondents' Description

The purpose of this study was to find if, and if so, to what extent, such factors as teaching load, English language skills, and supervisor's recognizability evoke research productivity of young Visegrad scholars specializing in the business field. These three factors were chosen as a result of a qualitative study preceding the quantitative research. The first stage of the research process was qualitative in nature for the reason that talking about one's productivity, success, and failure in relation to occupational context and one's own development are rather sensitive issues with strong propensity toward social desirability phenomenon. It requires gaining trust of the subjects and, at the same time, taking care to distinguish between truth and lies, what forces the researcher to come really close to their respondents. According to Gibbs (2010) and Konecki (2000), qualitative research methods work very well in such context. Quantitative research was carried out in order to validate the results of the qualitative study. Careful literature review with regard to prior studies devoted to the determinants of the research productivity was made after the qualitative study stage, in order not to bias it (e.g., through too structured pre-understanding of this research area).

3 Qualitative Study Description and Respondents' Characteristics

The qualitative sample was composed of 19 scholars working in Visegrad countries (Poland, the Czech Republic, Hungary, and Slovakia), up to the age of 35. There were 11 participants from Poland and 8 participants from other Visegrad countries, covering representatives of all of these countries. The assumption of the sample selection was to find rather successful scholars, whose success was manifested by relatively high Hirsch index and/or a number of publications in journals. Sampling procedures were based on snowball sampling techniques and the sample was nonrandom in character. The research tool chosen was an in-depth, semistructured interview carried out by the authors of this paper. The interviews with Polish researchers were carried out in Polish, whereas the interviews with scholars from other Visegrad countries, in English. In the interview script, the respondents were asked about factors evoking and hindering productivity, national and international cooperation with other scholars (finding partners, initiating, sustaining and breaking cooperation, if necessary), and strategies for publishing in prestigious journals. The interviews were recorded, transcribed, and double coded in order to minimize interviewer's bias (Krippendorf 2004).

4 Qualitative Study Results

The interview results clearly showed that Visegrad young scholars find the knowledge of English, teaching load and supervisor's support as factors having a great influence on their prospective academic success manifested by a number of publications in IF (Impact Factor) journals.

As mentioned earlier in this paper, most IF journals are English language-oriented journals, so writing for them means writing in English. This means that contemporary young scholars, who want to be productive, should have a good command of English. Most respondents were of the opinion that their English was good enough to communicate, but they admitted that writing academic papers in English was a different story due to the fact that editors of prestigious journals usually expect a very good knowledge of English and appropriate style. Of course, young scholars learned English in the process of schooling, and it makes it possible for them to communicate. They did not, however, learn how to write academic texts in English. Some of the respondents mentioned that a good mentor (usually one from an English-speaking country) would help a lot. Unfortunately, without a good knowledge of English and foreign networking opportunities, it is difficult to find such a person. For that reason, the respondents rather expected some help from their supervisors than from a foreign mentor. Some young scholars claimed that they benefited from their supervisor's contacts, or experience, but majority of them were of the opinion that the supervisor was not much helpful when it comes to IF publications. Another issue of crucial importance to research productivity was the time spent on research. Most interviewed scholars claimed that producing a good, IF paper was as time-consuming, as writing half of a PhD dissertation which clearly indicates that being productive requires much time. The time allocated to work devoted to research-connected issues (and not, for instance, teaching) determines, according to some subjects, their research productivity. Few subjects from Visegrad countries stated that they, as opposed to their Western colleagues, had to spend much more time on teaching, due to the fact that their salary was not as high as in more developed countries. This means, that they usually hold two positions, with sometimes around 400–500 contact hours with students, whereas their colleagues, from, for instance UK, have only around 150–200 contact hours, for a comparable salary. For that reason, the time spent on teaching and busy schedule of young, Visegrad scholar, can be treated as a factor hindering research productivity. One the other hand, the majority of respondents stated that, in spite of the heavy teaching workload, they still could find time for research, and could be productive as a result. Most successful scholars that were investigated (the ones who had highest number of IF publications) claimed that they had heavy workload, but due to organizational skills, strong internal motivation, and family support, they were able to be productive. The results concerning the role of time allocated to research and its impact on productivity are therefore inconclusive since the opinions of informants are discrepant. It is, however, visible that the older a given scholar was, the more they blamed heavy workload for the lack of time for research. Similarly, scholars who

were fully employed claimed that heavy workload made them devote less time to research, whereas PhD students or people not fully employed were of the opinion that teaching allowed them to stay close to the university and was a pleasant experience not hindering research productivity.

5   Survey Description and Respondents' Characteristics

When it comes to the quantitative research, it was carried out after the results of the qualitative study had shown which areas were to be investigated in order to validate the prior results. The sample was composed of 415 young business scholars from four post-soviet countries: Poland, the Czech Republic, Slovakia, and Hungary. The focus was on so-called young scholars, namely, up to the age of 35. The selection criterion was their strong involvement in the research, e.g., active participation in conferences, also international ones, mobility, and publications (to avoid subjects not publishing at all due to young age and lack of experience). Some subjects already had some IF publications, whereas majority did not, due to a number of potential reasons—either they were yet not successful when it comes to such publications but highly motivated to publish in prestigious journals or they were domestic oriented and wanted to cooperate with their closest colleagues and operate locally rather than internationally. The participants were invited to fill in an anonymous questionnaire concerning their productivity manifested by a number of publications, their English skills, teaching load, the issue of supervisor, and some control variables as well (i.e., years spent at the university, number of received grants, and "task avoidance" as unidimensional personality measure). In order to achieve better sample diversity, scholars employed at the universities and non-employed scholars (e.g., PhD students) were selected.

6   Hypotheses Development

The first hypothesis concerning factors influencing productivity of scholars was connected with a scholar's supervisor. By the supervisor, we mean a formal supervisor of a doctoral dissertation of a given scholar. The guidance cannot only be connected with writing doctoral dissertation, but with research tips, or introducing the scholar to supervisor's network. Such help can be called mentoring. Allen et al. (2004) carried out a meta-analysis of the existing data, to check how mentoring affects career. Objective and subjective outcomes, e.g., compensation and job satisfaction, respectively, were examined, and then mentored and non-mentored groups were compared. It turned out that mentoring indeed brings benefits; however, effect sizes associated with objective outcomes were small. Allen et al. (2004) is of the opinion that social learning theory may be an explanation why mentoring relates to career success. For that reason,

H1 Supervisor's recognizability helps a scholar boost research productivity.

Kyvik (2013) claims that among universities, a trend toward a significant growth in foreign language publishing is observed. This foreign language is in majority of cases English which has become the lingua franca of our times. Combining it with the fact that collaboration between researchers is more frequent nowadays, and in order to collaborate internationally, one needs English skills (Wieczorek 2014); we hypothesized that

H2 Good knowledge of English language boosts productivity of the scholar.

In order to collaborate, do research, and publish, a scholar needs time. Altbach and Lewis (1996) stress that time allocated to research affects productivity and that teaching load affects productivity in a negative way since those who commit primarily to research have better results and have more funds for research. Additionally, a lot of teaching makes a scholar immobile, whereas mobility helps academics participate in broader networks and exchange information beyond institutional boundaries (Dietz and Bozeman 2005). Teodorescu (2000) stresses the importance of the research universities in developed and developing countries, which indicates that focus on research brings better results than focus on teaching, in case of scholars who want to be productive. For that reason, we assumed that

**H3** The heavier teaching load a scholar has, the less productive the scholar is.

7   Research Results

While developing survey measurement items, we generally followed instrument developed by Bland et al. (2005); however, we adjusted this instrument to the cultural and language context of Visegrad countries. It is noteworthy that scholars' research productivity was measured using four items referring to the number of a given scholar's publications, including the total number of one's scientific publications (peer reviewed), the number of papers in scientific journals (domestic or international), the number of papers in ISI (IF) journals, and the number of all scientific publications (peer reviewed) published in the last 2 years. Wherever relevant, we measured our focal constructs using multi-item system; however, control variables were usually measured as 1-item constructs.

As the first step, the validity of the measurement model was tested via exploratory factor analysis (EFA), where all items, including controls, were analyzed together and varimax rotation was applied. In general, all items loaded as expected (factor loadings > 0.6 for extracted, relevant factors), and there were no substantial crossloadings (i.e., bigger than 0.3). Therefore, EFA results combined with AVE for each factor higher than 0.5 and Cronbach's Alpha higher for each factor than 0.7 did not question validity and reliability of our measurement model.

We tested our model with partial least square (PLS) structural equation modeling technique with SmartPLS 2.0M3 software package (Ringle et al. 2005). There are

Fig. 1 Path coefficients for hypothesized research model—PLS results
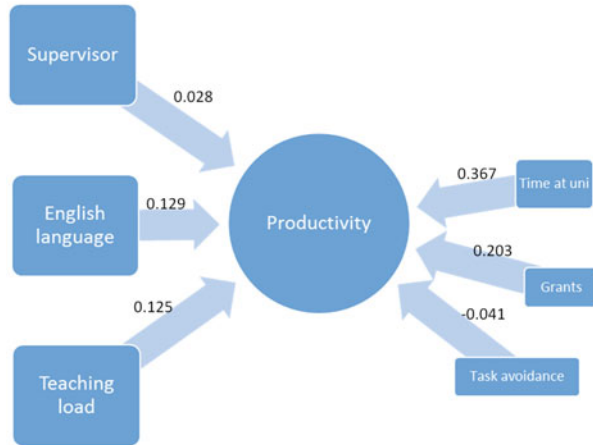
some advantages of PLS-SEM in comparison to CB-SEM (covariance-based SEM) that we followed while choosing this technique, especially relative flexibility with regard to the distribution of survey answers. Similar to other structural equation modeling techniques, PLS-SEM provides path coefficients on the basis of which inferences can be made about the strength of relationships between a set of constructs and explained variance (R^2). Figure 1 presents the PLS estimation results for hypothesized relations between variables, where main antecedents to research productivity are presented on the left side and control variables are presented at the right side of the figure.

The explained variance (R^2) for the research productivity as the dependent construct amounted to 0.319 that is rather typical for this kind of research in social science area. However, it should be emphasized that among the set of main constructs (antecedents), namely, supervisor's recognizability (H1), English language skills (H2), and teaching load (H3), only the influence from teaching load and language skills on productivity appeared to be statistically significant (T value > 1.97). As a result, hypothesis H1 with regard to the supervisor's role was rejected. Moreover, despite the fact that the interrelation between teaching load and research productivity was found as significant one, this interrelation was actually found as positive not negative (H3). Therefore, our research results suggested also rejection of hypothesis 3 and only hypothesis 2 received clear support in our dataset. Where it comes to control variables, time spent at the university (in years) appeared to be important determinant, as well as the ability to receive grant-based financing (in number of received grants), but "task avoidance" as personality factor was found as not significant determinant of individual research productivity.

8 Discussion and Limitations of Research Results

As it can be seen, teaching load significantly influences scholars' productivity, however in the opposite way as hypothesized. The respondents were asked to assess the number of subjects they teach each academic year and the number of time they allocate to teaching within 1 year (including all positions, moonlighting, etc.). The results proved that the more contact hours with students and the more subjects taught each year, the less research productivity. It is compatible with results of qualitative research, where some respondents claimed not to have enough time to do research, due to teaching load that is, in their opinion, much bigger than the teaching load of their Western colleagues. Most productive scholars, however, also had quite big teaching load, but they managed to combine it with research. Moreover, also Altbach and Lewis (1996) claimed that teaching load affects productivity in a negative way since those who commit primarily to research have better results and have more funds for research. Additionally, a lot of teaching makes a scholar immobile, whereas mobility helps academics participate in broader networks and exchange information beyond institutional boundaries (Dietz and Bozeman 2005). In view of these issues above, H3 can be supported since there is a proved negative effect of teaching load on research productivity of young Visegrad scholars.

English language skills also have a significant influence on the productivity of scholars, since majority of the productive respondents stated that they had better speaking and writing English skills than other researchers in the department. In view of the fact that IF-related academic world is English oriented (Stremersch and Verhoef 2005) and that more and more universities appreciate publishing in English more than in the scholars' native language, it can be seen that English language skills are indeed a leverage of research productivity of scholars. As it was indicated in the introduction, scholars from post-soviet countries (including Visegrad countries) were for many years isolated from Western countries, so Visegrad academia lacks research tradition connected with extensive publishing in English. Some older researchers did not speak English well, so they were not able to find foreign contacts. Foreign contacts, in turn, boost research productivity of scholars, because they bring productive networking and interpersonal knowledge transfer (Wieczorek 2014; Mitrega 2014). Young scholars from V4 countries speak English since they were taught at school, but they cannot count on the mentorship of their older colleagues, who could help them revise papers, or who could introduce them to their networks of contacts, if they were better speakers of English.

The influence of supervisor on research productivity of V4 scholars has not proved significant in a statistical sense in this research. The respondents were asked whether the supervisor of their doctoral dissertation was well known in their home country and abroad. Unfortunately, not many respondents in our sample could benefit of having a supervisor who was recognizable overseas. Allen et al. (2004) claimed that mentoring is beneficial to scholars' research productivity; their results, however, also were not very conclusive. We interpret our research results with

regard to the specific situation in V4 academia, especially with regard to the "generation clash" being observable there (Wieczorek 2014). As new requirements for academic promotion (connected with "publish or perish" culture) are much more experienced by young scholars than their older friends that usually got promoted before, the supervisors of PhD theses as representatives of the older generation do not necessarily feel the need for or are able to provide PhD candidates with adequate support, including external motivation and coaching.

In a nutshell, we find our research results as very context related as they seem to be very connected with specific features of academic in postcommunist Visegrad countries and the characteristics of the young scholars (up to age of 35) in comparison to "the average scholars" comprising all age generations. Such feature of our research can be treated as both: advantage and limitation. We think that this research is contributing to the knowledge about factors contributing to research productivity of scholars (within HRM area) by filling the gap connected with underinvestigated transforming countries, especially postcommunist countries. However, as our research results are, to large extent, contradictory to prior studies conducted in most advanced Western countries, it is clear that the generalization of our research results is limited. We believe that our research results are universal for all European postcommunist countries, including Visegrad countries but also such countries as Bulgaria, Romania, three Baltic Countries, Ukraine, and Russia. In case of all of these countries, academic systems are at turning points now, so replicating this study in these countries in 10 years from now may bring very different research results.

Our research was survey based, and we did not use random samples which have some limitations. On the one hand, we were able to reach in a relatively short period of time relatively big sample of purposively selected researchers based in four countries ($n = 415$). On the other hand, the research results were fully based on informants' perceptions and declaration, which always increase the likelihood of "social desirability phenomenon" (Malhotra 2008). We tried to mitigate such threat by assuring informants about anonymous character of our survey and simplifying the survey questions as much as possible. Nevertheless, further research may validate our research results by applying other techniques like bibliometrics (i.e., analyzing coauthorship patterns of papers published in IF journals). Future research may be also contributing by incorporating scholars from more postcommunist countries (e.g., Russia with its specific institutional environment) and finding the way to acquire random sample of scholars.

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Part IV
Entrepreneurship and Small and Medium-Sized Enterprises

Specific Features of Family Businesses: A Contribution to Literature

Elena Cristiano

Abstract The family business represents a subset of the whole range of enterprises, and, therefore, it has all the essential requisites of them. However, it is characterized by the strong relationship with one or more families which, by providing the risk capital, constitute it. Consequently, its functionality strictly depends on the evolution through which these family units go and on the decisions that they make inside of them. Italian and international scholars had devoted particular attention to small- and medium-sized businesses, often considered as transitional phases for a dimensional development of the enterprise. The empirical evidence has actually disproved these assumptions, leading to the conclusion that even small- and medium-sized businesses can achieve high levels of success without necessarily increasing their dimensions. Starting from the eighties of the last century, business studies have considerably developed in this respect. The family business has now assumed an important role in the national and international scene, thus attracting an increasing interest in the theoretical and empirical research. The wide and rich literature on family businesses has highlighted a variety of topics, such as the understanding of the success and development factors of family businesses, the peculiarities of their management models, their corporate governance, their valuation, and, generally, the specificity of small- and medium-sized businesses. Today, a definition of a family business, which is unanimously accepted by the scholars of the field, is nonexistent. Therefore, this work aims at identifying those aspects, which are typical of a family business. Moreover, the abovesaid paper highlights too some other aspects, useful to identify family businesses from nonfamily ones. Finally, the paper wishes to examine how the identified variables (such as the ownership, dimensions, succession, and involvement of family members) affect the family business performance.

Keywords Family businesses • Specific features • Literature review • Ownership structure • Succession

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1 Introduction

Family businesses represent an important resource for the economic development and growth of many countries, thus contributing to define the level of employment, the demand models, the choices of portfolio, and the educational schemes (among others: Gersick et al. 1997; Ward 1987; Heck and Stafford 2001; Morck and Yeung 2003; Shanker and Astrachan 1996; Astrachan and Kolenko 2004; Dyer 2003; Habbershon et al. 2003; Rogoff and Heck 2003; Zahra 2003). In fact, they represent a very high percentage of the total number of businesses which are present in different countries, though the lack of a single definition of "family business" does not allow to define their percentage value on all businesses univocally. Undoubtedly some peculiar aspects contribute to make it different, if compared to the other businesses, and, therefore, it is worth considering it in a particular way (Schillaci 1990; Davis and Harveston 1998; Morris et al. 1997). The main differences between the family businesses and the other typologies may be attributed to some factors: the family's attachment to the business; the differences between the family and the externally hired managers (in terms of reference time frame, of pursued objectives, of motivations, and of interest to the business success); the development process of the strategy decisions; the organization and, in particular, the extent of the centralization of decisions and the strong monitoring activity; the relationship among the family's members and the other stakeholders; the relationship inside the family; and the succession. Many authors deem that family businesses have an emotional aspect due to the family's connection to its own business (Davis and Herrera 1998), thus highlighting that the presence of the family in the business influences its performances, generating positive or negative effects. The literature concerning family businesses lacks a conceptual and concrete definition of "family business", which is widely accepted (Chrisman et al. 2003). Many authors attempted to reorganize and reexamine the existing definitions (Chua et al. 1999; Handler 1989; Litz 1995) in order to delimit the study area of interest through a clear distinction of family businesses from the other typologies of businesses.

2 Literature Review

In order to start studying the dynamics of family businesses and all the aspects which distinguish them from the other business typologies, it is necessary to give a precise and clear definition. A definition of family business, which is unanimously accepted by the scholars, is currently nonexistent. Therefore, the different positions of the national and foreign business *scenario* will be dealt with. Firstly, a business may be considered a *family* one when the whole risk capital is owned by a family and its members work in it (Dell'Amore 1961), or when at least two generations of the same family are present, the relationships of whom have to influence both the business policies and the family's interest and objectives (Donnelley 1964). These

definitions, accepted by the economic-business doctrine in the past, appear very limited and anachronistic, since they do not consider the possibility of the presence of more families, who hold the control, and the presence of outsiders (people external to the family), such as some professional managers, who help the family's members of the business in their activities. In literature, therefore, broader definitions have developed and affirmed. According to Bernard (1975), a family business is controlled by the members of a single family; such position is common to many scholars. According to Barnes and Hershon (1976), a family business is a business in which an individual or the members of a single family hold a majority shareholding. For Alcorn (1982), a family business is any profit-making company, which may assume the form of a one-man business or of a company and in which the family, if the ownership is held by outsiders, has to be active in the business management. According to Lansberg (1988), a family business is a business in which the members of a family have the legal control on the ownership. The element which is common to such definitions is represented by the owner, independently of the participation of the family members at the management activities. By criticizing such approach, for Carsrud (1992a, b), the family business is the one which a limited number of subjects take part in and in which the ownership and the decision-making process are controlled by a group of subjects linked by emotional and family ties, thus emphasizing the empathic engagement of the family in the business. Though in a more structured manner, other scholars agree: they stress the close relationship between family and business (Davis 1983; Dyer and Handler 1994; Tagiuri and Davis 1996; Ferrero 1989), by proposing three conditions necessary to talk about a family business, that is, the ownership held by one or more families, the consideration of the business as a part of the same family, and the participation in the management of other family's members, in addition to the founder. In other definitions, reference is made to the prevailing influence of the family not only as far as the control is concerned but also within the ambit of the corporate governance (Dyer 1986; Chua et al. 1999; Di Stefano 1996; Dell'Atti 2007). For other scholars (Westhead 1997; Cowling and Westhead 1998), it is necessary to add to these elements the family's will of going on keeping the business control and ownership through the generational turnover. Also for Schillaci (1990), it is significant to consider the two criteria, thus defining as a family business an entrepreneurial activity which may thoroughly identify itself with a family or also more than one family, for one or more generations. The influence of the family is legitimized by the ownership of the whole or part of the risk capital and exercised also through the participation of some of its members to the management. It is evident that the role played by the family may be also absolute, both at a level of ownership and at a level of governance and management, but more often it is a leading role, which is reflected on the business organization and management. In this respect, it is possible to qualify as family businesses those ones in which (Corbetta and Dematté 1993; Corbetta 1995) one or more families, through close family ties or affinities, make available full or limited risk financial capitals, personal guarantees, or collateral securities to the business. It is possible to talk about family businesses when one family or few families with family ties,

affinities, or solid alliances hold risk capital shares, which are sufficient to guarantee the business control. On the basis of what is aforesaid, it is possible to consider family businesses those in which the business control is held by one family or more families by virtue of the total ownership (close family ownership) or majority ownership (open family ownership) of the risk capital. The corporate governance is mainly performed by one family member or more family members through the total and direct exercise of the entrepreneurial role, which also the taking on of all or a part of the managerial functions may be associated with. With particular concern to the profiles of the business management, it is possible to distinguish two typologies of completely different family businesses: the family businesses in which all the entrepreneurial and managerial functions are concentrated in a single individual (the entrepreneur) or in a restricted number of subjects belonging to the family and the family businesses in which the entrepreneurial functions, but above all the managerial ones, are attributed also to outsiders. Generally, in the ambit of the first typology, it is possible to find those businesses which have a very high level of centralization of the ownership among the family members (often it is also absolute). Because of this centralization, it is possible to consider such category of businesses some small-sized ones. On the contrary, in the second typology, it is possible to find those businesses, which are open to the participation at the risk capital: a participation by those subjects who are not family members. In this kind of businesses, also thanks to the consequent greater financial capacities, some managerial management models are more easily implemented, models which are typical of medium- and large-sized businesses. By saying this, it is not possible to exclude the possibility that there are small-sized family businesses in which there are some subjects who are not family members, who may also exercise the entrepreneurial function and whom all the managerial functions are transferred to. In any case, this is for sure a less frequent particular case. Beyond such differentiations, what characterizes the family business and differentiates it from the other business models is the coexistence of three systems, which are interdependent among them: the family, the business, and the entrepreneur's assets (Gersick et al. 1997; Le-Breton-Miller et al. 2004; Ward 1987).

From the definitions and classifications abovementioned, it emerges that the institutional overlap between family and business and the crucial influence of the entrepreneur and his/her family's members on the business life are particularly present in the small-sized family businesses, which adopt an entrepreneurial management model. In such businesses, widely founded on plain entrepreneurial models (Marchini 2000), there is, in fact, a higher risk that the business objectives are subject to the family ones. From what is aforesaid, a problem arises: it is a problem of preservation of the business value in the time, which may be connected to the management and transfer of the heritage of knowledge and skills, which mainly the entrepreneur has. With reference to that, it is useful to remind that the business, as an institution intended to last (Zappa 1956), has its own institutional purpose, that is, that of creating long-lasting value in terms of output and fair and equitable sharing of the wealth. Such capacity is expressed insofar as it succeeds in operating in conditions of efficiency, efficacy, and economy; that is to say, it is

capable of creating wealth in the time, by virtue of the adoption of rational management behaviors and by virtue of the congruous remuneration of all the used inputs in relation to the contribution given by them (Cassandro 1980; Di Cagno et al. 2011).

3   Methodology

The methodology is based on a critical analysis of the literature existing on the definition aspects of family businesses, in order to highlight their variables which distinguish them and diversify them, if compared to the other typologies of businesses. In this respect, there is agreement as to the definition according to which it is possible to talk about a family business when one family or few families, with close family ties or affinities, own a risk capital share, which is sufficient to guarantee the control of the business: it is a business where at least two members of the family actively work, and where there is the will of keeping the ownership and the management inside the family, through some processes of generational turnover.

The methodological approach, based on the qualitative analysis of different and well-structured definitions of family business, allows to understand some aspects, which are not only business and economic ones but also emotional ones, linked to the strictly family dynamics, thus providing interesting food for thought. From a quantitative point of view, research is based on the analysis of a sample composed of medium- and large-sized businesses, on the basis of the data present in the annual reports drawn up by the AUB Observatory (the Italian Observatory on the Family Businesses). Therefore, the conclusions represent the result of some considerations on the study of the different definitions of family businesses, which have allowed to acquire some information on their peculiarities and on the influence that these peculiarities have on business performances.

4   Discussion

If compared to the past, today the family business represents the cornerstone of specific interest by many scholars for its peculiarities and for its growing expansion both at a national and at an international level. The Italian legal system provides for the regulation relating to the family business, from the reading of which it may be deduced that the family business is that business which the spouse, the relatives within the third degree, and the relatives by affinity within the second degree collaborate to (Article 230 *bis* of the Italian Civil Code). In order to consider the abovementioned members as collaborators to the business, the aforesaid family members have to take mainly and continuously part in the activity of the same, thus representing a specific typology of a business relationship, which, before the reform, was not protected from a legal point of view. Disregarding the truly

juridical definition, and focusing on the strict business aspect of the same, it may be observed how, during the years, the concept of the family-controlled business has gradually evolved. From a first definition of it, according to which a family business was a business in which the whole risk capital was held by one family and all its members worked in it, today its definition is broader: a family business is also that business in which one or more families hold a risk capital share, which is sufficient to guarantee the control of the same and, moreover, in which one or more members of these families work (from a managerial or manual point of view).

From the definitions of family business, two peculiar aspects of such organization typology may be deduced: the control level of the risk capital of one family or more families, among which there is a family tie or there are affinities, and the level of involvement of the family/families in the business activity. During the time, following also the changed economic and market *scenario*, the rigid fine line of these two aspects has gradually modified, thus leading, nowadays, to a broader definition which, considering both the criteria, allows to include, in the category of family businesses, a wider number of organizations. In fact, such approach, by not making any reference to the business dimensions, allows to include in the sample not only the small- and medium-sized businesses, traditionally associated with the family ones, but also the large-sized ones, including the multinational companies. Moreover, it is necessary to highlight the connection between the family and the business and, consequently, the interdependence of the two institutions, also in the sharing of the values of the first one by the second one, by underlining the role of the family's members. This is made not only in relation to the working activity carried out inside it, and necessary for the qualification of the same as a family business, but also to the processes of generational transition.

The elements, which allow to define the family businesses, variously combined among them, give origin to different typologies of them. The classification which follows here below depends, in particular, on the kind of connection existing between the family and the same business. Therefore, the family businesses are labor, management, investment, and short-term businesses.

In the labor family business, the family's members play most of the roles, thus carrying out their working activity inside the business. In the management family business, though the presence of the family's members inside the business is preferential, the entry is exclusively reserved to those who are more capable, from a professional point of view, for the function which they are assigned to, that is the decision-making and managerial one.

In the investment family business, the family's members, who are involved inside the business, tend to mainly play the roles with regard to the making of decisions relating to investments and control of the same.

In the short-term family business, the family's members work in the business, since they are the heirs of the same, regardless of their real vocational interest. In this case, the association with third parties (who are outsiders) and/or the sale of shares is/are very frequent, and the decisions at issue are made without giving much importance to the relationship between the founding family and the same business.

In the reality the four mentioned classifications are never present, as they have been made, but it is more frequent to find a combination of the same. Nevertheless, it may be observed that usually, in the first years of its life, the family business has the characteristics of the labor business, which, subsequently, develops into the management one. Finally, with the passing of time and the acquired experience, through the succession of generations, it tends to assume the characteristics of the last two typologies, which have been previously described.

In addition to the classification, which has just been made, by combining other variables, it is possible to identify further forms of family businesses. Particularly, considering the role of the economic governance and the management one, it is possible to distinguish the family businesses of the first generation from those of the second generation. On the basis of such classification, in the first businesses, the abovementioned roles are exclusively played by the family's members, who started the businesses up, whereas in the second businesses, they are played by the successive generations.

There is a classification, which is very widespread (Corbetta 1988), deriving from the combination of the three following variables:

1. The ownership model of the business capital, on the basis of which the business capital may be owned by:

   • A sole owner (model of absolute ownership)
   • A limited number of people (model of close-limited family ownership)
   • A wider number of people (model of enlarged family ownership)
   • Shareholders descending from the founder/s or by other shareholders (model of open family ownership)

2. The Board of Directors (BoD) and the managing bodies, where it may happen that:

   • Both the bodies are exclusively composed of members of the family, which is the owner of the capital.
   • The BoD is composed only of family's members and in the managing bodies both family's members and outsiders are involved.
   • Both in the BoD and in the managing bodies, there is the presence not only of the family's members but also of outsiders, the entry of whom, in the family business, might be justified by the necessity of acquiring skills and experience, which are not available in the business among the members of the owner family.

3. The dimensions of the business personnel organization, which may be small (represented by few dozens of people), medium (up to few hundreds of people), and large

By crossing the variables previously described, family businesses are classified as follows:

(a) The domestic family business: the ownership model is absolute or close; it is a small-sized business; the managing body and the BoD, if existing, are composed only of family's members. The so-called traditional family business resembles such typology: it has some characteristics, which are totally similar to those of the domestic one, with the exception for the composition of the managing body, which may be composed not only of family's members but also of outsiders.

(b) The enlarged family business: the ownership model is enlarged, that is, the business capital is owned by more family's members; usually it is a medium- or large-sized business; the BoD and the managing body may be composed both of family's members and outsiders.

(c) The open family business: capital shares are owned by subjects, who do not descend from the founder/s; it is a medium- or large-sized business; the BoD and the managing bodies are composed both of family's members and outsiders.

The typologies, which have just been listed, may represent also the different development stages toward which a family business may evolve. In fact, starting from a more simplified model, for normal or structural reasons, each business may assume some characteristics, which are typical of more evolved models. It is possible to distinguish the family businesses on the basis of other two variables, that is the level of the family's participation to the risk capital and the mainly family or managerial composition of the managing bodies. With regard to the first element, family businesses may be distinguished in *pure* ones, when they are exclusively owned by subjects with close family ties; *mixed* ones, if the family holds only the controlling capital. In relation to the governance bodies, instead, there are some family-run businesses, in which the key positions are mainly kept by the members of the family, which holds also its control. And, finally, there are the management businesses, in which some subjects, who do not have family ties, exercise the management.

Considering the guiding principles of a business (that is to say, all the basic values, ideas, and beliefs leading to the choices and behaviors inside it), from the points of view of the ownership and governance, first of all it is important to examine the relationship between the owner family and the business. These two realities, even if they are strictly interrelated and interdependent, are distinct both for the objectives to be pursued and for the functioning logics. In fact, not always, the rules, which are useful and valid for one of the two, may apply to the other in the same way. For example, the family has some action logics which, if applied to the business, would determine its failure, with the consequent damage of the owner family's wealth. Though the family unity is an important value, it has to be sought without, in any case, damaging the business long-lasting development: the business has to go on, in the time, in autonomy and good cost-performance condition. In its turn, the good cost-performance condition implies the respect for cost-effectiveness, efficacy, and competitiveness condition, which means not only to attract the critical resources of success but also to meet the business customers'

needs adequately. Another remarkable element to be considered is the variety of roles (partners, advisors, managers, executive officials) played by the owner family's members, which imply both different responsibilities and different criteria of access to such roles (heredity, representativeness, skills). Actually there are not any precise rules, which establish the roles to be played exclusively by the family members and those which may be played also by those who do not belong to the family. The principle, which should lead to this kind of decisions, is based on the acknowledgment of the business needs in different stages and the following procurement of the entrepreneurial, managerial, and financial resources with the purpose of meeting such needs, consistently with the business environmental and strategic characteristics. The generational turnover process is related to these elements: it aims at positioning, to the business summits, some family and not family members, who are appropriate for taking on all the responsibilities relating to the different roles. In order to guarantee the correct functioning of such process, the presence of a system of authorities is necessary (the Shareholders' Meeting, the Board of Directors, the Managing Director/the Director-General, etc.), which operates in an efficient and effective way. In order to let the aforesaid occur, it is necessary to take into the exact consideration the elements, which are at the basis of the business managing and organizational culture: the business and groups' direction unity, the distribution of tasks and responsibilities; the managing group's involvement and awareness of its members' responsibilities; the expertise of those who work inside the business, which requires a permanent updating for the whole professional life; the evaluation, through the use of meritocratic criteria, of all those who work inside the business, independently of the kind of task that they perform; and the respect for the business resources. Therefore, there is the responsibility in the ownership when the business interests are distinguished from the owner family's ones, thus subordinating the owner family's ones to the first ones by virtue of the concept according to which the business is an economic-social institution, which is handled and managed and in the interest of all those who confer their own savings and working energies upon it (Montemerlo and Preti 2007). Despite this idea is present in some family businesses (groups), especially in the open family ones, it has some difficulties to take hold. In most cases, this is the result of the lack of an adequate economic-business culture, which lets the business interests be subordinated to the family's ones. This behavior may be justified by the fact that the family's members, who are involved in the business activity, are much worried about controlling the business and, in any case, about performing, at least, a task inside it. Actually the owner family should be mainly interested in the business wealth and development, since from these factors, in the long period, also the improvement of its own economic condition originates. Instead, such awareness is often acquired after a deep state of crisis, which the business undergoes, owing to an ill-advised management of the same. However, it may be encouraged and spread through the use of appropriate instruments: the organization of internal training seminars, the attendance of internal training courses, and the attendance of external courses; the drawing up and the sharing of guiding principles and behavioral rules useful to tackle and solve any problems of

the relationship family-business; and the establishment and working activities of the Board of Directors composed also of soundly skilled not family members. There are also some external factors which, depending on the modalities through which they appear, may facilitate or prevent the diffusion of the concept which respects and enhances the business autonomy beside the family. These factors are the following: the territorial contexts, in which the behaviors of a responsible ownership prevail, an ownership which is respectful toward the business autonomy, and the presence of people, who aim at assuming the business risk capital in order to ease the entry, inside the business, of people not belonging to the family, and who aim at spreading a correct relationship family-business. Taking into account the interests of the main categories of stakeholders, in order to carry out an efficient decision-making process inside an organization, it is necessary to implement a coordinated system of instruments which, in this respect, consider the interdependence of three key elements, that is to say, the strategy, the ownership structure, and the governance structure (Tiscini 2001; Turco 2004; Vallone 2009).

As it is well known, from the different interaction of the three key elements (the strategy, the ownership structure, and the governance structure), the three main models of businesses derive. There are the public company (which is typical of the Anglo-Saxon model countries), the consociate business (which is widespread in the German and Japanese contexts), and the family-owned business. The family-owned business, typical of the small-sized businesses, well adapts to the conservative contexts, which recognize the role of "sole owner" to the entrepreneur, who will make all decisions.

The logics, which are at the basis of the family businesses' governance, have some particular characteristics, which are not expressly attributable to a single model. In other words, the family businesses' governance has to combine two peculiar elements, that is, the ownership structure and the dimensions. With regard to what is aforesaid, until the nineties of the last century, family businesses were typically small- and medium-sized and had a relatively simple structure. The governance choices concerned exclusively the succession process, the strategy, and the business organization; the ownership and control of the same were substantially centralized in the founder and in his/her heir. In the last decades, besides the small-sized business, there has been a progressive enlargement of the dimensions of the family business, with a consequent success of large-sized family businesses. Therefore, the attention, in the ambit of governance, currently focuses on the traditional matters (succession, strategy, organization). They are dealt with in a more in-depth way, taking widely into consideration the three aspects: the ownership, management, and family. Considering the family ownership structures, it is possible to identify a further classification (Montemerlo 2000; Montemerlo and Preti 2007), which distinguishes the family businesses in businesses, the control of which is:

1. *Absolute*: These family businesses are characterized by the possession of most of ownership shares either by a natural person or by a company controlled by a natural person.

2. *In the strict sense:* In these family businesses, the control is held by either jointly subjects who have family ties (not necessarily in possession of the most of the risk capital) or, individually, by a person who does not have the majority, but he/she has some relatives as his/her shareholders.
3. *Of coalition*: In these family businesses, subjects, who do not have family ties, but they have some agreements among them, hold the control, with or without the majority.

Considering the family ties among the shareholders as the main criterion of classification, overlooking the alliance relationships with other families and the presence of external shareholders, it is possible to distinguish the family businesses, according to their control: if it is exercised either by a single person (the dominant shareholder or the controlling owner) or by a group of brothers and sisters (a sibling partnership) or by a group of cousins (a cousin consortium).

Each of the three ownership structures reveals some specific problems: it is, therefore, necessary to know them in order to manage the business more efficiently. In the case of the controlling owner, the most significant problems concern the protection of the entrepreneur's spouse in case of the entrepreneur's death, the ownership structure to be taken up in case of generational succession, and its relevant consequences (the fiscal aspect included).

In the sibling partnership, instead, some particular critical aspects might arise: they concern the maintenance of the cohesiveness and unity, especially when the brothers and sisters give life to their own families, thus, consequently, taking on a role of responsibility also in the respective family units.

Finally, as regards the cousin consortium, some conflicts and difficulties might arise. They would originate from the different shareholders' financial needs, also among those who do not perform operational tasks. The difficulties, instead, concern the preservation of the bonds between the family and the business and, in the most critical situations, the consequent erosion of the pivotal principle of the same business.

In many cases, there is an overlap among the models of the controlling owner, sibling partnership, cousin consortium, and the absolute, close, and enlarged businesses. Instead, in other cases, there are some close forms of ownership, which are composed of groups of cousins, or enlarged forms of ownership, which are composed of brothers and sisters. The classification of the family businesses in absolute, close, and enlarged ownership allows to identify some aspects, which, in the other classification, are sometimes overlooked. In particular, this last one, considering the relationship among the members of the same generation (entrepreneur and family shareholders, brothers and sisters, cousins), tends to neglect the relationships among different generations which, instead, often characterize some realities of family businesses, in which, sometimes, also for long periods, the coexistence of members of different generations may occur. The governance decisions concern the choice of the business strategies; the definition of the plan and budget objectives; the approval of the final balances; the choice of the business leader, the directors, and high management officers; the constitution of the governance bodies; the

definition of the organization structure, in terms of structural and operational mechanisms; and the choices concerning the process of the generational turnover. Moreover, the owner will also make delicate decisions with regard to the business development prospects, in economic and financial terms and also in terms of the ownership group. Such typologies of decisions are considered more delicate, if there is a greater business complexity.

Therefore, it is necessary to create the appropriate condition so that the owner family accepts, without creating any particular difficulties, the changes which may be considered as opportune to be made for the business success. The choices in this respect concern the definition of the roles that the owner family intends to play inside the business. In such case, it is necessary to establish the criteria of access to, training in and admission to, the business; the criteria of access to the owner role; the rules relating to the working activities of the shareholders' meeting; the modalities of communication among the shareholders and between the shareholders and the summit bodies; and the rules of dividend distribution and of the remuneration of the shareholders in relation to the role played by each of them. In particular, the choices of governance of the ownership concern not only the ownership structure in the strict sense but also any change of this structure both inside the same generation and in the passages from one generation to another. The decisions in this respect concern, first of all, the criteria for the transfer of shares and the prospective beneficiaries of the transfer. These beneficiaries may be family members in person, spouses, and third parties who are not included in the two preceding categories. The first event of change in the owner group is represented by the passages inside the same generation. In the case of a single heir, the succession does not reveal particular difficulties, except for the case in which the entrepreneur decides that he/she does not pass the baton, since he/she deems that the appointed heir does not have the expertise or the capacities to play such role. The situation in which more heirs are present is very different, as, often, the owner families are well established in their own cultural orientations and may prevent and slow down the succession process. The process of the transfer of shares imposes to make the opportune evaluations and, therefore, to choose the criteria used for this purpose, the subjects in charge of performing such task, and the resources to be used in order to make the settlement of the shares being transferred.

The delicate process of succession to the entrepreneur, which implies the passage of the entrepreneurial role and of the business management, the splitting of the capital among the heirs, as well as the succession taxes to be supported, may take place in different modalities, undoubtedly influenced by the characteristics of the business cultural values. The generational turnover has not to be intended as a simple sharing out of the business in shares in the inheritance, according to the succession logics, since it is well more complex with the involvement of the business and family and other key actors (who are not necessarily family members), who variously act inside the business or also outside it. Therefore, some roles are important: both the entrepreneur's role who, as the main person responsible for it, has to carefully guarantee the business continuity, in terms of transmission of the values created in the business during the time and the successor's role, who has the

task to create new incentives of growth and diffusion of the business culture, starting from the values transmitted to him/her. Such process triggers a series of dynamics, which go from the business culture to the entrepreneurial values, from the relationship father-son/father-daughter to the conflicts, which might arise between the two. The process of the generational turnover acquires some characteristics, which are different depending on the configuration of the variables, which condition it. These variables are represented by the business' income and competitive success, the business size and development rate, the sector in which the business operates and the territory where it is located, the number and characteristics of the family members (age, capacity, skills, expectations), the business culture, and the organizational structure.

Generally, the characteristic of complexity of family businesses, if compared to the different typologies of businesses, depends on all elements being part of their structure and environment. In the family business, an element of business complexity is represented by the numerosity of the shareholders, a numerosity which the family's composition and some policies affect. These policies are those which are adopted for the transmission of the ownership shares from one generation to another, defined on the basis of the business dimensions. If the business dimensions are not large, it will be more difficult to maintain, in satisfying economic terms, an enlarged group. For this reason, the situation of small-sized businesses with a numerous ownership group is often temporary, and, if it remains permanent, it will be necessary to let the shareholders come out of them. The numerous ownership group implies a greater complexity in the management of the relationships among the shareholders and in the sharing of the business dynamics and, for this reason, exposes the business to the risk of instability.

The business complexity is increased by the dishomogeneity in terms of:

1. The owners' group, which is determined by the ownership structure (the number of the founding families, the composition of the individual family units, the policies of transition)
2. The culture of the owner families (all the values, attitudes, and behaviors), due to the different kinds of experience of the business members
3. The roles between manager shareholders (who are mostly inclined to reinvest the profits for the business enhancement, to provide for synthetic information, and to disincentivize the mobility of the shares) and non-manager shareholders (who have some expectations of satisfying dividends, prompt and thorough information, and settlement of the ownership shares)
4. The shareholders' territorial dispersion, due to the family members' different places of residence, which are sometimes very far and which may magnify the cultural diversification
5. The presence of third shareholders, beside the founding families (entrepreneurs and families tied to the business either for friendship or for mere economic interests)

The cohesiveness of the business group may be threatened by the dying down of the relationships among the family shareholders and between the family

shareholders and the business. The cooling down of the relationships among the shareholders is often due to some phenomena, such as the generational drift, the cultural heterogeneity, and the distinction of the shareholders' roles. The last two elements, which may increase or reduce the business complexity, are represented by the distribution of the ownership shares and by the property rigidity of the system business-family.

The distribution of the shares and, therefore, the distribution of the power of control depend on the business founding family's composition, culture, and assets (or on the founding families' ones) and on the evolution of this one/these ones. The complexity increases if greater the dispersion of the shares is, especially in the very fragmented groups.

The property rigidity of the system business-family depends, on the one hand, on the level of distribution of the family property between business ownership shares and other assets and, on the other hand, on the possibility of disinvesting the property rapidly and at convenient condition from an economic point of view. The more capital is concentrated in the business and difficult to be disinvested, the more the business complexity will be.

Disregarding the elements which might, on a given occasion, influence the business complexity with greater determination, it is opportune to make some interventions aiming at managing and reducing it, if not at eliminating it. In order to plan such interventions and make the consequent crucial decisions, firstly, it is necessary to examine the elements which determine the complexity, and, in this sense, it could be decided to tackle the most urgent problems, thus postponing those which appear to be less important.

The growth of the business complexity should motivate the governance bodies to make a careful consideration of the significant problems and to make the consequent decisions for their solutions.

The first decision concerns the strategy, especially when the business carries out its activity in competitive contexts, which are strongly dynamic. In some situation, it might result favorable for the business to make decisions concerning the improvement of the products or processes, the search for new markets of supply and/or end markets, and the improvement of its own competitive profit. The revision of the strategy choices and the sharing with the business members, however, are not always accepted by the entrepreneur with pleasure, who is often too much focused on his/her own point of view and choices.

Moreover, the increase in the complexity of the elements, which are internal and external to the business, might necessarily imply a strengthening of the business structure in terms of skills, people, and powers. In such context, for example, it could be useful to improve the skills (technical and/or managerial ones) of those who either already work in the business or are ready to integrate themselves in it, in response to the new opportunities (the development abroad, the new acquisitions) or to the greater managing complexity due to the business growth, to be intended in a wide sense.

5 Results

Recent studies (reference is made to the fifth edition of the annual report drawn up by AUB Observatory), which have been conducted on a sample of 4251 (four thousand two hundred fifty-one) family businesses with proceeds superior to the threshold of 50 million euros, have highlighted that, in 5 years (2007–2012), the businesses which better succeeded in positively reacting to the crisis were the medium- and large-sized ones, as it is demonstrated by the low percentage (8.3 %), if compared to the businesses with a different ownership typology, involved in operations of control transfer, mergers, or windings up. At the same time, data attests that, in the period 2007–2012, family businesses registered an increase in the employment level, despite the difficulty owing to the financial crisis of the last years. Family businesses, which, by invoicing more than 50 million euros, were included in the sample observed after 2007, adopt simpler governance models (Fig. 1). As it is well known, family businesses adopt some different governance models, thus distinguishing themselves, in particular, in businesses led either by a managing director (an individual leadership) or by two or more managing directors (a collegial leadership).

Such trend may be justified by the fact that in most cases it is possible to talk about family businesses of first generation, which represent a percentage of 54 % of those ones with proceeds superior to 50 million euros (Fig. 2).

Moreover, it has to be observed that family businesses, which invoice more than 50 million euros, are more frequently led by younger leaders (aged less than 50) in a greater percentage (34 %), whereas leaders aged more than 60 years mostly lead businesses with a turnover equal to 50 million euros (Fig. 3).

Moreover, the study, which has been carried out on a sample of 4100 (four thousand one hundred) family businesses with proceeds superior to the threshold of 50 million euros (reference is made to the sixth edition of the annual report drawn
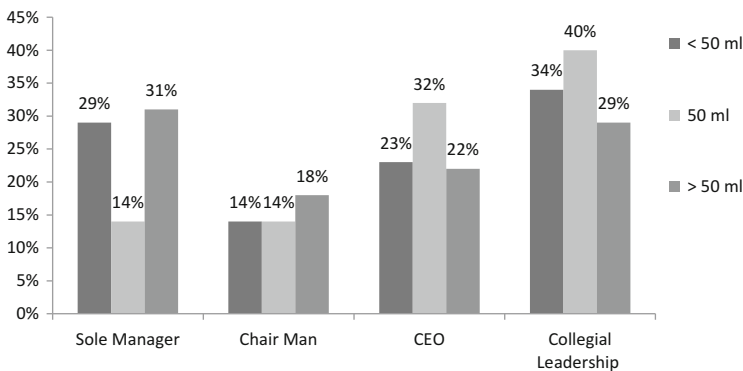
Fig. 1 Incidence of the percentage of family businesses for the turnover and governance models. *Source*: Data processing of the AUB Observatory (2013)
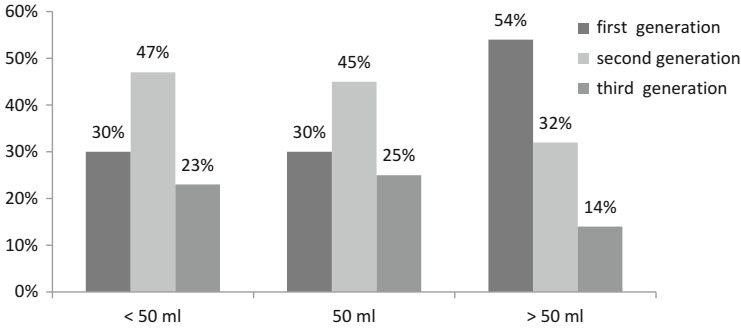
Fig. 2 Incidence of the percentage of family businesses for the turnover and belonging generation. *Source*: Data processing of the AUB Observatory (2013)
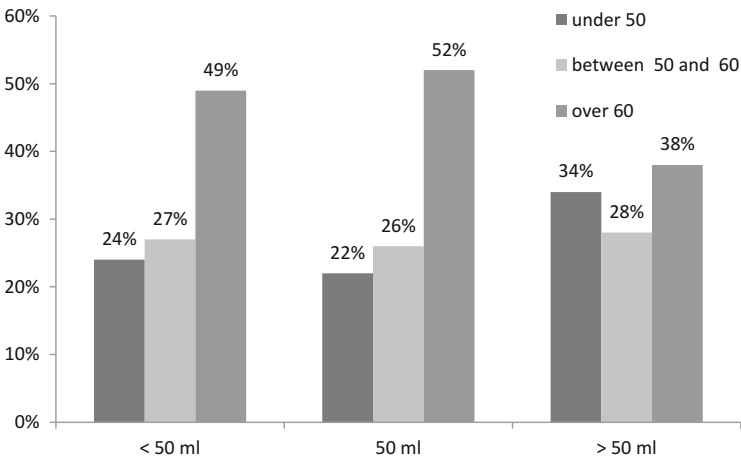

Fig. 3 Incidence of the percentage of family businesses for the turnover and the leader's age. *Source*: Data processing of the AUB Observatory (2013)

up by the AUB Observatory—period of observation 2007–2013), highlights that family businesses, which adopt a governance model with two or more managing directors (a summit collegial leadership),registered some lower performances on average, if compared to those businesses led by an individual leadership. Such trend, which worsens with the increase in the number of managing directors, is referred, in most cases, to businesses in which the collegial leadership is composed of different generations. Therefore, it is demonstrated that the coexistence among different generations in the managing team causes negative effects, owing to the conflicts among the family's members with equal powers. In most cases, the entry of a not family leader settles the conflicts among different generations, thus allowing an improvement on the business performances. By making the combination between governance structures and typology of composition, the examined

Fig. 4 Incidence of the percentage of family businesses for governance models. *Source*: Data processing of the AUB Observatory (2014)
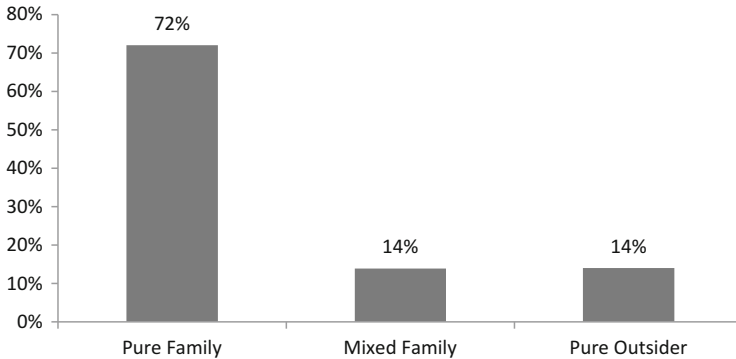
family businesses (Fig. 4) were distinguished in those which have a wholly family leadership (*pure family* businesses), in some others with a leadership, being totally external to the controlling family (*pure outsider* businesses), and some others else with the presence of family leaders and not family leaders in the BoD (*mixed family* businesses).

The high presence of outsiders, in case of a wholly family leadership, shows an improvement in the business performances; on the contrary, the high presence of outsider advisors, in case of wholly not family forms of leadership, demonstrates a worsening in the business performances. In other words, family leaders in not family BoDs and not family leaders with family BoDs show some performances which are better, if compared to the cases in which the leadership is wholly composed either of family members or of not family ones.

Moreover, a comparison has been made among the largest Italian businesses (AUB Report, VI Edition) and those of 6 European countries (France, Germany, Italy, the United Kingdom, Spain, Sweden), by taking into consideration the first 300 businesses (for their turnover). The countries, in which the presence of family businesses is more widespread, are Italy (40.7 %), Germany (36.7 %), France (36 %), Spain (35.6 %), Sweden (32.9 %), and the United Kingdom (15.1 %) (Fig. 5).

The minor incidence of the family businesses in the United Kingdom is due to its economic and output structure, mostly composed of businesses working in the banking and insurance sectors (excluded from the reference sample). Spain and Italy have a very similar structure, composed of family businesses and branches of foreign businesses. The same happens in France, Germany, and Sweden which, differently from the Italian model, are characterized by a minor presence of branches of foreign businesses and by a greater incidence of public companies (which, in Italy, are absent) and/or investment funds (among which, there is the private equity). Instead, the United Kingdom has some ownership structures, which are very different from Italy, since there are mostly public companies, businesses

Fig. 5 The ownership
structure of the reference
population of the six
examined European
countries. *Source*: Data
processing of the AUB
Observatory (2014)
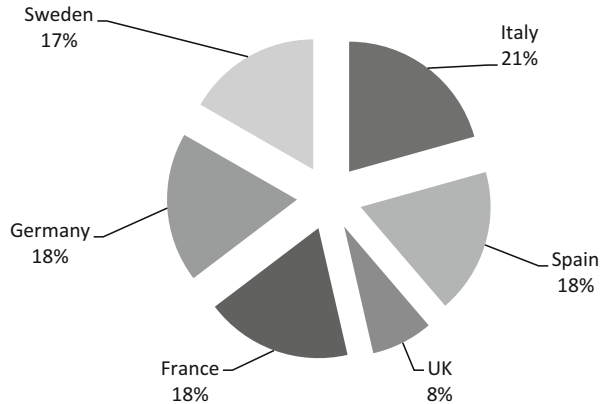
controlled by investment funds (and private equity), and since it has a very low
incidence of government-owned businesses (3.7 %, against 15.7 % of Italy). There
is an element in common with Italy: the spread of branches of foreign businesses,
which are present both in the United Kingdom (34.9 %) and in Italy (30.3 %).
Considering the move to bring new shareholders, the greatest incidence of busi-
nesses listed in a regulated market is registered in France (32 %) and in the United
Kingdom (25.5 %): these two countries are characterized by a larger capital market.
Sweden (19 %), Germany (18 %), Italy (15.3 %), and Spain follow (14.6 %). In each
of the examined countries, family businesses seem to be more open to the market, if
compared to the not family businesses, except for Germany, where the opposite
trend may be observed. France is at the first place (46.3 %), followed by Sweden
(36.1 %), the United Kingdom (26.7 %), Italy (22.1 %), Spain (21.9 %), and Ger-
many (13.6 %) (Table 1).

From the analysis of the leadership models, some important differences arise in
different countries: these differences concern the level of the family aspect of the
governance bodies (Table 2). First of all, the leadership model with a sole managing
director (CEO) is the most widespread in all countries, to the detriment of the
collegial leadership and of the simplest models, which are present only in some
countries.

In relation to the leader's nationality (Fig. 6), it may be observed that in all the
businesses, which were examined, the largest Italian and French ones show a low
openness *vis-à-vis* the foreign leaders, coming from the 5 continents (Europe, Asia,
Oceania, America, Africa): the United Kingdom registers 45.5 %. It is then
followed by Sweden (24.3 %), Spain (22.2 %), Germany (18.5 %), France
(10.4 %), and Italy (6.1 %).

Considering the family aspect of the leadership and governance structures, some
remarkable differences may be observed: inside the European context (Fig. 7), Italy
stands out for the greater incidence of family leaders (51 %), followed by Spain
(44 %), the United Kingdom (40 %), France and Germany (33 %), and Sweden
(9 %).

Table 1 The incidence of the listed businesses in the six examined European countries

Country	Family business	Not family business	Total amount
Italy	22.1 %	10.7 %	15.3 %
Spain	21.9 %	10.5 %	14.6 %
UK	26.7 %	25.3 %	25.5 %
France	46.3 %	24.0 %	32.0 %
Germany	13.6 %	20.5 %	18.0 %
Sweden	36.1 %	10.6 %	19.0 %

Source: Data processing of the AUB Observatory (2014)

Table 2 Incidence of the percentage of the family businesses for governance models in six European countries

	CEO	Chairman	Sole manager	Collegial leadership
Spain	58 %	29 %	9 %	4 %
Italy	74 %	17 %	1 %	8 %
France	90 %	8 %	–	2 %
Germany	92 %	–	–	8 %
UK	93 %	7 %	–	–
Sweden	97 %	3 %	–	–

Data processing of the AUB Observatory (2014)

Fig. 6 Incidence of the percentage of the leaders' nationality in six European countries. *Source*: Data processing of the AUB Observatory (2014)
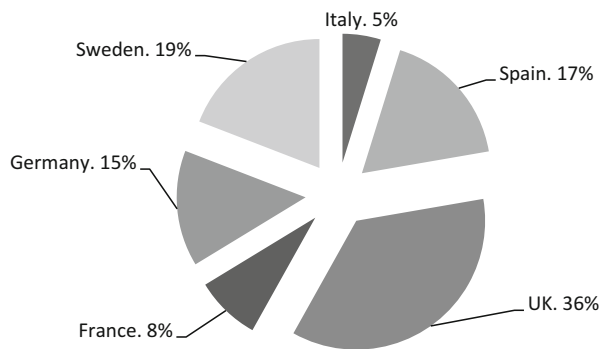
In relation to the participation of the family's members in the BoD, the Italian businesses (Fig. 8) are those ones with the highest level of it (40 %), followed by the Spanish (35 %), the French and German (15 %), the English (14 %), and the Swedish ones (12 %).

Moreover, considering the demographic characteristics of the business leader (AUB Report, VI Edition), it may be observed that, though in all the analyzed countries, the leader's average age is superior to 50 years, above all the family businesses are led by older leaders (senior leaders). In particular, the Italian and Spanish businesses have some family leaders with an average age only for a little extent inferior to 60 years (superior of about 5 years compared to their own not

Fig. 7 Incidence of the
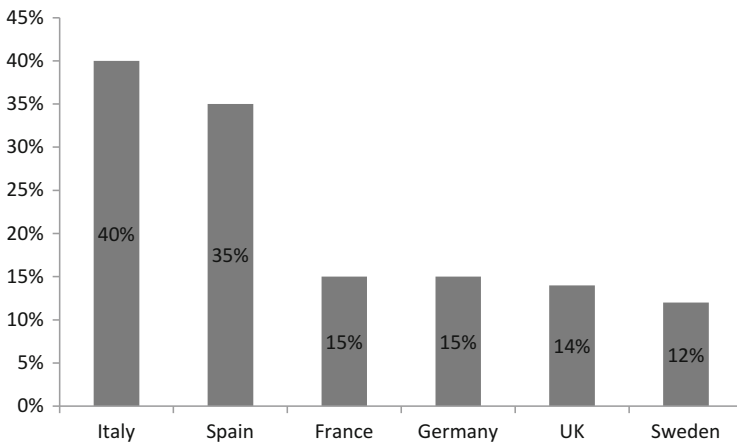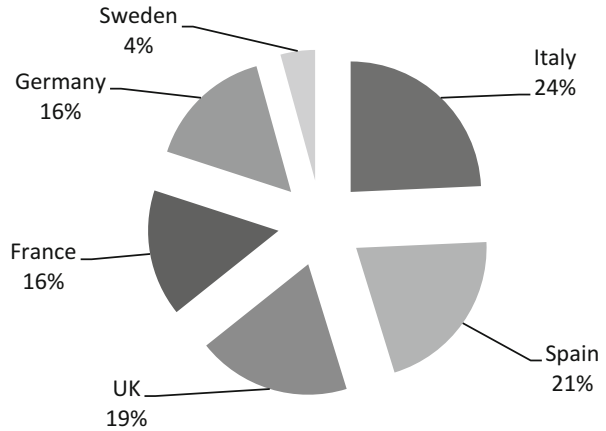percentage of the family
leadership in six European
countries. *Source*: Data
processing of the AUB
Observatory (2014)

Fig. 8 Incidence of the percentage of the family's members in the BoD in six European countries.
Source: Data processing of the AUB Observatory (2014)

family fellow country people), a piece of data which is probably influenced by the
figure of the founder, who is still active in the business. On the contrary, Swedish
and English businesses have some leaders, who are younger on average (with an
average age inferior to 54 years).

Finally, considering the presence of women in the leadership positions and in the
BoD, their limited role has been highlighted, though with some differences among
the different countries (Fig. 9). Sweden and Spain show a greater opening *vis-à-vis*
the women leaders, in spite of what happens in Italy and in the United Kingdom.
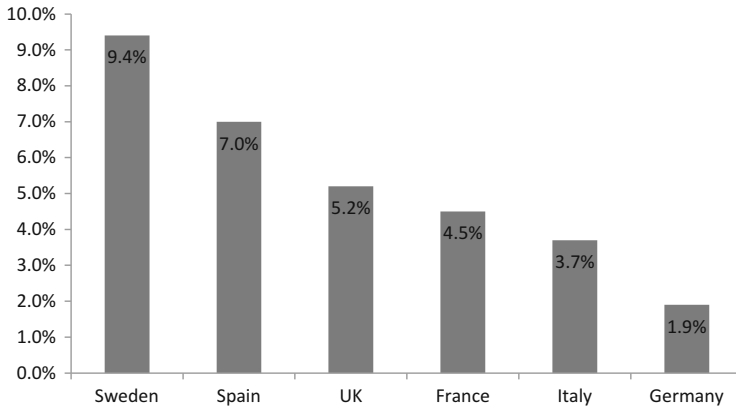
Fig. 9 Incidence of the percentage of women leadership of the family businesses in six European countries. *Source*: Data processing of the AUB Observatory (2014)

6   Conclusions

The analysis of the main contributions of literature on family businesses shows that, being considered the heterogeneity which characterizes the family businesses in terms of their dimensions, activity sector, and belonging country, it is difficult to identify a definition which may enclose each of them. Describing the peculiarities of the family businesses allows to identify the differences with the other typologies of businesses. The pointed out differences are so significant that, both for economic literature and for the businesses, it is possible and also particularly useful to closely examine the studies with regard to this peculiar form of business.

The different definitions highlight some key variables: the relationship between the family and business, the dimensions, the governance, the figure of the founder, the members of the successive generation, and the managers who are not family's members. Such variables influence, in various ways, the business performances, and, therefore, they become the object of remarkable considerations. Nevertheless, it is obvious that most of literature focuses on the analysis of the two main matters which concern family businesses, that is, the succession and the conflicts among the different generations.

From the analysis, which has been conducted, it has been possible to verify that family businesses are characterized by a wide variety of leadership models, and during the last decade, a growing number of businesses has turned to more structured summit models. In particular, the number of businesses led by two or more managing directors (the so-called collegial leadership) has increased in a progressive way, if compared to simpler models (the executive chairman and the sole manager), which, however, are still broadly widespread. Nevertheless, despite this increasing orientation toward the summit collegial responsibility, the businesses led by a sole leader generally obtain superior profit-making performances on average. Such evidence indicates a greater difficulty in managing the collegial

leadership model. On the contrary, the sole leader, who manages the business, allows a greater decision-making rapidity and flexibility; he/she avoids the generation of possible summit conflicts, with a consequent decision-making standstill. The relation between the growing diffusion of the collegial responsibility and its less positive performances may be particularly justified by the presence, in the summit team, of managing directors belonging to different generations, thus confirming the widespread hostility to attribute the total liability of the business to the new generation's members. In family businesses, the percentage of "senior" leaders remains high, despite the empirical evidence that shows how the businesses, run by leaders under 50, have made some performances, which are higher on average, both in terms of profitability and growth. In most cases, the role of the business leadership is played by the owner families, thus allowing high performances. Considering the leadership models and the governance ones, it emerges how the best solutions, in terms of performances, are those with a family leadership and with a BoD, which is more open *vis-à-vis* the not family members or, vice versa, with a not family leadership besides a "more family" BoD. Such result leads to affirm that also a not family leadership may be of benefit, on condition that a good and balanced dialectics initiates between the insiders, bearers of the family values and culture, and the outsiders, who are generally endowed with specific and complementary professional skills. Moreover, the diffusion of the "purely family" models seems to show a reversal of trend during the last years, thus stressing a greater entry of managers, who are external to the controlling family. The search for professionals, who are outsiders, may be ascribable to a reaction, by family businesses, to the crisis under way: a search which is related to the adoption of some important strategy choices, such as those concerning the external growth and/or internationalization.

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Institutional Approach to Enterprise Production Cost Analysis and Optimization

Daniel S. Demidenko and Ekaterina D. Malevskaia-malevich

Abstract According to the classical rules of economics, performance measure in physical or value terms is considered to be the main criterion for enterprise size characterization. Accuracy of the enterprise size parameter possesses not only methodological value but is also the key aspect of economic management, because the value of current production costs is directly associated with the enterprise size and defined by the production quantity released in physical or value terms. The article discusses an institutional approach to the enterprise size and production cost analysis and optimization.

Keywords Enterprise • Production costs • Optimization problem • Enterprise size

1 Introduction

The problem of manufacturing enterprise size (hereinafter—the enterprise), having been much discussed in the Russian economics literature, currently claims more attention in connection with the necessity to speed up small business development. To specify the measure for enterprise size (ES), a performance parameter, that is the quantity of products manufactured by the enterprise for a certain time period (month, quarter, year, other period) either in physical (number of product items) or in value (sales rate) terms, is commonly used. Other measures which could reasonably be characteristic features of ES (number of employees, capital investment amount, enterprise market value, amount of produced value added) are commonly used as supplementary. Accuracy of the ES parameter is the key aspect of economic management, as the value of current production costs is directly associated with ES and determined by the output in physical or value terms.

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2   Literature Review and Hypotheses

Theoretical and practical problems of performance management at manufacturing enterprises (particularly, small and medium—SME) have been the subject of research, and its results find a wide application in economics literature. These results include methodological problems of business/enterprise size definition and dynamics. The outlines of company development and efficiency theory and theoretical and practical problems of manufacturing venture economics were discussed in Mintzberg et al. (2001), Nikolova et al. (2014), and Rodionov et al. (2014). General theoretical approaches to the study of company efficiency and activity are the subject of Novozhilov (1967), Karlik (1947), Karlik et al. (2014), Demidenko and Malevskaya-Malevich (2014), and others. Theoretical and practical issues of economic growth and company efficiency assessment and investigation of investment efficiency enhancement problems are reflected in Brigham and Gapenski (1997), Brealey and Myers (2004), Kruschwitz and Löffler (2006), and others. Theoretical aspects of economic efficiency and management were analyzed by Black and Litterman (1991), Litterman and Winkelmann (1998), and others. Drawing up the optimal enterprise's investment plan requires considering not only "continuous" models but also their integer modifications with their resource-related and other constraints affecting the assets' structure (Lancaster 2012).

Taking into consideration the results of the literature review, we point out a wide range of trends in enterprise economics problem research and, in particular, enterprise size. The primary goal is a comprehensive research of ES as an important factor of enterprise economic growth and economic management optimization. To achieve this goal, there are several research objectives, as follows:

- To find connection between economic enterprise management and ES determining and optimization, as well as connection between optimal enterprise production plan and ES optimization by economic criteria
- To determine the classification model for morphological ES analysis approaches, by means of drawing up classification groups of ES measures and to explore general scientific and industrial properties of ES grading
- On the basis of the scientific research results available, to establish the system of ES economic measures and to conclude basic regulations and rules for a vector approach to ES definition
- To build up the economic model of ES and to estimate its content, structure, and element relationship and effective application criteria
- To work out economic and mathematical models of an optimal ES for the terms of neoclassical balance and institutional factors effect

3   Methodology

It is widely agreed that the best known in economics and widely applied production costs model—i.e., the model of the enterprise current production costs (let us call it "classical")—requires "fixed" production cost allocation, regardless of production quantity and the enterprise sales amount within a given time period, as well as "variable" production costs, which can be expressed in terms of a direct production cost rate per unit of sales, providing that this rate is steady at the given enterprise within the given time period when cost-benefit analysis is carried out. On this basis, the economic model of enterprise current production costs (designations given in Table 1) can be represented as follows:

$$C(X) = F + VX$$

Production quantity which can actually be released by the enterprise, according to the model based on the "classical" assumptions, lies in the following range:

$$\left\{ \begin{array}{c} \text{break-even} \\ \text{point} \end{array} \right\} \leq \left\{ \begin{array}{c} \text{production} \\ \text{size} \end{array} \right\} \left\{ \begin{array}{c} \text{enterprise} \\ \text{production} \\ \text{capacity} \end{array} \right.$$

This approach to the definition of enterprise production costs is considered to be classical, and it can be effective if the enterprise is treated as a production object only, irrespective of how the company sells/realizes products.

Table 1   The structure of Product 1 sales plan completion costs

Production and sales plan, MU	Fixed costs, MU	Variable costs, MU	Transaction expenses, MU, %	Total costs, MU
8	2	$0.1 \times 5 = 0.5$	3/55	5.5
7	2	$0.1 \times 5 = 0.5$	2/44	4.5
6	2	$0.1 \times 5 = 0.5$	1/29	3.5
2	2	–	2/50	4
2	2	–	2/50	4
2	2	–	2/50	4
5	2	$0.1 \times 5 = 0.5$	–/–	2.5
4	2	$0.1 \times 4 = 0.4$	–/–	2.4
3	2	$0.1 \times 3 = 0.3$	–/–	2.3
2	2	–	2/50	4
1	2	–	1/33	3
0	2	–	–/–	2

3.1 Research Goal

If we treat the enterprise as an economic management object in the market environment, it requires a different approach, which can be regarded as "institutional" and, being opposed to the classical approach, takes into account not only the product manufacturing environment but the terms of product consumption as well, i.e., the necessity of products' marketing and enterprise's fulfillment of some duties and terms required for participants of market product exchange. "Additional" terms and duties for the enterprise require extra costs which, in regard to some market institutions available, are defined as "transaction" expenses. Hereafter, we will imply this definition of "transaction" expenses, being rather different from classical.

The institutional mechanism of enterprise production cost formation, in contrast to the "classical" mechanism, rarely becomes the subject of research, although within the framework of institutional approach, economics management differs from classical management. In our opinion, transaction expenses are characterized by indistinct definition, structure, classification, and cost typology. In practice, it is well known what cost groups relate to transaction expenses (what the costs are aimed at), but there is some uncertainty about the typology of economic costs (what kind of costs—current variable or fixed production costs—capital investments, financing charges). In order to adjust these differences, let us formulate a theorem and offer necessary proofs.

Theorem In economic context, transaction expenses represent the fee paid by the enterprise to possess the right of selling products in a competitive market.

Proof

1. The statement of the theorem illustrates that the enterprise which is not on the market does not bear any transaction expenses, because for such an enterprise there is no problem of production realization, the enterprise is operating in a "quasi-market." This can be the enterprise fulfilling a state order, operating under a state plan, as it does not meet the challenge to sell products in a competitive environment. In a competitive market, the enterprise can also bear no transaction expenses or bear them in a less degree if the market demand for its products is within the limits defined by a certain condition, i.e., it exceeds the break-even point but does not exceed its production capacity.
2. Under market conditions the enterprise output should be profitable. Production release or sales size which is lower than the "break-even point" is economically unacceptable, as it results in losses or extra costs, and it is technically unattainable if sales level is higher than production capacity. Transaction expenses in a competitive market are possible when the market demand for company's products is in the framework of wasteful production or in the opposite way—if demand exceeds production capacity. Typology of enterprise costs is also represented in Table 2, which demonstrates that enterprises are able to minimize their transaction expenses.

Table 2 The structure of Product 1 sales plan completion costs

Parameter	Designation	Formula	Unit of measure	Production costs (institutional cost model)		
				Product 1	Product 2	Product 3
Fixed costs	F		MU	2	2.4	3
Variable costs (share of sales)	V		Share of sales	0.1	0.2	0.15
Break-even point	BEP	$\frac{F}{1-V}$	Sales	2.22	3	3.53
Production capacity	PC		MU	5	7	6
Sales/production plan	X		Sales	8	8	8
Production costs (classical cost model)	$C(X)$	$F+VX$	MU	$2+0.1X$	$2.4+0.2X$	$3+0.15X$

3. In accordance with the terms of the considered practical example (Table 1), sales plan in the volume of 8 MU cannot be implemented for any product, as it exceeds production capacity rate (5 MU for Product 1 and 7 MU for Product 2). It means that sales plan completion can depend on current economic situation at the enterprise. Let us consider the formation of sales plan completion costs for Product 1. In this case to complete the sales plan in the volume of 8 MU, the enterprise is to manufacture and sell Product 1 in the volume of 5 MU (production capacity) and in addition to get Product 1 in the volume of 3 MU to have the sales plan implemented. It is obvious that the charges for additional Product 1 purchase are equal to sales revenue for the same quantity of Product 1. If sales plan implementation requires Product 1 to be manufactured in the amount less than the product break-even point, the necessary product quantity is in the area of negative profit (below the break-even point), and it is not efficient for the enterprise to manufacture it. In this case the required amount of product is likewise to be purchased in the market. Thus, additional costs for the enterprise plan implementation will be represented by fixed production costs F, which are born by the enterprise even at zero output.

4 Analyses and Results

Table 1 provides the calculation of production and transaction costs for Product 1.

The table illustrates that different sales plan values make transaction expenses run up to 55 % out of the enterprise sales plan costs. It is obvious that transaction expenses emerge only in a competitive market, when the company has to bear extra costs, i.e., to realize "dummy products" (to purchase and sell the same products) in order to reserve its position in the market.

The theorem shows that transaction expenses can be caused by the mismatch between the domain of company's product demand and its sales quantity, in the

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context of break-even operation of the enterprise. In our opinion, the adopted definition of transaction expenses, as expenses for products' marketing, is not indisputable.

All the above provisions are applicable for Products 2 and 3, in general—for any production quantity. If the enterprise releases all types of product or more than one type of product, production costs planning requires optimal choice.

Let us suppose that there are three products, with their main cost formation characteristics to be shown in the table. As you can notice, these are different products with different manufacturing conditions and production costs.

Optimal production process management is ensured by an optimal operating plan, which defines the required production/sales quantity for each type of product and the total sales amount. The requirement for an optimal production/sales plan is the possibility to implement the plan with less production costs.

In general, this optimization problem (for any quantity of products) is given below:

$$\sum_{i=1}^{n} C(X_i) \rightarrow \min$$

$$C(X_i) = \begin{cases} X_i + F_i \rightarrow \text{BEP}_i \geq X_i \geq 0 \\ F_i + V_i X_i \rightarrow \text{PC}_i \geq X_i \geq \text{BEP}_i \\ C(X_i = \text{PC}_i) + (X_i - \text{PC}_i) \rightarrow X_i \geq \text{PC}_i \end{cases} \quad (1)$$

$$\sum_{i=1}^{n} X_i = Y$$

Y—production and sales plan in value terms, an externally prescribed variable
  PC—production capacity

The problem cannot be solved by means of conventional optimization techniques (linear programming), as the problem restrictions are a nonlinear function in tabular form.

Table 3 provides the restrictions for the considered example, i.e., the range of possible sales values (X) and corresponding costs (C).

In this example, the company produces and markets three products; due to the prescribed sales plan, it is necessary to ensure minimum production costs and costs of goods sold. This problem is supposed to be solved by means of dynamic programming method, which is analyzed below. Sales plan can be implemented by selecting a combination of products which ensure a desired sales value at minimal costs, in case when there is no nomenclature operating and sales plan, specifying products' type and their quantity. Table 4 represents calculation of company total costs and sales with two products released.

Table 3 lists the total enterprise costs and sales for the example considered, with two products released. The table shows that the minimum value of the enterprise costs for the sales plan in the amount of 8 MU is achieved when Product 1 in the amount of 5 MU and Product 2 in the amount of 3 MU are manufactured and

Table 3 The range of possible sales values (X) and corresponding costs (C)

Product	X	$C(X)$
1	$\text{BEP1} = 2.22 \geq X \geq 0$ $\text{BEP1} = 5 \geq X \geq \text{BEP1} = 2.22$ $X \geq \text{PC1} = 5$	$X + F_1 = 2$ $2 + 0.1 \times X$ $2 + 0.1 \times 5 + (X - (\text{PC1} = 5))$
2	$\text{BEP2} = 3 \geq X \geq 0$ $\text{BEP2} = 7 \geq X \geq \text{BEP2} = 3$ $X \geq \text{PC2} = 7$	$X + F_2 = 2.4$ $2.4 + 0.2 \times X$ $2.4 + 0.2 \times 7 + (X - \text{PC2} = 7)$
3	$\text{BEP3} = 3.53 \geq X \geq 0$ $\text{PC3} = 6 \geq X \geq \text{BEP3} = 3.53$ $X \geq \text{PC3} = 6$	$X + F_3 = 3$ $3 + 0.15 \times X$ $3 + 0.15 \times 6 + (X - \text{PC3} = 6)$

Table 4 Minimum costs for operating and sales plan implementation with two products

Product 1		Product 2		
Sales plan, MU	Costs, MU	Sales plan, MU	Costs, MU	Total production costs and cost of goods sold, MU
8	5.5	0	2.4	7.9
7	4.5	1	3.4	7.9
6	3.5	2	4.4	7.9
5	2.5	3	3	5.5(min)
4	2.4	4	3.2	5.6
3	2.3	5	3.4	5.7
2	4	6	3.6	7.6
1	3	7	3.8	6.8
0	2	8	4.8	6.8

realized, with the company costs to be equal to 5.5. These are minimal costs as compared to other plan versions.

Let us explain the calculation of production costs presented in Table 4. Let us take an example, when the enterprises are to manufacture and market Product 1 in the amount of 6 MU. This sales value is beyond the production capacity of Product 1 (5 MU) and exceeds the break-even point for this product (2.22 MU). In this case, the enterprise should produce and market Product 1 in the volume of production capacity for this product (production costs amount to $0.1 \times 2 + 5 = 2.5$ MU) and purchase the product of 1 MU to sell it in future at the market price. Total company costs for Product 1 purchase and resale at market price will be equal to $2.5 + 1 = 3.5$ MU. This value we can find in Table 3, the column with Product 1 costs, corresponding to the sales plan which is equal to 6. Similarly, one can calculate production costs for other values of sales plan for Product 1.

Let us explain the calculation of production costs for Product 2. For example, if according to the plan, the company has to manufacture and market the product in the amount of 2 MU; this sales volume is realistic in terms of a production capacity for Product 2 (7 MU), although it is less than the break-even point for this Product (3 MU). In this case, the enterprise cannot manufacture Product 2 in the planned

volume (2 MU) and has to purchase it in the market to resell. The enterprise sales plan implementation costs for Product 2 in the volume of 2 MU are equal to 2.4 + 2 = 4.4 MU (see Table 3, the line corresponding to Product 2 sales plan in the amount of 2 MU).

Let us comment on this result. The enterprise itself will not be able to manufacture Product 2 to sell it in the market, because the planned sales volume is supposed to be unprofitable for the enterprise. Therefore, Product 2 will be purchased and resold at market price. But at the same time, the enterprise will be extra costs in the amount of its own fixed costs for Product 2 manufacturing, and it will be equal to $F = 2.4$ MU, according to the given conditions.

If the product sales plan is within production capacity limits or exceeds production capacity, production costs are calculated as the sum of manufacturing costs and the costs of product purchase at market rate, in the amount equal to the sales plan excess over production capacity. Thus, the sales plan for Product 2 in the amount of 8 MU will require the following costs for the plan implementation: $2.4 + 0.2 \times 7 + 1 = 4.8$ MU (see Table 4). The first two summands are production costs in the volume of production capacity, and the second summand is the purchase of the missing products' amount.

Likewise, Table 2 provides calculation of other costs for Product 2 sales plan implementation.

As mentioned above, the problem of minimizing costs for production and sales plans in the given statement cannot be solved by means of a linear programming technique owing to a step cost function $C(X)$. We believe that this problem can be effectively solved using Bellman's method (dynamical programming). This method is highly effective when the number of products is more than two. If more than one product, as given in the example, dynamical programming principle can also be used as the method to minimize production costs.

If we introduce a variable which reflects intermediate values of a changing sales plan for each product, the recursion relations for a step-by-step solution can be represented as follows:

$$\begin{aligned}
\varphi_1(X) &= \min_{0 \leq X_1 \leq Y} (C_1(X_1)) \\
\varphi_2(X) &= \min_{0 \leq X_2 \leq Y} (C_2(X_2) + \varphi_1(Y - X_2)) \\
\varphi_3(X) &= \min_{0 \leq X_3 \leq Y} (C_3(X_3) + \varphi_2(Y - X_3))
\end{aligned} \qquad (2)$$

X being a discrete positive number

All the designations in formulas correspond to the previously accepted designations.

Current costs for completion of production and sales plan for two products (1 and 2) with all possible patterns of production and sales values are given in Table 5. Table crosses represent the current production cost values for concurrent Products 1 and 2 manufacturing. Each cross corresponds to a certain plan value out of the range of possible values from 0 to 8 MU. The minimum value of fixed costs is

selected and recorded in each cross. So, the $Y = 8$ MU cross has the minimum value of production costs equal to 5.5 MU, the $Y = 6$ MU cross has the minimum value of production costs equal to 5 MU, and the $Y = 5$ MU cross has the minimum value of production costs equal to 4.9 MU. Minimum production cost values depending on production plan are presented in Table 5. Table 5 provides that the minimum production costs of three products—Products 1, 2, 3—are equal to 8.4 MU and are achieved when Product 3 production and sales volume is equal to 4 MU with minimum 3.6 MU production and sales costs and concurrent Product 1 and 2 production and sales volume is equal to 4 MU with minimum 4.8 MU production and sales costs. Product 1 and 2 sales distribution is illustrated in Table 4. Product 1 must be manufactured and sold in the amount of 4 MU with minimum production costs of 4.8 MU, provided that Product 2 is not manufactured at all. This condition will ensure that minimum costs for implementation of the plan will be obtained (Table 6).

Table 5 Minimum production costs

Production and sales plan, MU	0	1	2	3	4	5	6	7	8
Minimum production costs for Products 1 and 2, MU	4.4	5.4	5.4	4.7	4.8	4.9	5.3	5.4	5.5
Minimum production costs for Product 3, MU	5.9	4.9	3.9	3.75	3.6	6	5	4	3
Minimum production costs for Products 1, 2, and 3, MU	10.3	10.3	9.3	8.45	8.4	10.9	10.3	9	8.5

Table 6 Costs for Product 1 and 2 concurrent production and sales plan (MU)

		Product 2								
Product 1		0	1	2	3	4	5	6	7	8
	0	4.4	5.4	6.4	5.4	5.2	5.4	5.6	5.8	6.8
	1	5.4	5.4	7.4	6	6.2	6.4	6.6	6.8	
	2	6.4	7.4	8.4	7	7.2	7.4	7.6		
	3	4.7	5.7	6.7	5.3	5.5	5.7			
	4	4.8	6.8	6.8	5.4	5.6				
	5	4.9	5.9	6.9	5.5					
	6	5.9	6.9	7.9						
	7	6.9	7.9							
	8	7.9								
Minimum costs for Products 1 and 2		4.4	5.4	5.4	4.7	4.8	4.9	5.3	5.4	5.5

5   Conclusion

The solution of the problem is to define the quantity of each type of product, with their production and sales plan being implemented with minimum production costs. This task can also be considered as the problem of enterprise profit optimization, since the maximum profit will meet minimum production costs. Practically, to find the solution, the given example offers to sort out all the sales values for each product within specified limits. Presentation of a sales plan as a number of discrete values is supposed to be correct, if the plan is given both in physical and value terms.

Thus, we can make the following conclusion: the use of institutional approach principles at the enterprise considerably extends the boundaries of production costs and production plan optimization analysis.

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Russian Business Practice: Issues of Corruption and Trust

Liudmila Simonova and Dmitry Rudenko

Abstract This study examines the dynamics and the ratio changes of different types of corruption practices in the relations between business and government in Russia. Corruption is regarded as a major barrier for the international business practice in Russia and the confidence of a foreign investment community in the Russian companies. It is especially relevant in terms of sanctioned Russian economy, its low competitiveness and innovativeness, deteriorating investment climate. Characteristic and peculiarities of a corruption process in Russia have been determined: (a) the high level of corruption in Russia in the system of international coordinates; (b) the crisis of confidence and trust between the Russian civil society and the government as an ideological foundation of corruption; (c) raw vs. innovation type of economics in Russia as an economical foundation and a precondition of corruption; (d) existence of a sustained corruptive relationship between government and business in Russia (in contrast to other countries, where it is revealed less obviously or has a random character of manifestation); (e) dominating significance and a latent character of the internal business corruption as opposed of its external manifestation in Russia; (f) formation of a social request for the effective anti-corruption policy.

Keywords Russian business • Trust • Corruption • Governance

1 Introduction and Methodological Framework

Corruption has been considered as a popular and conjunctural topic for the contemporary research both by scientific and business societies for a long period of time. Most of the research undertaken, however, is primarily focused on investigating the phenomenon of corruption in relation to the government sector. At the same time, the attempts to decode and analyze this phenomenon in its relation to the corporate sector (corporate corruption) and especially in the area of the

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government-business relationships (business corruption) are rare and associated with objective difficulties and barriers for the research.

The two main methodological approaches can be outlined for investigating corruption: economical (neoclassical) approach and economic-sociological approach. For revealing the phenomenon of corruption within the framework of the first approach named, it is useful to apply the theory of agents' relationships. According to neoclassic economists, corruption represents a rational tool of cost optimization, and the corruption relationships are based on the economic choices in a condition of scarce resources. For the corruption relations to be functional and effective, a mandatory participation of the three parties is needed: a principal or a warrantor (central government, legislative body, etc.), an agent or an executive (a governmental official, a representative of the executive authority), and a client or a "ward" (a company or an entrepreneur). In a situation when a corporate corruption occurs, a company's shareholders are acting as principals, hiring executive managers for the operational purposes who are acting as agents and who at the same time can implement their own goals when interacting with the other market actors in defiance of the shareholder's goals and interests.

Whereas the principal (government) establishes the framework and terms for the company's activity—formal regulations, governing activity of the clients (commercial organizations or individual entrepreneurs), and the principles of control functions—agents are responsible for the operations management. The rights and functions of control are delegated to the agents—executive authority representatives. It is presumed that agents are fully aware and informed about the content of these regulations, but do not have any opportunities for changing it, although suggestions with necessary changes in the regulations are permitted. At the same time, they must follow the rules of control, avoiding any discrimination toward to any of the clients, whose functioning is regulated by these formal rules, without affecting their interests. However, in practice the relations between the three mentioned parties can develop within different scenarios.

It is necessary to identify and outline the criteria for classifying and describing certain actions as corruptive ones. For identifying a corruption relation, Levin and Satarov (2012) consider its main elements:

1. Existence of formal regulations established by a principal
2. Entitlement of an agent with a monopoly authority of distributing resources and providing the services according to these regulations, which an agent is not entitled to change
3. Presence of a client as of an independent third party that is interested in obtaining the resources and services by means of breaching the formal regulations
4. Organization of an exchange of services and remuneration between the agent and the client that has been initially agreed by the parties
5. Breach of the regulations by the agent in favor of the client and his interests
6. Getting a private individual benefit by the agent and a public or a private benefit by the client

It should be noted that the client in a corruption relationship does not necessarily pursue his private benefits, whereas the presence of a private benefit for the agent is a mandatory sign of corruption. Thus, economical neoclassic approach considers corruption as an ability of a governmental official to impose a shade tax on a private business as a result of the monopoly of decision-making he possesses, which affects and influences significant terms and conditions for the business. Hence, according to this approach, corruption represents the usage of benefits given by an official position to an agent for the purpose of gaining a private benefit from the interested parties of the market by means of deliberate breaching of formal regulations for the sake of their interests.

However according to Barsukova (2008), the neoclassical approach is neglecting historical and cultural factors, dismissing the influence of such significant factors as moral, ethics, social pressure, and formal and informal social norms, as it ignores the "social implement" of economical parties, which is considered as a dissemination of an individual into the social environment. These limitations are mastered by the economic-social approach that focuses on corruption in a context of a historical retrospective and ethnocultural peculiarities. The determinants of a conscientious or unconscientious business action, including corruption, within this approach are such factors subtracted by economists as an ethnocultural specialty, confessional peculiarities, family values, network connections, corporate culture, professional ethics, ideology, and other generators of the social norms. For instance, the confessional attribute significantly influences a degree of corruption practice's prevalence: it is fairly noticed in the Confucianism countries, such as Singapore and Japan, to have a very limited corruption practice, unlike their neighboring countries like Pakistan and India, where Confucianism historically has not been perceived as a code of "honest and wise behavior" of an official person (Barsukova 2008).

Corruption is a very complex, socially and culturally predetermined phenomenon that relies significantly on history, traditions, and customs of a country and that has multiple forms of manifestation. For example, giving a present to an official person or a person with a higher social rank on a special day (holiday or birthday) in some countries would be considered as a natural action, whereas in some it would be subjected to judgments. In Japan, for instance, it is of a particular importance to make presents on a permanent and mutual basis, including presents to superior persons. Moreover, the most typical present in Japan would be money, which is very common for the Japanese style of giving presents. According to the research carried out by Davis and Ikeno (2006), a typical top manager of a company in Japan spends up to 2300 US dollars annually for presents, which have about 43 types, according to the present ceremonial classification. However, at the base of this process is a theory of a social duty to respond in a similar way to an extended cooperation, a so-called giri, which is more important in Japan than personal feelings and interests, rather than a corruption motive. Giri carries a meaning of an obligatory social norm, moral commitment, and duty, which should be followed in a social interaction process. Therefore, whereas in the Western countries a practice of giving presents is considered mostly as an individual action, not oriented toward reciprocity, in Japan this process is as an essential element of a group culture

that is necessary for maintaining the contacts and supporting the balance of social relationships. Moreover, the "to take-to give" model in Japan exists even in an interaction of humans and gods, and this "balanced relationship" model is reflected in a practice of giving the presents. However, this practice imposes a fair question: how much of the governmental corruption (fuhay), bribing (vairo), and a common tradition to give presents are correlated and mutually preconditioned? Dominant social norms and ideological guidelines determine an actual legitimacy of existing laws and legal regulations and an actual scale of corruption in society and its acceptability and eligibility. It is especially true in regard of such countries as Russia.

A general definition of corruption as the abuse of public office for personal gain requires a clear separation of public and private spheres and of public and private interests. In the Russian context, this strict separation has not been achieved at the present because of an incomplete transition period in economics transformation and the weakness of the private property institution.

The global concept of corruption, laid at the foundation of modern international standards of governing, involves an unconditional completeness and maturity of the institutional system of business practice regulation, when a rationally legal order and the institutionalization of rules have acquired the status of a norm, and corruption is considered as a deviation from this norm. However, in Russia, such a "rational-legal order" is being developed at the moment, and the basis of management and decision-making is not only and not so much institutionalized by rules, as distorting and correcting their informal practices and interpersonal relationships. In regard to this, it is fairly noted by Ledeneva and Shekshnya (2011) that the informal practices in Russia should be viewed as indicators that point to defects in the formal procedures and should be considered as a key to understanding local peculiarities, and they should be used to investigate the relation to corruption rather than automatically identified with it.

For the abovementioned reasons, corruption mechanisms in Russia should be investigated in the context of a trust relationship, both institutional and interpersonal, as it is the element that compensates the failure and incompleteness of formal institutions. Particular mechanisms of corruption action realization are of a high importance as well. The interaction between the actors of the corruption process is either direct or mediated, being realized through intermediaries or agents. The presence or absence of such agent depends on the personality of a participant or participants of the corruption interaction process. For instance, as a rule, on the federal government level, the agents take part in a corruption interaction. Whereas at the level of small businesses and tax inspections there are no intermediaries, as the interaction is taken on the personal level. However, in all the cases, the backbone of the interaction in a corruption process is the establishment of trust between the parties within one of the schemes: either Participant 1-Trust-Participant 2 or Participant 1-Trust-Agent-Trust-Participant 2.

Indeed, the popular Russian informal practices are based on relationships of trust, mutual responsibility, and other informal norms or, conversely, are the result of abuse of trust by persons who use their official position for personal gain,

changing and breaching the formal regulations. Following this view and logic, we would like to refer to a position shared with Ledeneva and Shekshnya (2011), according to which, in a society where personal trust compensates the shortcomings of the functioning of formal institutions, it would be incorrect to use the term "corruption" in the same sense as it is used in developed societies. The traditional "from top to down" focus of research in calculating the ratings of corruption and the corruption perception index should also be considered inadequate for the study of corruption in Russia, as the focus of analysis should be shifted to understanding the phenomenon as a specific practice as adaptation strategies in a relation to a bigger scaled system.

2 Characteristic and Peculiarities of a Corruption Process in Russia

2.1 The Level of Corruption in Russia in the System of International Coordinates

In 2014, in accordance with the generally accepted Corruption Perception Index (CPI), calculated annually and published by the Transparency International, Russia is ranked 136th among 174 countries, sharing with an index value of 27 points the group of countries including Nigeria, Lebanon, Iran, and Kyrgyzstan. The countries with the lowest index of perception of corruption are the North European countries, such as Denmark and Finland, whereas the USA has the 17th place (index value equal to 74), Japan the 15th place (with 76 points), and Germany the 12th place in the ranking. As for the interpersonal trust level index, according to the international survey World Values Survey carried out by the University of Aberdeen (2015), Russia is in the middle position (27.6 %) in the group of developed economies above South Korea (28 %), Poland (22 %), Spain (19 %), and Cyprus (7.5 %) and among developing countries adjacent to India (32.1 %), Belarus (32.6 %), and Taiwan (30 %). The least corrupted countries, however, demonstrate a significantly higher level of interpersonal trust compared to Russia: Sweden, 60 %; the Netherlands, 66.1 %; the USA, 34.8 %; Japan, 35.9 %; and Germany, 44.6 %.

2.2 The Crisis of Confidence and Trust Between the Russian Civil Society and the Government as an Ideological Foundation of Corruption

A principal difference of the Russian domestic corruption phenomenon compared to the other countries is its fundamental basis, associated with the crisis of confidence and trust between the Russian civil society and the government, which serves

as an ideological foundation of corruption and provides a self-reproduction of a corrupted system of governance on a permanent basis. It is manifested in several ways. Firstly, the citizens perceive the government structure not as a necessary element of the production of public goods, ensuring social welfare, but as a completely extraneous bureaucratic structure, predominantly concerned about maximizing their own well-being by means of the authority given to it. Secondly and on the other hand, the lack of trust between the state and its citizens contributes to the reproduction of corruption in the executive branches of government. It is clear that in this case, we are primarily talking about the deficit of institutional trust and distrust of citizens to impersonal social institutions and the establishment of rules and regulations, when citizens do not rely on the performance and execution of the officials in accordance with the formal and publicly declared standards and regulations, and therefore, they are imposed to resort to corruption acts.

A decreasing level of institutional trust leads to disposition of the Russian citizens from governing on all levels (state, municipal, private business, and nonprofit sector), when the corruption practices and strategies of adapting to them are applied, as they are entitled to substitute the legal regulations when influencing the existing formal system of rules and norms. Moreover, the atmosphere of "alienation" and a decreasing power distance from the people lead to a lack of effective public control of corruption from the down to the top: citizens faced with corruption manifestations do not intend to report the incidents to the state authorities. Furthermore, people believe that every official takes a bribe, consider corruption as a norm, and attempt to resolve the issues with bribes on all levels, thus fueling the corruption. As a result, the most important principle of balances in a relationship of the society and the government is being violated, and favorable conditions of corruption relationships are being created and reproduced.

2.3 Raw vs. Innovation Type of Economics in Russia as an Economical Foundation and a Precondition of Corruption

At the moment, the necessity of shifting from a resource-based model of economy to an innovation-based model is being imperatively proved, as well as a fight against corruption on all levels is widely declared in Russia. However, neither at the level of theoretical understanding nor, especially, in the practice of political decisions, these major problems are not linked and are not related to each other. Moreover, it is a stable reproductive system of corruption relationships that significantly hinders the country's transition to the innovative model of development. There are several reasons for this. First of all, the raw economic model provides the state income generated under the influence of independent factors of commodity markets' trends and general external trends in the world economics, rather than by the business activity of the state's citizens and the efficiency of its state apparatus

and structure. This is a fundamental cause of the government's reciprocal relationship with the citizens that is not oriented and focused on making decisions in the interest of the general public and, moreover, creates an alienation of the government from the citizens that are not seeking to influence the government in its decision. In these circumstances, an innovative type of behavior is not only discouraged but is also illogical and irrational.

In conditions when all-hands-on-deck work approach at the end of the year in order to meet the budget indicators is a standard, a motivation for innovations and its need decrease to a minimum level. Thus, practically none of the 22 state-owned companies in Russia that are members of the so-called first list and blue chips list (such as Gazprom, Rosneft, etc.) have reached the level of research and development costs comparable to the correspondent average indicator in the world practice. For instance, a coefficient that determines the ratio of R&D investments to a ton of fuel for Gazprom is equal to 0.29 and for Rosneft 0.06, while Shell has a coefficient of 5.67 and ExxonMobil 3.2. At the same time, 69 % of R&D expenditures in the year of 2010 were funded from the state budget and not the companies' own funds (Pozhidaev 2011). It is fairly noted by Romashkina (2015) that the public sector constraints the innovative development in the Russian regions.

The primary factors for the improvement of the investment climate and development of innovations in Russia are creating the conditions for fair competition and eradicating the corruption. Under this condition the development of innovation would become a natural process. Companies that do not offer new products and technologies for the market will be doomed. But at the present, it is of a much greater benefit for the Russian corporations' top management to split the annual budget for the technological lines maintenance and repair among numerous subcontractors with an established system of bribes from each of the subcontractors, rather than to implement high-cost and high-risk innovative technologies. For this reason, it is not surprising that top management in majority of industrial companies and plants in Russia get the most of revenues from the contracts on repair works.

Above that, the innovations' implementation activity requires significant investments. In case of the absence of trust between the government and the society, owners of investment resources become interested solely in a quick and painless export of their capital raised from the sale of the state's resources. It stands to reason that even the most innovative and developed part of the Russian oligarchs' companies are still far behind the leading world companies, both for the volume of R&D development and for the efficiency of pioneering and research. As majority of big corporations in Russia consider modernization is a process of purchasing and importing the Western technologies and equipments which are then being adapted and adopted to a harsh Russian reality. Twenty-two of the biggest Russian companies have got a bit more than 1000 patents in Russia over the year 2010. For comparison, during the same year, IBM solely had patented over 5000 of new technologies and products, whereas only 5 of these patents were international ones. In Russia the index of effectiveness of investment into R&D is at the same low level as the figures indicating the level of innovation activity: having spent 22 % of the total R&D funding provided by the Russian government, the companies with a state

ownership have got only 4 % of all the patents issued (Pozhidaev 2011). Thus, the "governmental-corporative" segment of the Russian businesses demonstrates a dramatically small innovation performance with a five times lower level of efficiency in costs spending. And one of the main reasons of R&D investment low efficiency among large corporations is corruption.

When it comes to the small and medium businesses, they have very limited possibilities for the innovative activity: provided the government is corrupted as in Russia, obtaining an additional authorization and licenses required for developing innovations becomes too expensive, as the bigger part of costs has to be spent on bribes. Moreover, these companies have a very limited access to credit funds and loan instruments having a high risk in innovation at the same time. Above that, when there is a very poor specification of innovations and the protection of property rights is at a very low level as the system is corrupted, most of the investment projects in Russia lose their economic efficiency and become short term. These factors demotivate an innovation activity by entrepreneurs and, at the same time, encourage a rent-seeking approach to projects and business in general. Thus, corruption has a negative impact on both investment and innovation activity by businesses, stimulates rent-seeking behavior, and leads to significant social losses. Considering the types of corruption, it should be noted that among numerous types of it, we would like to specifically focus on one type, the least studied but the most upfront and important to be investigated both for the Russian and international science and practice—business corruption.

2.4   Existence of a Sustained Corruptive Relationship Between Government and Business in Russia

In Japan the analogue of such an underhanded alliance of capital and bureaucracy is a protectionist practice called amakudari which presumes appointing former governmental officials on the key positions in private corporations after their retirement. They help to provide confidential government information, permit for certain types of work, facilitate favorable conditions of contracts, and even participate in decisions on getting financial subsidies from the government. For instance, the research of Davis and Ikeno (2006) has shown the companies with about a quarter of top posts occupied by amakudari received exactly the same percentage of orders from the government, which indicates the presence of conspiracy and illegal actions. Dzen scandals, dango auctions which are free from any criticism (agreements on bids for obtaining construction contracts), and the vicious practice of formation of the former high-ranking officials of the commission on fair competition all clearly show the evidence of a need to establish a strict legal control over the corruption practice. This practice is equally peculiar for Russia as well, and it is not limited solely by the abovementioned strains. The danger, however, is not only in existence of such corruptive alliances between the business and the government and

the stability of these links, but it is even more of a danger to the society because this vast network of corruption connections is not only benefiting from their illegal activities but also investing and reinvesting in the development the corruption itself. This factor makes corruption a systematic factor specific to the Russian model. According to Levin and Satarov (2012), Russia is a country with a massive endemic corruption, where corruption from an occasional deviation from the moral and legal rules transforms into a load-bearing structure of authority and a standard of relations between the citizens and the government.

The business corruption in Russia has become the most significant and the most rapidly developing sector of the national economy, the volume of revenue in which has exceeded the same indicator in the oil and gas sector. This provided the basis of calling corruption the major sector of the Russian economy (Levin and Satarov 2012).

2.5 Dominating Significance and a Latent Character of the Internal Business Corruption as Opposed of Its External Manifestation in Russia

Unlike the public sector, in relation to business, the category of corruption splits into two parts: corruption as part of the relationships between business and the government and corruption within the firms as an indicator of their internal inefficiencies. There are no any accurate or valid statistical data in Russia on the second type of corruption. The in-house corruption in a private business is caused by the following factors: confusion and conflicts of ownership relationship and management in corporate systems, lack of transparency and privacy of companies, and old methods and forms of financial and other reporting used by them in order to follow the government regulations and to avoid the use of the statements by the competitors (both in business and in government) for their hostile business acquisition strategies realized by means of illegal methods.

Corruption in the private business in its relation with the government can be divided into two parts. The first of it can be interpreted as a special form of tribute payments to officials for the right to do the business. The second one represents corruption as an instrument of competition. Both forms of corruption are associated with partial immersion of the business into the gray area of the economy. And while the first form of corruption knowingly represses a particular business and has a negative impact on its performance, the initiative use of the second form of corruption by business supposedly contributes to its competitive advantages and, therefore, its effectiveness. The most efficient and effective corruption strategies for the Russian companies basing on the successful performance of the business are the corruption interaction with the governmental authorities and acquisitions of the business undertaken by the governmental officials (or with their assistance) for the rent gaining purpose.

2.6 Dynamics and the Ratio Changes of Different Types of Corruption Practices in the Relations Between Business and Government in Russia

According to Ledeneva and Shekshnya (2011), who carried out surveys of 110 - Russian and foreign companies operating in different regions of the country, the most common corruption schemes currently applied are based on the extortion of money from businesses by state control authorities: customs services, fire inspection, and law enforcement service. This practice has become systematic and often voluntary (preventive) by businesses. An internal corporate corruption demonstrates an increasing trend associated primarily with the use of company's resources for personal gain: the use of company's funds for purchasing expensive cars, organizing personal trips, receiving commissions and expensive gifts from vendors and customers, etc. In actual business practice, the common forms of corruption are also based on friendship and other interpersonal relations reflecting the phenomenon of trust: favoritism in the selection of suppliers based on the friendship or family ties, the practice of nepotism when hiring employees of the corporation on the same base, and others. Moreover, these cases are not regarded by top managers as corruption, neither are the cases of pressuring and blackmailing business partners or employees by means of collecting confidential and compromising information on them. At the same time, researchers outline the following corruption practices that are currently losing its prevalence and economic significance in Russia: leasing of corporate office space or equipment for personal purposes, paying inflated remunerations to particular board members, paying commissions in monetary or nonmonetary forms for employment or career promotion, etc. Above that, the prevalence of a primitive "black cash" business gives way to more advanced forms of long-term corruption interactions.

2.7 Formation of a Social Request for the Effective Anti-corruption Policy

According to the Public Opinion Foundation (2011), the vast majority of Russians (84 %) in 2011 believed that the level of corruption in Russia was dramatically high. Almost half of respondents (46 %) believed that corruption had been growing. Every third respondent reckoned that within a year, the number of bribe takers would increase together with the scale of bribes taken. Moreover, 76 % of citizens believed that the published income declarations of government officials did not correspond to reality, and only 1 % of respondents trusted them. This is a testament of the formation of a large-scale social demand for a disclosure, assessment, and prevention of corruption in Russia. According to Gudkov (2014), corruption is an inevitable consequence of the notorious "vertical of power" and the concentration of resources in the hands of a small group of government officials. And numerous

studies and research undertaken within the last several years only prove that the scope and the scale of corruption grow in a direct proportion with a degree of centralization of the power and management (Aklyarinskaya and Ilyichev 2011).

3   Conclusion

Corruption as a barrier for the activity of international companies and investors in Russia is indicated and outlined by the vast majority of foreign top managers making business in Russia. This fact is also confirmed by the joint study of the National Council on Corporate Governance and Russo-British Chamber of Commerce conducted in Russia in the year 2010. The results of the survey showed a striking contrast of the Western business culture as opposed to the Russian one in terms of its openness, honesty, and transparency. For instance, as noted by one of the respondents, "big business in Russia is based on power, political connections and corruption. Business ethics is present only to the extent when it contributes to the promotion of business interests, but doesn't lie beyond these borders". Above that, experts outlined a huge influence of the state and government officials, who are guided by "unclear objectives and motives" on the business and stressed that the impact of authorities (especially by the tax inspections and licensing authorities) had increased dramatically. The red tape and high levels of corruption were named as the factors causing the greatest discontent of the businessmen. Above that, the foreign respondents assessed the current state of Russia's legal and regulatory systems and environment in relation to the business as being at a mediocre level, ranking a three-point mark on a ten-point scale. One of the experts described this issue in general terms in the following way: "The cult of secrecy, up to the point of paranoia, is strongly expressed in the Russian business culture. However, it is clear how this phenomenon came into being: the fear of the government, fear of competition, weak legal and regulatory systems and highly uncertain regulatory rights. All of this significantly hinders a constructive business practice in the country".

The most significant factors related to the credibility of the Russian companies outlined by the investment community abroad on a 10-point scale were a high level of transparency (an average of 9 points), confidence in property rights (8.3 points), the overall quality of corporate governance and business ethics and commitment (8.1 points), and a stable regulatory environment (7.9 points)—thus, all the factors essential not only for building up the confidence for the international business practice but also for preventing the corruption.

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Partnership Cooperation of Companies: Key Characteristics and Influence to Innovative Activities

Almira Yusupova

Abstract Partnership cooperation is an important element of relational resources of any company. The role of such resources is constantly increasing under contemporary economic situation. Effective system of partnership relations gives an opportunity to achieve competitive advantages even for small companies which could use the potential of large firms under cooperation. These relations are especially important for the companies which have high level of innovative activities. The research deals with the relationship between types of partnership cooperation used by innovative company from one side and its innovative activities and models of innovative behavior from the other. Research is focused on the small- and medium-size business, though several large corporations are also taken into account. Empirical part is based on survey data of Siberian innovative companies. It was discovered that in spite of the existence of many indirect confirmations of the importance of partnership relations for innovative companies in general, these relations in most cases are formed spontaneously without deep justification. It turned out that many innovative companies consider large domestic and foreign corporations as reliable main partners. Taking into account that an innovative system is very complex and includes different various elements, it is possible to note that these very actors could play an important role in the development of innovative entrepreneurship.

1 Introduction

Performance of any firm is related to its cooperation with many economic actors. Firms create and develop partnership relations of various types. Forms and methods of such relations depend on company's size, its specialization, regional position,

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history, corporate culture, market power, and other factors. In modern economic environment, partnership interactions could be understood as a part of relational resources which are used by any company along with others. Nature and character of relational resources, role of partnership cooperation as a tool of relational resources' potential increase, and other similar problems are discussed in a number of research papers (Cheung et al. 2010; Ziólkowska 2014). These relations are especially important for the companies which have high level of innovative activities.

The main aim of this research is to find out if there is any relationship between types of partnership cooperation used by innovative company from one side and its innovative activities and models of innovative behavior from the other. Research is focused on the small- and medium-size business. We understand partnership relations as the whole complex of relations and cooperation with different economic agents which take place in the process of company's creation and operations. They cover links between particular enterprise and all its partners. Several classifications of partners and partnership relations suggested by different researchers could be found in literature. Usually they are discussed in the context of marketing strategies' analysis. For example, Morgan and Hunt (1994) defined partnerships with consumers, suppliers, and horizontal and internal partnerships as main forms of internal and external cooperation. We concentrate our attention on the first three types; internal partnerships are not considered. The set of external partners includes consumers, suppliers, intermediaries, consultants, research organizations, government and public institutions, and others.

2 Main Forms and Types of Partnership Cooperation

Theoretical background of firms' cooperation could be related to basics of new institutional economics. Classical analysis should start from Williamson's (1981) approach, presenting firm and market as alternative forms of economic organization. Firm here deals with hierarchy and strict mechanisms of relations' regulation, while market is associated with free flexible schemes. At the same time, Williamson did not limit his explanations with two-dimension system only. He also suggested various hybrid variants of organizations. Many cases of intercompany partnerships could be good examples of such hybrid forms.

Companies usually are limited in their capability to outrun their competitors basing only on their own strategic resources and competencies (High School of Economics 2014a, b). Entrepreneurs have to cooperate as well as to compete with other actors in order to be successful. Cooperation provides an opportunity to concentrate resources and efforts of partners on the creation of greater value in order to distribute revenues later. Usually revenuers are distributed under competitive rules. Partnership relations provide environment for these processes. System of company's links with partners could take different forms: unique transactions, long-term relations, standard contracts between buyer and seller, strategic alliances,

networks, vertically integrated structures, etc. (High School of Economics 2014a, b).

Many researchers prove that cooperation between separate independent firms is regulated not only by formal institutions. Growing importance of interfirm networks is pointed out in many research papers. For example, this importance was proved by Sheresheva (2010). Interfirm network is presented by the set of independent enterprises. Both market leaders and firms which do not have market power could join such networks. For the small-market players, intercompany networks have special importance as they provide element of quasi-integrated structure. Joining networks, small firms could obtain cumulative (virtual) size, use economy of scale, and improve their competitive position.

We are mainly interested in the activities of innovative companies. Under contemporary economic environment, innovative activity could not be carried out by a single firm only; many actors are involved in these processes. Competitive advantages of successful companies are based mainly on the cooperation with such partners as suppliers and consumers, producers of complementary products and services, distributors and dealers, government and public organizations, and universities and research institutes. Very often such cooperation is developed with the help of network structures.

Interfirm networks appear as a result of integration processes which take place at many industrial markets. Sheresheva (2010) shows that networks have different genesis. They have different origin and appear as a result of different tendencies which sometimes have controversial character. Interfirm networks could be interpreted as medium and long-term coordination mechanisms. Market type of organization is based on classical contracts, hierarchy deals with relational ones, while hybrid form uses neoclassical contract which provides partners with some level of flexibility. Networks help to regulate and coordinate cooperation in a certain manner, but they cannot avoid future conflicts between members. Therefore special regulating and managing mechanisms should be introduced.

Each individual firm joins several network schemes simultaneously within its operation. These interfirm relations get special importance under unstable economy. Probability of opportunistic behavior naturally increases under crisis when well-established stable relations are destroyed. Companies try to achieve two goals in these circumstances: to save existing relations and to create new chains. This has special relevance to the suppliers. Popova (2010) explained that the practice of Russian companies during 2008 crisis proved tendency which was mentioned above.

Russian economy provides interesting practice of network cooperation in general. Pure market forms of economic organization could not be developed successfully within Russian environment. Most companies use long-term contracts with their main partners. A number of empirical works aimed to study such experience appeared during recent years. Most of them deal with the nature of network cooperation and its results. Popova (2010) described the results of large-scale survey and showed that most companies incurred additional financial costs when they have built networks. Nevertheless they look for new networks. This study was

carried out in collaboration with experts from Russian Economic Barometer. It was shown that more than 70 % of CEOs were interested in stable long-term partners. They considered that partnership relations helped to consolidate resources and to increase competitive advantages. It should be noted that in most cases, cooperation is developed vertically. Most market agents do not trust horizontal partnerships. Very often existing networks help to find new partners.

As it was already pointed out, partnership cooperation in general is very important for innovative entrepreneurship. Network structures correspond to the most important type of cooperation. Networks help to disseminate information on innovations; they provide opportunities for resource exchange, feedback from consumers, and they favor the promotion of definite innovative product.

Significant advantage of network is based on its flexibility and developed capacity to adapt to external environment. This has special importance for complicated products when it is difficult to organize direct control of all resources and competencies and when external environment is very unstable (Kolesnik and Gorlacheva 2012).

In addition network cooperation helps to avoid breaks between different stages of innovative process. This characteristic has special value for small- and medium-size businesses. Network cooperation can take different forms; for example, it can take the form of business association (BA). Such associations provide great assistance to innovative companies; the number of empirical papers is devoted in the role and place of BAs in Russia; it was found out that about 40 % of Russian industrial companies are members of BAs, about 50 % of them consider such membership useful and beneficial (High School of Economics 2014a, b). We have proved that BAs give effective informational help to innovative companies (Yusupova 2012).

It was proved that many innovative companies got effective support from cooperation with universities, research institutes, and service intermediaries (High School of Economics 2014a, b). Ziólkowska (2014) pays attention to the fact that companies which are included in developed cooperation networks have strong advantages when they enter foreign markets. This author also proves that management of cooperation and relations becomes important and actual in contemporary conditions. However this is not fully understood by companies' CEOs. It was discovered empirically that special system of partnership cooperation management is carried out only by 25 % of Polish enterprises. Attention in these cases is paid mainly to the relations with suppliers, consumers, and to less extent competitors (Ziólkowska 2014). The situation in other countries is more or less similar.

In general, entrepreneurs do not recognize the importance of partnership cooperation. Very often this cooperation is developed spontaneously; therefore companies make mistakes which limit their growth. Entrepreneurs in Russia also deal with this problem. Most partnership relations are not such effective as they could be. Survey of innovative potential of Rostov region revealed that 80 % of respondents (different actors of innovative system) marked low trust between partners as significant barrier for innovative development (High School of Economics 2014a, b).

Summing up these assumptions, it is possible to note that there is real necessity to develop effective schemes of partnership relations on the one hand; there are no any reasonable models of this relations' management on the other hand. Therefore studies of nature and character of partnership relations within entrepreneurial activities seem actual and urgent.

3 Partnership Interrelations of Innovative Companies: Case of Siberian Firms

This paper is focused on the problems of innovative entrepreneurship. Empirical part is based on data collected with the help of a survey of Siberian innovative companies. Major part of the sample is presented by companies and entrepreneurs who work at Novosibirsk research center which is marked by favorable innovative infrastructure. Several companies representing other Siberian cities are also included in the sample. Forms of innovative firms' intercompany cooperation were studied; companies' attitude to the role of this cooperation was analyzed within the research. Mainly small- and medium-size Siberian innovative companies were selected for the analysis. General research scheme and some numerical results of the first stage are presented by Kravchenko et al. (2011) and Yusupova (2012).

All set of responding companies was divided into two parts at the first step of analysis. A special group of so-called leaders was selected; it included companies working at national and international level and producing products with high level of novelty (products which are new for Russia or even for the whole world). Such companies have very high level of innovative activities. We suggested that their behavior should differ from the behavior of other market participants, which formed the second group of so-called other companies.

Going further we concentrated on partnership relations with enterprises and research institutions. We tried to estimate how important is this cooperation for innovative companies and how it is related to the firms' basic characteristics which included product's novelty, market scale, etc. Analysis revealed that in general, companies did not estimate detached partnerships high. Leaders consider them to be more important. Then these estimations were compared with novelty of product produced by company. According to initial assumption, the higher novelty reflects the higher innovative activity. The aim was to find out the relations between innovative activity and importance of partnership cooperation with the selected actors. Correlation coefficient was used as an indicator of such relationship. It should be noted that the importance of cooperation was reflected only by the scores given by respondents.

The results obtained for the whole sample differ from those for the separate groups. Thus weak positive correlation between the level of novelty and cooperation with research institutes and universities was found for the whole sample. The same conclusion could be formulated for the group of non-leading companies.

However correlation of these factors turned to be negative for the group of "leaders." They are not interested in cooperation with official academic institutions and demonstrate tendency to autonomous development. Calculations and interpretations of the results are shown in Yusupova (2012).

Our data confirm that innovative companies develop formal and "informal" types of cooperation. Already mentioned BAs are good examples of the informal one. It is interesting to note that these associations are created by state authorities as well as by innovative entrepreneurs themselves.

Characteristics of firms' innovative behavior were compared with several indicators reflecting different features of development including interfirm cooperation. The part of the sample used for this step of research included 59 companies located mostly in Novosibirsk oblast.

General respondents' attitude to the participation in BAs as the form of cooperation was examined at the first stage. Results show that majority of companies consider BAs as an important factor of business support. Companies understand BAs as a tool of effective informational support.

Separate part of research was based on a survey which included set of questions concerning partnership relations directly. Our aim here was to find out business partners who have great importance for companies, dominant types of agreements, and relations between companies' characteristics and models of cooperation. Some results are presented below. Total number of analyzed observations here is 39. Cooperation with main types of partners was examined. These types include the following groups: small and large business companies, state institutions, and foreign companies. These partners could act both as resource suppliers and as consumers of innovative companies' products. In addition, questions covered cooperation with banks, competitors, BAs, universities, and research institutes. It was also assumed that state authorities could act not only as supplier or consumer but also an informational, infrastructural, regulative partner. Most types of external partnerships were covered by our survey. Averaged scores of all partners' importance are presented in Table 1.

It turned out that in general, consumers got higher scores than suppliers. According to respondents' opinions, the most important role was given to large companies as consumers. In the group of suppliers, the highest score was obtained by small business. It is possible to suggest that innovative companies prefer to get orders from large corporations and to buy components and semimanufactured articles from small firms.

Separate question was devoted to informal types of cooperation in relations with different partners. General results are presented on Fig. 1.

The results show that innovative entrepreneurs use informal models of cooperation in relations with all partners. In greater extent this applies to the relations with large and small companies as consumers and small companies as suppliers. It should be pointed out that this figure reflects only the fact of existence of informal agreements, while definite forms and frequency are not taken into account.

Analysis of the results obtained revealed that there is no any correlation between the level of product novelty and scores of partners' importance. No correlation was

Table 1 Average scores of partners' importance (evaluation was based on 0–5 scale)

Partner	Average score of importance
Consumers	
Small business (C—SB)	**3.21**
Large business (C—LB)	**3.62**
State structures (C—Gov)	**2.82**
Foreign companies (C—FC)	2.08
Suppliers	
Small business (S—SB)	**2.90**
Large business (C—LB)	2.46
State structures (S—Gov)	0.64
Foreign companies (S—FC)	1.87
Other partners	
Companies working at the same market (competitors)	2.00
Banks and other financial institutes (banks)	2.00
Research institutes (RI)	1.92
Universities (Univ)	1.36
Business associations (BA)	0.90
State structures (Gov)	1.87

Note: notation conventions which are used in further illustrations are shown in brackets

Fig. 1 Share of companies which use informal relations with different partners, %
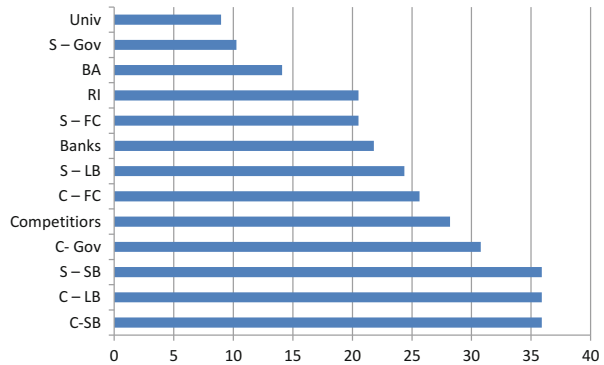
found for the level of novelty and use of informal models of cooperation. Separate step was devoted to the analysis of correlation between the scores of the importance of different partners. Coefficients which turned to be significant (p-value is less than 0.05) are presented in Table 2. Some values which seem more interesting from the point of view of interpretation are marked by bold. As it could be seen, the strongest positive correlation was observed for the scores of role of research institutes and universities. This looks quite appropriate and could be explained by the nature of these actors. Negative correlation was obtained for the scores of importance of small companies as suppliers and universities. It is possible to suggest that companies which are oriented to the deliveries from small enterprises

Table 2 Correlation of scores of different partners' importance

Pairs of partners	Correlation coefficient
1	2
Consumers, small business—competitors (CSB—competitors)	0.383
Consumers, small business—business associations (CSB—BA)	0.333
Consumers, large business—consumers, foreign companies (CLB—CFC)	0.438
Consumers, large business—suppliers, large business (CLB—SLB)	**0.434**
Consumers, large business—suppliers, foreign companies CLB—SFC)	0.471
Consumers, large business—competitors (CLB—competitors)	0.328
Consumers, large business—research institutes (CLB—RI)	0.463
Consumers, large business—universities (CLB—Univ)	0.327
Consumers, foreign companies—suppliers, foreign companies (CFC—SFC)	**0.408**
Suppliers, small business—suppliers, large business (SSB—SLB)	0.504
Suppliers, small business—universities (SSB—Univ)	**−0.375**
Suppliers, large business—suppliers, state structures (SLB—Gov)	0.318
Competitors—banks and other financial institutions (competitors—banks)	0.34
Research institutes—universities (RI—Univ)	**0.658**
Research institutes—suppliers, state structures (RI—Gov)	0.444
Universities—business associations (Univ—BA)	0.43
Universities—state structures (Univ—Gov)	0.467
Business associations—state structures (BA—Gov)	0.428

are not inclined to cooperate with universities. It is worth to pay attention to the positive correlation of the scores of the importance of same agents acting in different roles (e.g., small firms as consumers and small firms as suppliers). Such correlation was found for large business and foreign companies. It could be interpreted so that innovative companies consider these actors to be reliable partners and in general are interested in cooperation with them.

In general large business was mentioned in the table more often than other actors; this frequency confirms the importance of corporations as partners of innovative companies.

4 Concluding Remarks

This research of the models and forms of partnership cooperation of innovative companies is going on. Some preliminary conclusions are formulated below.

Partnership relations could be understood as an important element of relational resources of any company. The role of such resources is constantly increasing under contemporary economic situation. Effective system of partnership relations gives

an opportunity to achieve competitive advantages even for small companies which could use the potential of large firms under quasi-integration. Partnership relations are especially important for innovative entrepreneurship.

Forms and models of partnership relations are very different. Innovative companies use both formal and informal types.

In spite of the existence of many indirect confirmations of the importance of partnership relations for innovative companies in general, these relations in most cases are formed spontaneously without deep justification. This is reflected by various controversies in the results of formal survey data analysis. Regular management of partnership relations does not exist yet.

Our results show that many innovative companies consider large domestic and foreign corporation as reliable main partners. Taking into account that innovative system is very complex and includes different various elements, it is possible to note that these very actors could play an important role in the development of innovative entrepreneurship. They could act not only as active innovators themselves but also as effective supportive partners of small- and medium-size business.

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Erratum to: The Impact of Independence and Brand Personality on Brand Evaluations Among Biculturals

Umut Kubat

In the chapter titled "The Impact of Independence and Brand Personality on Brand Evaluations Among Biculturals" there was a typo in the author name Umut Kuba.

The name should read as "Umut Kubat".

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