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New Developments in International Business and Economics in CEECs

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Łukasz Puślecki
Piotr Trąpczyński

Cracow University of Economics
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edited by
Łukasz Puślecki & **Piotr Trąpczyński**
Poznań University of Economics (Poland)

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Entrepreneurial Business and Economics Review

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Editorial: New Developments in International Business and Economics in CEECs

The political and economic shift of early 1990s in Central and Eastern Europe countries (CEECs) initiated a fundamental process of transformation of the region's economies and firms (Galgóczi, 2002). The formerly regulated economies gradually became an integral part of the global economy (Dayan & Gorynia, 2009; Szarucki, 2013). While the unprecedented scale of change provided then a unique research setting for international business and economics scholars, there have been recent discussions about the extent to which the CEE region is still a specific business environment (Schuh & Rossmann, 2010).

In fact, there is still a significant level of heterogeneity from both macro- and micro-economic perspectives, which raises research questions. First, in what ways do CEE-based firms become internationalized and what are the determinants of their international competitiveness? Second, can CEE-based businesses accelerate the catch-up process by drawing on the experience of their counterparts in advanced economies? The answers to these questions were sought at two international conferences based in the CEE region: "Competitiveness of the CEE Region in the Global Economy", the annual meeting of the CEE Chapter of the Academy of International Business (AIB-CEE) held in Budapest on 9-11.10.2014, and the International Scientific Conference "Contemporary Issues in Business, Management and Education '2014" held in Vilnius on 13-14.11.2014. The present issue of *Entrepreneurial Economics and Business Review* presents selected papers from both conferences, which relate to important research problems and touch upon crucial areas of business and management. Accordingly, the issue of EBER consists of two parts. The first one contains three papers devoted to both active and passive internationalisation in the CEE region, in particular, the international strategies of CEE-based firms and transformation of the business environment through privatisation, which remains a characteristic feature of the region. The second part with further three papers, presents contributions related to improving managerial decisions related to financial investments and contract designs.

The first paper, *Export performance clusters of the Hungarian enterprises - What factors are behind the successful export activities?*, written by Annamaria Kazai Ónodi (Corvinus University of Budapest, Hungary), provides in-depth insights into the salient features of Hungarian exporters between 1999 and 2013. The author performs cluster analysis in order to identify how exporters can be grouped according to their export performance. The results indicate that the most successful export-oriented companies produced more than 60% of export revenue and had the highest export intensity, as well as above-average profitability. The study moreover suggests that a lower price is a less important success factor than quality, relationships, or fast and flexible delivery. The

second paper, *Winning in Europe - International Strategies for Hungarian Professional Sports Clubs*, prepared by Miklos Kozma and Krisztina András (Corvinus University of Budapest, Hungary), aims at identifying key patterns in the international strategies of Hungarian professional sports clubs. The global competition challenges which the Hungarian professional sports clubs face are expected to stimulate the development of specific strategic patterns which may extend internationalisation models developed in advanced economies. The third paper, *Analysis of Large-Scale Privatisation in the Czech Republic in the Years 1991-2005 and Its Basic Assessment*, by Karel Havlíček, Ivana Turková, Gabriela Dlasková (University of Finance and Administration, Czech Republic) aims to analyse and evaluate different methods of Czechoslovak and Czech privatisation in the years 1991-2005. The study suggests that while the best results were reported by companies sold directly to foreign investors, voucher privatisation and direct sales to specific domestic investors can also be regarded as well performing.

The article entitled *Risk factors in derivatives markets* and authored by Raimonda Martinkute-Kauliene (Vilnius Gediminas Technical University, Lithuania) seeks to analyse and present a classification of risks inherent to derivative securities. The paper suggests that derivative contracts are as risky as every financial activity in the market, their market, liquidity, credit, counterparty, legal and transactions risks being the most relevant. The fifth paper, *Real Time Investments with Adequate Portfolio Theory* by Alina Kvietkauskienė (Vilnius Gediminas Technical University, Lithuania) attempts at formulating an investment decision making scheme using the adequate portfolio model. The study implies that adequate portfolio model is more suitable for investment when stocks in portfolio are from different sectors. The German market has been identified as the most stable and one of the most suitable markets for investors. The final article of this issue, *Knowledge Management in Composition of Construction Contracts* by Eva Trinkūnienė and Vaidotas Trinkūnas (Vilnius Gediminas Technical University, Lithuania), proposes a model which allows managing information in construction contracts composition. The model can be used and implemented in the evaluation system of construction contracts to avoid mistakes and employ best practices in construction contract making.

Łukasz Puślecki, Piotr Trąpczyński
Guest Editors

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Export Performance Clusters of the Hungarian Enterprises: What Factors are Behind the Successful Export Activities?

Annamaria Kazai Ónodi

ABSTRACT

Objective: The objective of this paper is to provide a deeper insight into the main characteristics of Hungarian exporters between 1999 and 2013.

Research Design & Methods: The text addresses the questions how exporters can be grouped according to their export performance, what kind of groups can be identified, and what their main characteristics are. The research is based on Hungarian Competitiveness Research of 1999, 2004, 2009, 2013. Cluster analysis was selected as a key research method.

Findings: Four different clusters were identified. The most successful export-oriented companies produced more than 60% of export revenue in all databases, they had the highest export revenue, highest export intensity, and their profitability was over industry average except in 2009. Significant differences can be observed between the two groups. Leading minor exporters had significant higher profitability and better operation than minor exporters.

Implications & Recommendations: The implication of the research can be beneficial for both those studying exporters and the firms themselves. The research suggested that lower price is a less important success factor than quality, relationships, fast and flexible delivery. The applied methodology can be useful for export researchers.

Contribution & Value Added: The paper highlights the heterogeneous feature of exporters. Each cluster has special characteristics which required different analysis. The research underpins that operational excellence is necessary to export success, but it is not enough.

Article type: research paper

Keywords: internationalisation; export; performance; cluster analysis; Hungary; Hungarian Competitiveness Research Survey;

JEL codes: C38, F14

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INTRODUCTION

Export competitiveness is crucial for each small, open economy, as well as for Hungary, where the degree of openness (the share of exports in the GDP) is about 80%. Hungarian export structure has been investigated by numerous researches (see Munkácsi, 2009a, 2009b; Czakó 2010; Katalin et al., 2013). Macroeconomic analyses provide an overall picture but for the sake of a deeper insight in export success, company level researches are needed. From the one side high export concentration characterises the economy, over 70% of export is produced by foreign-owned companies, mainly by large firms. From the other side export means a great opportunity for Hungarian small- and medium-sized companies as well.

The purpose of the paper is to provide a deeper insight into the main characteristics of the Hungarian exporters, based on the Hungarian Competitiveness Research Survey (2013, 2009, 2004, 1999). More than half of the enterprises were small or medium size in the sample. The aim of the analysis was to identify main factors and tendencies of the overall export performance.

The paper is organised in three main sections. At first, the article provides a brief literature review focusing on export performance. Secondly, it introduces the research questions and databases explored. What is more, the key research method is cluster analysis which is described. Thirdly, it provides insight into basic characteristics (size, owner structure, export volume, export intensity) of export-performance clusters. Key success factors of export activities were examined by two different methodologies. The managers' opinion about export success factors were analysed by export performance clusters, the companies' self-evaluations relative to industry average and the strongest competitor were compared between clusters. The final conclusions, the limitations and further research are presented at the end of the article.

LITERATURE REVIEW

Investigating export performance on national level is as important as on industry or company levels. Evaluating export competitiveness is a hot topic for small, open economies. There are different methodologies for measuring export competitiveness, for example revealed comparative advantage (RCA) or Balassa index, its modified version, the relative export advantage (RXA), Lafay index, etc. Several studies evaluate and compare export competitiveness of different countries and industries (Balassa, 1965; Gatto et al., 2011; Stojcic, Becic & Vofinic, 2012; Saboniene, 2009; Bruneckiene & Paltanaviciene, 2012; Travkina & Tvaronaviciene, 2011; Török, 2008). In case of Hungary the analyses of export performance and export structure are very important from macroeconomic perspective (see Munkácsi, 2009a, 2009b; Czakó, 2010; Bodnár et al, 2013). One of the main questions is how export competitiveness can be improved. Bruneckiene and Paltanaviciene (2012) based their national export competitiveness model on Porter's diamond model (Porter, 1990). They grouped the influencing factors into four groups: demand for national export, conditions for production, competitiveness of export enterprises, economic cooperation enhancing environment, including political-legal, economic, social-demographic and technological environment.

It is a generally accepted view that export enterprises' competitiveness are behind national export competitiveness. Numerous researches focused on small- and medium-sized companies' export activities and their influencing factors. Miocevic and Crnjanak-Karanovic (2011) emphasised that cognitive and information-based capabilities are behind export performance. Stoian, Rialp and Rialp (2011) used regression analysis to investigate the export performance determinants of Spanish SMEs. They concluded that managerial foreign language skills and international business knowledge, the firms' export commitment, technological intensity of the industry are the most influencing factors of export performance. Majocchi et al. (2005) investigated Italian SME's and they found a positive relationship between size and export intensity. The positive correlation between the age of the firm and export performance confirm the idea that small firms need time to develop the necessary experience for the foreign market, it highlights the importance of business experience, which can be gained through personal contacts, networking activities, trials and errors. They showed the relevance of industry effects, too. Békés and Muraközy (2011), Kállay and Lengyel (2008), Kállay (2011), Szerb and Márkus (2008) and Szerb (2008) investigated the export performance of Hungarian SMEs.

Several researches dealt with one particular element of improving export activities. Cadogan et. al. (2009), as well as Leonidou et al. (2002) focused on the connection between marketing strategy and export performance. Wilkinson and Brouthers (2006) and Shamsoddoha et al. (2009) investigated the impact of different export promotion services on the international marketing efforts of small- to medium-sized enterprises.

DiPietro and Anoruo (2005) investigated the connection between creativity, innovation, and export performance. They found a positive relationship between a country's export performance and a country's creativity, the latter measured by its four main components: innovation, technology, technology transfer and business startups. Inzelt (2011a, 2011b) found positive correlation between innovation and internationalisation. Research of Halpern and Muraközy (2009) underpins the positive correlation between export profitability, export intensity and innovation.

Several researchers investigated the connection between profitability and export. Self-selection approach emphasised that only more productive firms engage in export activities (Bernard & Jensen, 1999), and learning by exporting approach (Navaretti & Castellani, 2004; Merino, 2012) emphasised that firms enter export markets and gain new knowledge and expertise which will improve their efficiency. Both effects were confirmed by Békés and Muraközy (2011) and Loacker (2005). Fryges and Wagner (2010) found positive correlation between profitability and export but they could not confirm self-selection effect. Grazzi (2012) concluded that exporting activity is not systematically associated with higher firms' productivity.

Measuring export performance is a key element in multiple researches. There is no consensus about an appropriate definition and the measurement of export performance (Robertson & Chetty, 2000). Leonidou et al. (2002) listed the different metrics used by researches, namely: export proportion of sales or export intensity, export sales growth, export profit level, export sales volume, export market share, export profit contribution, return on investment, export satisfaction, perceived success, perceived export growth, perceived profitability and perceived market share. Two-thirds of overviewed studies

used only one metric to measure export performance. Most researches used export intensity, followed by export sales growth and export profit level, which were the most commonly used metrics. For example Robertson and Chetty (2000) used export intensity, export sales growth, export profitability, market diversification, perception of export performance five years ago, perception of current export performance, and perception of export performance in three years' time. The use of too many metrics creates difficulty in analysing and interpreting the results. Dean et al. (2000) used only three metrics: annual export sales, export growth, export intensity.

MATERIAL AND METHODS

Research Question and Databases

Several researches have been made about Hungarian companies' export activities from macroeconomic aspects as well as firm's aspect. In these researches companies were grouped according to their size and owner structure. I addressed the questions how the exporters can be grouped according to their export performance, what kind of groups can be identified, what their main characteristics are. The value added of the research is that it provides a new approach for analysing export performance. The starting point was itself the export performance independently from prior expectations, not leaving out firms with less than 25% export-intensity.

The research is based on the Hungarian Competitiveness Research databases of 2013, 2009, 2004 and 1999. The main advantage of these databases is that they contain financial data as well as managerial self-evaluations. They were launched by the Competitiveness Research Centre in the Institute of Business Economics of Corvinus University of Budapest. All competitiveness research surveys had a similar structure. They contained 4 questionnaires (more than 60 pages altogether) covering following issues: top management, marketing, production, finance. As a general rule, all four surveys targeted incorporated companies with more than 50 employees to build a corporate sample, as well as keeping an eye on representativeness (in terms of staff size, geographical location, industry). The main objective was to make a database of about 300 firms in all surveys. The lowest response rate (13%) was in 2009, the number of companies in the sample became 317. The most favourable response rate can be observed in 1999 (49%), the number of companies in the sample was 325.

Understanding the main characteristics of the samples is crucial for concluding. Firms in the sample operated in different industries, except the financial sector. Processing industry dominated in all databases, although the rate of them decreased from 71% to 45%. The rate of service companies continuously increased from 21% to 34.7% but they are still under-represented due to the fact that the micro-companies were excluded from the surveys. Companies operating in construction industry, agriculture, food industry were represented in all samples. Medium-sized companies are dominating in all databases. The rate of them gradually increased; in 1999 it was 61.4 %, in 2013 - 72.7%. Parallel with this, the rate of large companies decreased from 32.4% to 16.7%. In terms of ownership structure, the domestic owned companies dominated in all databases, the rate of them was the highest in 2009 (72.6%), followed by 71.3% in 2013. The highest rate of foreign companies (23%) could be observed in 2013. The rate of state

owned companies decreased to 5.7%. (For the descriptions of the samples of the questionnaire surveys of 2013, 2009, 2004, 1999 see Chikán et al, 2014, 2009, 2004, 1999; Matyusz 2011, 2014; Lesi 2005).

It is essential to investigate the representativeness of the samples from the viewpoints of research objective. The lowest export intensity could be observed in 2009, 47% of companies had export activities. This rate increased to 53% in 2013. The highest rate (61.2%) could be seen in 2004 (Table 1). About 50% of SMEs had export activities in all samples which was significantly higher than the average rate in Hungary (22.5% according to Szerb-Márkus, 2008). Although the exporters were overrepresented in the samples and from this viewpoint the samples could not be considered representative, they provided a better opportunity to analyse export activities of Hungarian firms.

Table 1. The composition of the sample by export-intensity

Export intensity	2013	2009	2004	1999
no export	47.0	52.5	38.8	42.4
export under 25%	20.3	24.9	26.4	20.3
26%-75%	14.0	15.8	20.2	19.5
export over 75%	18.7	6.8	14.7	17.7

Source: own study based on the Hungarian Competitiveness Research of 1999, 2004, 2009 and 2013.

Table 2. Export concentration (export revenue) in the samples by size and owner structure (in %)

Company size	Survey 2013			
	State (n=11)	Domestic (n=112)	Foreign (n=13)	Total (n=136)
Small	0.00	0.33	0.27	0.60
Medium	0.00	6.66	10.86	17.53
Large	0.27	2.22	**79.38**	**81.87**
Total	0.27	9.21	**90.52**	100.00
	Survey 2009			
	State (n=6)	Domestic (n=65)	Foreign (n= 23)	Total (n=94)
Small	0.23	2.07	0.20	2.49
Medium	2.16	16.04	20.15	38.35
Large	1.85	2.52	**54.79**	**59.16**
Total	4.24	20.62	**75.14**	100.00
	Survey 2004			
	State (n=32)	Domestic (n=78)	Foreign (n=43)	Total (n=153)
Small	0.12	0.94	0.09	1.15
Medium	0.56	3.42	1.93	5.90
Large	16.94	6.02	**69.99**	92.95
Total	17.61	10.37	72.02	100.00

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009 and 2004.

The export concentration in the samples reflected the Hungarian high export concentration. Kállay and Lengyel (2008) concluded that 77% of Hungarian export was produced by foreign owned companies. In 2011 70% of export revenue derived from TOP200 companies according to Juhász and Reszegi (2012). The high export concentration is not just a Hungarian phenomenon; it is typical in the EU as well as in the USA (see Munkácsi, 2009).

In the samples the share of large foreign owned companies in total export revenue was 54.79% in 2009, 69.99% in 2004, this rate increased to 79.38% in 2013. In 2013 the share of foreign owned companies in export revenue was 90%, parallel with this the share of domestic companies decreased to under 10% (Table 2).

Research Method – Cluster Analysis

Since the main purpose of the research was to provide a deeper insight into the export performance of Hungarian companies independently from prior expectations, cluster analysis was selected as a key research method. Cluster analysis proved to be vital because of the number of export performance metrics, expectation of objectivity and the limited number of final exporters' group. Using only the two most generally applied export performance metrics (export volume and export intensity) would have allowed grouping firms without cluster analysis, but in this case we would have lost information about the changing direction and the profitability. K-means cluster analysis is a suitable analytical tool only when we have a large number (n >= 200) of cases. Although the databases consist of 300 or more cases, limitation derived from the rate of exporters and the incomplete questionnaires.

Export performance was placed in the centre of cluster analysis. The generally used metrics were applied for measuring export performance. Most researchers used export intensity and export revenue and so did I. For the sake of optimal results deriving from cluster analysis I created categories based on financial data. Four categories for export intensity and six categories for export revenue were used. Export sales growth is another relevant and frequently used metric of export performance. I created a three-scale metric for it, based on analysing financial data and subjective evaluation of export market change. I was only interested in the direction of the change and I did not analyse the extent of the change in export revenue. So the three-scale export growth metric refers to the following. Scale 3: there was stable growth in export revenue in the examined period confirmed by financial data and managerial evaluation. Scale 1: decreasing tendencies could be seen according to financial data and managerial evaluation. Scale 2: the results were controversial because of two reasons: during the examined period fluctuation could be seen according to financial data, or the managerial evaluation did not confirm the results of financial analysis. The fourth factor in cluster analysis was profitability. Because there was not available information about export profitability, I used managerial self-evaluation of companies' return of investment compared to industry average (measured by 5 point Likert-scale).

The applied K-Means cluster analysis resulted in four clusters in 1999, 2004 and 2013 after several trials. On the one hand, four clusters proved to be optimal, since all clusters had so distinguishing characteristics that if we had reduced the number of clusters, some crucial characteristics would have remained hidden. On the other hand, higher cluster number would have made the analysis more difficult. The database of 2009 survey had special characteristics due to the financial crisis. The response rate was low; the characteristics of databases became slightly different. Incomplete questionnaires meant the biggest challenge; almost half of the exporters were unwilling to provide financial data. Due to this fact the cluster analysis grouped about half of the exporters in clusters. (Missing data characterised less than 5% of exporters in 2013.) For the sake of better comparability three clusters were created after running various cluster

analyses in 2009. The missing fourth cluster could be identified by analysing companies left out of the cluster analysis, so the final conclusion is that four different export-performance clusters exist (For cluster centre points, see Annex 1-4).

Two main hypotheses were set in connection with clusters. Hypothesis 1: Successful export-oriented companies are significantly better than stagnant companies in regard of operation performance. Their export success is based on operation excellence.

Hypothesis 2: The weaker export performance of "Leading minors" does not result from weaker operation performance according to self-evaluation. Being competitive in domestic market is not enough for export success.

Independent samples t-test was used for hypothesis testing. This method was suitable because of the independency of clusters from one another, the investigated variables were measured at the interval or ratio level, due to the applied categorisations there are no significant outliers. The crucial point was the assumption of normal distribution.

RESULTS AND DISCUSSION

Basic Characteristics of Export-Performance Clusters

The successful export-oriented clusters were identified most obviously in all databases. This group of firms has the highest export revenue, highest export intensity and could be characterised by continuous growth. All of them have more than one billion HUF export revenue per year in 2013, 2004, 1999 and this rate was 90% in 2009. Aside from the period of financial crisis increasing export intensity could be observed. In 1999 only 40% of the firms had more than 75% export intensity, but this rate increased to 75% in 2013 (Annex 6).

The majority of the successful export-oriented firms belonged to large companies in 2004 and in 1999. Parallel with the changing characteristics of samples the proportion of large companies decreased to 45% in 2013, but compared to the average rate (16.7%), it can be seen that the large companies are still overrepresented in this cluster (Annex 7).

More than 75% of firms were active in the processing industry due to the characteristics of the samples, but there were some representatives of services, too. Aside from the period of financial crisis the proportion of foreign owned companies increased significantly. In 1999 their rate was only 20%, but in 2004 this subgroup became dominant (56.5%) and in 2013 72.5% of successful export-oriented companies were in majority of foreign ownership (Annex 8). In 2013 66.7% of them had one owner with 75% of shares or more, the proportion of subsidiaries was 65%. The successful export-oriented firms represented about a quarter of exporters in 2013, but their economic power was significantly higher, more than 90% of total export revenue belonged to this group. High export concentration could be observed in other years, too. The second highest concentration could be observed in 1999, when 12.8% of exporters belonged to this group and they produced 76.6% of total export revenue in the sample (Annex 21-22).

Companies belonging to the stagnant clusters lagged behind successful export-oriented companies in regard of all factors of cluster analysis. Although they had high export intensity, the highest average rate (76%) could be observed in 2013; it was

significantly lower than the average rate of successful export-oriented firms (84%). The majority of these firms had more than 25% export intensity in all databases (Annex 10). Due to their size their export revenue was lower than successful companies'. In 2013 and 2009 there were no companies with over 5 billion HUF export revenue, in contrast with the fact that in 2013 half of the successful export-oriented companies had more than 5 billion HUF export revenue per year (Annex 9).

In 2004 large companies dominated (62.5%) this group which caused that the proportion of this group from export revenues was the highest (26%) in this year. In 2009 and 2013 when medium-sized companies dominated (66.7%, 80%) their share was fewer than 10% (See Annex No. 11 and 21). The majority of them were domestic owned, the highest rate (74%) could be observed in 2013. The rate of foreign owned companies decreased from 33% to 25% in 2013 (Annex 12). More than 77% of firms were active in the processing industry due to the characteristics of the samples, followed by the rate of service companies (22.9% in 2013).

The interpretation of leading minor exporters cluster meant a challenge, because the same conclusions could be drawn based on 2013, 2009, 2004 databases but in 1999 some characteristics of this cluster were a bit different. They had low annual export revenue in each year. There were no firms with more than one billion HUF export revenue in 2013, 2009, and 1999; in 2004 this rate was under 5% (Annex 13). This derived from low export intensity and company size. The majority of firms' export intensity was under 25% in 2013, 2009 and 2004, but in 1999 half of them had more than 75% export intensity (Annex 14). Medium-sized and domestic owned companies dominated. The proportion of foreign owned companies was about 30% or less (Annex 15-16). The distinctive feature of this cluster was the high profitability except in 1999. Their share from total export revenue was under 4% in each database, although about 30% of exporters belonged to this cluster in 2013, 2004, and 1999 (Annex 21-22). More than half of them were active in the processing industry. In 2013 the rate of agricultural companies was the highest in this cluster (11%) but after processing industry, the service companies dominated (33%). More than half of these firms concentrated on local market in regard of sales and purchasing activities.

The fourth cluster is the minor exporters. They had the lowest export volume. In 2013, 80% of them had less than 100 million HUF annual export revenue (Annex 17). Their share from total export revenue was under 1.5% in each year. Their export intensity was low; more than 80% of them had export intensity under 25% in 2013 and in 1999 (Annex 18). Medium-sized companies dominated in 2013 and 1999, but in 2004 the proportion of small companies (48.8%) was higher (Annex 19). Domestic owned companies dominated. The proportion of foreign owned companied decreased from 20% to under 10% (Annex 19). The distinctive feature of this cluster was low profitability.

We have to be cautious in drawing conclusions when comparing the financial performance of export-performance clusters because profitability (self-evaluation, relative to industry average) was one of the cluster analysis' factors, moreover it was one of the most important distinguishing features among the clusters. According to financial performance, significant differences can be observed between successful exporters and stagnant companies, as well as between leading minors and minor exporters. Successful export oriented companies' and leading minor exporters' profitability was over industry

average, in contrast with the fact that stagnant companies' and minor exporters' profitability was under industry average in all surveys according to self-evaluation. During the period of financial crisis successful exporters' profitability decreased to the level of industry average. Stagnant companies' profitability remained under industry average but it did not become unfavourable relative to competitors. Leading minors' profitability was extremely high during this period relative to other clusters and years (Table 3).

Table 3. Self-evaluation of companies' profitability related to industry average

Survey	Successful		Stagnant		Leading minors		Minors	
	Return on sales	Returns on investment	Return on sales	Returns on investment	Return on sales	Returns on investment	Return on sales	Returns on investment
2013	3.73	3.85	2.71	2.57	3.67	3.76	2.71	2.48
2009	3.05	3.15	2.68	2.53	**3.82**	**4.09**	-	-
2004	3.88	3.80	2.22	2.19	3.49	3.67	2.42	2.14
1999	3.90	3.90	2.67	2.33	3.13	3.13	2.90	2.88

*on 5-point Likert scale: 5 - best, 1 - under average

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Key Success Factors of Export Activities

Key success factors of export activities were examined with the use of two different methodologies. Firstly, the managers' opinion about export success factors were analysed by export performance clusters. Secondly, the companies' self-evaluations relative to industry average and the strongest competitor were compared between clusters.

The managers' general opinion was that higher quality, relationships, fast and flexible delivery are the three most important success factors of export activities. Only slight differences can be observed between clusters and years. Relationships were considered to be the most important success factor by "leading minor" and "minor" exporters in 2013 and 2009 and stagnant companies in 1999. Creating new partnerships with foreign business partners is crucial at the beginning of internationalisation, which was underpinned by the research. The first contact is due to both planned actions and luck, for example the participation in international trade provides an excellent opportunity to create relationships. There is a relationship among the three most important factors in each cluster and each year, which highlights that the good relationships are important in each stage of internationalisation. Managers have to pay attention to maintain good relationships continuously. Successful exporters considered higher quality as the most crucial factor in all year, except in 2009, when fast and flexible delivery and relationships proved to be more important. In 2013 better understanding customers' needs proved to be more relevant in small exporters' groups ("minors" and "leading minors") than in other clusters (Table 4). The lower price was considered to be relative to the less important success factor in each cluster, which has an essential message to Hungarian firms. Concentrating on distinctive features like quality, services,

Table 4. Key success factors of export activities

Key success factor	Survey 2013				Survey 2009			Survey 2004				Survey 1999			
	Successful (n=40)	Stagnant (n=35)	Leading minors (n=45)	Minors (n=31)	Successful (n=18)	Stagnant (n=14)	Leading minors (n=7)	Successful (n=22)	Stagnant (n=29)	Leading minors (n=28)	Minors (n=32)	Successful (n=18)	Stagnant (n=9)	Leading minors (n=41)	Minors (n=21)
Lower price	3.20	3.42	3.52	3.50	3.56	3.79	3.29	2.82	3.17	(3-4) 4.07	4.03	3.44	3.13	3.78	3.67
Higher level of services	3.94	3.82	3.97	3.29	(3-4) 4.17	4.07	3.86	3.55	3.34	3.32	3.41	3.83	2.71	3.32	3.20
Fast and flexible delivery	(3) 4.00	(2) 4.12	(2) 4.06	3.50	**(1) 4.61**	(2-3) 4.29	(3) 4.14	(3) 4.00	3.71	(2) 4.11	(3) 4.03	(3) 3.88	(3) 3.75	(3) 4.05	(3) 3.43
Higher product quality	**(1) 4.26**	**(1) 4.15**	(3-4) 4.00	3.50	(3-4) 4.17	(2-3) 4.29	(2) 4.43	**(1-2) 4.14**	**(1) 4.14**	**(1) 4.36**	**(1) 4.22**	**(1) 4.50**	(2) 3.89	**(1) 4.35**	**(1) 4.00**
Relationships	(2) 4.11	(3) 4.00	**(1) 4.15**	**(1) 4.14**	(2) 4.39	**(1) 4.43**	**(1) 4.71**	**(1-2) 4.14**	(2) 4.07	(3-4) 4.07	**(2) 4.13**	(2) 4.22	**(1) 4.44**	(3) 4.14	(2) 3.95
Understanding customers' needs better	3.91	3.79	(3-4) 4.00	(2) 3.92	4.11	4.14	4.00	3.95	(3) 3.79	3.61	3,34	3.63	3.67	3.55	3.35

*on 5-point Likert scale 5: very important, 1: not important

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Table 5. Self-evaluation relative to industry average

Characteristics	Survey 2013				Survey 2009			Survey 2004				Survey 1999			
	Successful (n=40)	Stagnant (n=35)	Leading minors (n=45)	Minors (n=31)	Successful (n=20)	Stagnant (n=19)	Leading minors (n=11)	Successful (n=25)	Stagnant (n=32)	Leading minors (n=43)	Minors (n=43)	Successful (n=20)	Stagnant (n=9)	Leading minors (n=48)	Minors (n=41)
Market share	3.60	2.0	**3.62**	3.16	3.20	2.95	3.91	**3.56**	3.31	3.52	2.85	**3.95**	3.33	3.23	3.07
Technology	**3.78**	3.20	3.73	3.42	**3.60**	3.53	**4.00**	**3.88**	3.41	3.67	3.12	**3.90**	3.22	3.25	3.07
Management	3.65	3.09	3.56	3.32	3.35	3.42	**4.09**	**3.84**	3.26	3.70	3.26	**3.85**	3.56	3.43	3.32
Product quality	3.80	3.18	**3.87**	3.65	3.70	3.79	**4.45**	**4.04**	3.69	**3.98**	3.74	**4.10**	3.67	3.69	3.68

*on 5-point Likert scale 5: best, 1: under average

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

delivery time and building good partnerships which are based on trust and the reliability of product and services proved to be a better strategy in foreign market than focusing only on cost and price.

In the interest of understanding the export success better, the connection between export performance and operation characteristics was examined. Managerial self-evaluation was used for this purpose. Although self-evaluation includes several distorting factors, e.g. the phenomenon of cognitive dissonance, managers tending to overvalue their own performance, each person has his/her own subjective measurement scale (as to what is efficient/sufficient), the comparison of this subjective evaluation can provide relevant information.

Managers had to evaluate their companies' performance relative to industry average and their strongest competitor, too. Successful export-oriented companies had significantly better self-evaluation relative to industry average than stagnant companies in regard of market share, product quality, technology, and management in 2013, 2004, and 1999. In 2013 the stagnant companies' weakest points were the market share (the self-evaluation was under industry average) and the management. During the period of financial crisis (survey 2009) we could observe a bit different picture. Stagnant companies' weakest point is the market share, too, but there are no significant differences in regard of management and product quality (Table 5). Relative to strongest competitors' successful companies proved to be better than stagnant companies in each year in regard of cost efficiency and adjustment to changing customer needs. Statistically significant differences can be observed in each factor in 2013. Short delivery time, research and development expenditure proved to be more favourable in case of successful companies than stagnant companies in 2013, 2004, and 1999. Although self-evaluation might consist of several distortion factors, it is worth paying attention to the fact that stagnant companies had unfavourable self-evaluation relative to the strongest competitor in regard of competitive price in 2013, the level of research and development expenditure in each year. In 1999 stagnant companies evaluated their changing capability more unfavourable than their competitor's capability, although significant advancement could be observed in 14 years, the differences did not disappear. We can conclude from these results that operation excellence is behind export success (Table 5).

The comparison of leading minors and successful export-oriented companies provided a controversial picture. Before presenting detailed analysis it is crucial to mention that the distortion factors in this case are stronger than in the comparison of successful and stagnant companies, due to the fact that successful export-oriented companies concentrate on export market, while companies in leading minors cluster focus mainly on the domestic market, so their benchmark might be different. It is substantial to highlight that leading minors had no self-evaluation under industry average. They had as good self-evaluation as successful exporters did in regard of market share in 2013 and 2009; in regard of product quality in 2013, 2009 and 2004. There was no significant difference in regard of technology in 2013 and 2009, in this area significant improvement could be observed from 1999. In 2013 there was only one factor, management in which successful exporters' self-evaluation relative to industry average proved to be better than leading minors'. Analysing the self-evaluation relative to the strongest competitor showed similarly controversial picture. Significant improvement

Table 6. Self-evaluation relative to strongest competitor

Key success factor	Survey 2013				Survey 2009			Survey 2004				Survey 1999			
	Successful (n=40)	Stagnant (n=35)	Leading minors (n=45)	Minors (n=31)	Successful (n=20)	Stagnant (n=19)	Leading minors (n=11)	Successful (n=24)	Stagnant (n=30)	Leading minors (n=40)	Minors (n=38)	Successful (n=20)	Stagnant (n=9)	Leading minors (n=44)	Minors (n=40)
Cost efficiency	**3.5**	3.16	**3.42**	2.9	**3.35**	3.18	**3.45**	**3.50**	2.63	**3.33**	2.62	**3.37**	**3.22**	2.93	3.00
Competitive price	**3.5**	2.94	**3.51**	3.2	3.2	**3.24**	**3.64**	3.17	3.07	**3.35**	3.19	**3.53**	3.22	3.16	3.00
Product quality	**3.9**	3.59	**3.84**	3.63	3.55	**3.71**	**3.73**	**3.70**	3.63	**3.70**	3.63	**3.80**	3.56	3.67	3.00
Product range	**3.85**	3.47	**3.71**	3.33	**3.45**	3.29	**3.73**	3.35	3.21	**3.50**	3.17	3.00	3.33	3.29	3.00
Production level	**3.9**	3.28	**3.58**	3.4	**3.42**	3.35	**3.5**	3.39	3.07	**3.41**	3.29	3.33	3.25	3.26	3.00
Short delivery time	**3.9**	3.69	**3.76**	3.6	**3.55**	**3.71**	3.27	3.17	2.93	**3.40**	**3.43**	3.32	3.11	3.46	3.00
Adjustment to changing customer demand	**3.68**	3.41	**3.59**	3.4	**3.85**	**3.76**	3.73	3.35	3.18	3.51	**3.63**	3.47	2.63	3.52	3.00
R& D	**3.18**	2.81	**3.27**	2.66	3.05	2.94	**3.91**	**3.05**	2.32	2.77	2.62	2.58	2.11	2.58	3.00

*on 5-point Likert scale 5: best, 1: under average

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

could be observed, in 1999 and 2004 they evaluated their research and development expenditure more unfavourable than their strongest competitor's expected level, but in 2009 and in 2013 their self-evaluation proved to be the best, it was significantly higher than successful exporters'. In 1999 one of their weakest points was the cost efficiency, relevant improvement could be observed, too, they became better than companies in stagnant and minor cluster, but in 2013 they still lagged behind successful exporters' performance. By comparing the performance of the two clusters it cannot be concluded that weaker operational performance caused lower export performance of leading minors. They had the best self-evaluation in regard of short delivery time in 1999; competitive price, short delivery time and adjustment to changing customer demand in 2004; competitive price and product quality in 2009 (Table 6). We can conclude that being competitive in the domestic market is not enough for export success.

Minor exporters' self-evaluation was lower than successful and leading minor exporters', but in some aspects they were better than stagnant companies. Their weakest point was cost efficiency and research and development expenditure (Table 6).

CONCLUSIONS

The aim of the paper was to provide a deeper insight into Hungarian exporters between 1999 and 2013 based on Hungarian Competitiveness Research databases of 2013, 2009, 2004, and 1999. Export performance was the starting point of the research; it was placed in the centre of cluster analysis. Export performance was measured by export intensity, export revenue, profitability and change in export revenue which are consistent with international practice. The classification of companies was mainly based on objective financial data completed with managerial self-evaluation about export market and profitability. Cluster analysis identified four different clusters: "successful", "stagnant", "leading minors", and "minors". The "successful" cluster involved the most successful export-oriented companies. They produced more than 60% of export revenue in all databases, they had the highest export revenue, highest export intensity, and their profitability was over industry average except in 2009 due to the financial crisis. The proportion of foreign owned companies in this cluster increased significantly, 72.5% of them were in majority foreign ownership in 2013. The observed high concentration and strong foreign dominance reflected the high Hungarian export concentration. Further research is required to investigate the characteristics of corporate governance and export performance. To what extent does foreign ownership support higher efficiency and export competitiveness or will excellent company performance be attractive for foreign investors? Apart from this question the successful cluster can be a beneficial benchmark in future export research.

Stagnant companies lagged behind the successful export-oriented companies, although their export intensity was significant. Their proportion from total export revenue was under 10% in 2013. The majority of them were medium-sized domestic owned companies. The hypothesis test confirmed that weaker operational characteristics were behind the lower export performance. Their self-evaluations highlighted some areas where they lagged behind competitors and industry average too. Future research is required to investigate their growing potential, and their weak and strong points more deeply.

Low export revenue characterised the other two clusters, their rate of total export revenue was fewer than 5%. The majority of them were medium-sized, domestic owned companies. Significant differences can be observed between the two groups, leading minor exporters had significant higher profitability and better operational characteristics than minor exporters. The low export performance of "minors" is consistent with the results of previous researches. They are at the beginning of internationalisation process; they may not possess the necessary knowledge, resources and capabilities for international expansion.

The "leading minors" could be characterised by low export intensity and low export volume but high profitability and operational excellence. Their self-evaluations were better than stagnant companies' and in some cases as good as successful exporters'. Limitations of the results derived from the subjectivity of self-evaluation. Further investigation is required to confirm the existence of a group of companies which are competitive in domestic market, but whose export activities are at an early stage. This is the group of companies which are usually not paid attention to in researches because of the low export intensity. Several questions remained unanswered. What are the causes of their low export intensity? Is it in connection with the features of their business? Is there a lack of motivation or a lack of capabilities? The research underpins that operational excellence is necessary for export success, but it is not enough. The implication of the research can be beneficial for both those studying exporters and the firms themselves. The research suggested that lower price is a less important success factor than quality, relationships, fast and flexible delivery. The applied methodology can be useful for export researchers. The paper highlights the heterogeneous feature of exporters. Each cluster has special characteristics which required different analysis.

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APPENDIXES

Annex 1 - Cluster centre points – Successful export-oriented companies

Factor	2013 (n= 40)	2009 (n=20)	2004 (n=25)	1999 (n=20)
Export intensity (1-4 scale)	3.75	3.2	3.48	3.15
Export volume (0-6 scale)	4.85	4.25	5	4.85
Change in export volume (1-3 scale)	2.23	2.55	2.56	2.55
Profitability compared industry average (1-5 scale)	4	3	4	4

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 2 - Cluster centre points – Stagnant companies

Factor	2013 (n= 35)	2009 (n=19)	2004 (n=32)	1999 (n=9)
Export intensity (1-4 scale)	3.57	2.68	3.03	3.22
Export volume (0-6 scale)	3.34	2.21	4.06	3.89
Change in export volume (1-3 scale)	2.06	**1.32**	2.16	1,56
Profitability compared industry average (1-5 scale)	**3**	3	**2**	**2**

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 3 - Cluster centre points – Leading minor exporters

Factor	2013 (n= 45)	2009 (n=19)	2004 (n=43)	1999 (n=48)
Export intensity (1-4 scale)	2.33	2.36	2.42	**3.46**
Export volume (0-6 scale)	1.98	1.82	2.3	1.98
Change in export volume (1-3 scale)	2.16	1.45	2.3	**2.58**
Profitability compared industry average (1-5 scale)	**4**	**4**	**4**	3

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 4 - Cluster centre points – Minor exporters

Factor	2013 (n= 31)	2004 (n=43)	1999 (n=41)
Export intensity (1-4 scale)	2.16	2.7	1.76
Export volume (0-6 scale)	1.19	1.6	0.9
Change in export volume (1-3 scale)	1.68	1.7	1.63
Profitability compared industry average (1-5 scale)	2	2	3

Source: own study based on the Hungarian Competitiveness Research of 2013, 2004 and 1999.

Annex 5 - The composition of successful export-oriented companies by export revenue (in %)

Export revenue	2013 (n=40)	2009 (n=20)	2004 (n=25)	1999 (n=20)
Under 100 MHUF	0.00	0.00	0.00	0.00
100-499 MHUF	0.00	0.00	0.00	0.00
500-999 MHUF	0.00	10.00	0.00	0.00
1000-4999 MHUF	**47.50**	**60.00**	**36.00**	**50.00**
5000-9999 MHUF	**20.00**	**25.00**	**28.00**	15.00
Over 10000 MHUF	**32.50**	5.00	**36.00**	**35.00**
Total	100.00	100.00	100.00	100.00

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 6 - The composition of successful export-oriented companies by export intensity (in %)

Export-intensity	2013 (n=40)	2009 (n=20)	2004 (n=25)	1999 (n=20)
Under 25%	0.0	15.0	4.0	25.0
25-75%	25.0	**50.0**	44.0	35.0
Over 75%	**75.0**	35.0	**52.0**	**40.0**

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 7 - The composition of successful export-oriented companies by size (in %)

Company size	2013 (n=40)	2009 (n=20)	2004 (n=25)	1999 (n=20)
Small	2.5	5.0	0.0	0.0
Medium	**52.5**	60.0	20.0	30.0
Large	**45.0**	**35.0**	**80.0**	**70.0**
Total	100.00	100.0	100.0	100.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 8 - The composition of successful export-oriented companies by owner structure (in %)

Owner structure	2013 (n=40)	2009 (n=20)	2004 (n=25)	1999 (n=20)
State	2.5	10.0	4.3	30.0
Domestic	25.0	**45.0**	39.1	**50.0**
Foreign	**72.5**	**45.0**	**56.5**	20.0
Total	100.0	100.0	100.0	100.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 9 - The composition of stagnant companies by export revenue (in %)

Export revenue	2013 (n=35)	2009 (n=19)	2004 (n=32)	1999 (n=9)
Under 100m HUF	0.0	10.5	0.0	0.0
100-499m HUF	11.4	**63.2**	0.0	0.0
500-999m HUF	**42.9**	21.1	21.9	**22.2**
1000-4999m HUF	**45.7**	5.3	**62.5**	**66.7**
5000-9999m HUF	0.0	0.0	3.1	11.1
Over 10000m HUF	0.0	0.0	12.5	0.0
Total	100.0	100.0	100.0	100.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 10 - The composition of stagnant companies by export intensity (in %)

Export intensity	2013 (n=35)	2009 (n=19)	2004 (n=32)	1999 (n=9)
Under 25	2.9	36.8	28.0	11.0
25-75	37.1	**57.9**	**41.0**	**56.0**
Over 75	**60.0**	5.3	31.0	33.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 11 - The composition of stagnant companies by size (in %)

Company size	2013 (n=35)	2009 (n=19)	2004 (n=32)	1999 (n=9)
Small	8.6	27.8	3.1	0.0
Medium	80.0	66.7	34.4	**55.6**
Large	11.4	5.6	**62.5**	44.4

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 12 - The composition of stagnant companies by owner structure (in %)

Owner structure	2013 (n=35)	2009 (n=19)	2004 (n=32)	1999 (n=9)
State	0.0	6.30	32.3	33.3
Domestic	**74.3**	**68.8**	32.3	**33.3**
Foreign	25.7	25.0	35.5	**33.3**

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 13 - The composition of leading minor exporters by export revenue (in %)

Export revenue	2013 (n= 45)	2009 (n=19)	2004 (n=43)	1999 (n=48)
Under 100m HUF	24.4	27.3	16.3	14.6
100-499m HUF	**53.3**	**63.6**	**41.9**	**72.9**
500-999m HUF	22.2	9.1	**37.2**	12.5
1000-4999m HUF	0.0	0.0	4.7	0.0
5000-9999m HUF	0.0	0.0	0.0	0.0
Over 10000m HUF	0.0	0.0	0.0	0.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 14 - The composition of leading minor exporters by export intensity (in %)

Export intensity	2013 (n= 45)	2009 (n=11)	2004 (n=43)	1999 (n=48)
Under 25	**68.9**	**72.7**	**51.0**	6.0
25-75	28.9	18.2	28.0	**42.0**
Over 75	2.2	9.1	21.0	**52.0**

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 15 - The composition of leading minor exporters by size (in %)

Company size	2013 (n= 45)	2009 (n=11)	2004 (n=43)	1999 (n=48)
Small	2.2	25.0	16.3	**31.3**
Medium	**80.0**	20.0	**48.8**	**68.8**
Large	17.8	27.3	34.9	0.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 16 - The composition of leading minor exporters by owner structure (in %)

Owner structure	2013 (n= 45)	2009 (n=11)	2004 (n=43)	1999 (n=48)
State	6.7	20.0	19.0	6.5
Domestic	**64.4**	**50.0**	**54.8**	**78.3**
Foreign	28.9	30.0	26.2	15.2

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 17 - The composition of minor exporters by export revenue (in %)

Export revenue	2013 (n= 31)	2004 (n=43)	1999 (n=41)
Under 100 MHUF	**80.6**	**41.9**	**85.4**
100-499 MHUF	19.4	**55.8**	14.6
500-999 MHUF	0.0	2.3	0.0
1000-4999 MHUF	0.0	0.0	0.0
5000-9999 MHUF	0.0	0.0	0.0
Over 10000 MHUF	0.0	0.0	0.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2004 and 1999.

Annex 18 - The composition of minor exporters by export intensity (in %)

Export intensity	2013 (n= 31)	2004 (n=43)	1999 (n=41)
Under 25	**83.9**	51.2	**100.0**
25-75	16.1	27.9	0.0
Over 75	0.0	20.9	0.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2004 and 1999.

Annex 19 - The composition of leading minor exporters by size (in %)

Company size	2013 (n= 31)	2004 (n=43)	1999 (n=41)
Small	**16.1**	**48.8**	**34.1**
Medium	**77.4**	**39.5**	**51.2**
Large	6.5	11.6	14.6

Source: own study based on the Hungarian Competitiveness Research of 2013, 2004 and 1999.

Annex 20 - The composition of minor exporters by owner structure (in %)

Owner structure	2013 (n= 31)	2004 (n=43)	1999 (n=40)
State	3.2	19.5	17.5
Domestic	**8.1**	**65.9**	**62.5**
Foreign	9.7	14.6	20.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2004 and 1999.

Annex 21 - Share of clusters from export revenues (in %)

Cluster	2013 (n=163)	2009 (n=105)	2004 (n=156)	1999 (n=156)
Successful	**91.6**	**63.7**	**67.6**	**76.59**
Stagnant	4.9	6.7	26.2	0.76
Leading minors	1.6	1.5	3.5	0.49
Minors	0.3	0.0	1.2	0.10
Other exporters	1.6	28.10	1.6	22.06
Total	100.0	100.0	100.1	100.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

Annex 22 - Number of companies by export-performance clusters (in %)

Cluster	2013 (n=163)	2009 (n=105)	2004 (n=156)	1999 (n=156)
Successful	25.2	19.0	15.8	12.8
Stagnant	22.0	18.1	20.3	5.8
Leading minors	28.3	10.5	27.2	30.8
Minors	19.5	0.0	27.2	26.3
Other exporters	5.0	52.4	9.5	24.3
Total	100.0	100.0	100.0	100.0

Source: own study based on the Hungarian Competitiveness Research of 2013, 2009, 2004 and 1999.

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Winning in Europe: International Strategies for Hungarian Professional Sports Clubs

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ABSTRACT

Objective: The objective of our research project was to identify key patterns in the international strategies of Hungarian professional sports clubs.

Research Design & Methods: Initially, two pilot-cases were prepared, which form the basis of additional case studies to be prepared in the later stages of the project. Content analysis was used to systematically assess the transcripts of the interviews, cross-checked with data from sports databases and corporate documentation. Analytical generalisation supports the gradual refinement of research propositions.

Findings: Our preliminary results confirmed the relevance of international business theory to be applied in professional sports, also signalling strategic potential in a more conscious pursuit of internationalisation options. A range of strategic patterns of internationalisation were identified.

Implications & Recommendations: The integration of Hungarian professional sports teams into the international network of sports organisations is likely to intensify, both on the input side (i.e. athletes), and on the output side (i.e. commercial sales) of their operating model. Special strategic patterns focus on the development of new sporting facilities and learning the know-how of commercialisation from international examples.

Contribution & Value Added: The originality of this work lies in applying the generic internationalisation framework to professional sports in the Central-Eastern European context, as they aim to develop a sustainable operating model through deeper integration into an international network of organisations.

Article type: research paper

Keywords: internationalisation; sport; strategy; case study; know-how; Hungary

JEL codes: M10; M16

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INTRODUCTION

Sport is embedded in local culture. However, changes in the social and economic fundamentals increasingly create an internationally intertwined flow of operations with far reaching consequences. To many people, sport has become a business. For others, it is still deeply rooted in local culture and commercialisation may only affect the top tier of leagues and competitions. Either way, sport has not stopped to be relevant for governments, businesses and local communities alike, all across the globe. The economics or business of sport is developing into an area of research in its own right.

Chelsea FC, one of the top football clubs in the world, came to Hungary this year to play a pre-season friendly match on the opening day of a brand new stadium. Veszprem, a top Hungarian men handball team has recently announced its plans to join a supranational league in order to play against better opponents. Gyori ETO has won the Champions League the second time in a row to strengthen its position as the best women handball team in Europe. These are a few recent examples that signal how much Hungarian professional sport teams seem to be integrated into an international network of sports organisations.

The objective of our research project was to identify key patterns in the international strategies of Hungarian professional sports clubs. In this paper we present the early results of our project, based on two pilot case studies that can form the basis of a more refined scholarly approach to the consequent stages of our research endeavour.

While sport is embedded in local culture, internationalising operations is an unassailable requirement for professional sports companies' long term sustainability and effectiveness. The theoretical approaches of international business provide rich insights into how global challenges may influence the strategy development of firms in different industries. Professional sports may substantiate another exciting application field for these theories, as sports organisations have idiosyncratic strategies through the inextricably intertwined sporting and commercial goals they pursue. Hence the question arises by what conditions the theories of international business may be applied in this particular field. From a practical point of view, understanding how and why Hungarian professional sports clubs can influence and are influenced by regional and global processes of internationalisation can help us define robust strategies for sustainable success.

LITERATURE REVIEW

The literature background of our research is twofold: primary theoretical approaches come from the field of international business, especially related to the topic of the internationalisation process through the business network approach; the other major conceptual framework highlights the special characteristics of professional sports as a sector of the entertainment industry, with particular attention to the competitiveness of clubs in professional spectator sports.

The International Context of Business

A model of the internationalisation process of companies has been introduced by Johanson-Vahlne (1977). In their empirically based "Uppsala model", the authors emphasise the gradual nature of internationalisation, drafting a typical scheduling of the subsequent steps of companies going international, starting with ad hoc export activity, and concluding with foreign direct investment to control their production abroad. Companies noticeably started their foreign expansion in countries with low "psychic distance" bearing similarities with their domestic market. The "liability of foreignness" was easier to manage in those markets.

Business networks are interpreted by Johanson and Vahlne (2009) as a close and lasting relation between companies and their selected customers or suppliers, typically focused on long term agreements or joint development projects. These international networks are challenging to enter, hindering foreign companies with the "liability of outsidership" if they have no real integration in the network yet.

The motives for the internationalisation of companies can be broken down to two categories: "domestic push" factors that put pressure on firms to expand to foreign markets (e.g. limited market size or restricting government policy), and "international pull" factors that provide attractive opportunities in foreign markets (e.g. lower trade barriers or large international markets) (Czako, 2010).

Another categorisation of the motives for internationalisation (based on Porter, 1980; Yip, 2003) counts with four distinct drivers: (1) government and policy drivers may support the internationalisation of companies; (2) market drivers are substantiated by similar consumer needs across different markets; (3) cost drivers involve economies of scope or scale or build on unique advantages arising from low cost resources; and finally (4) competition drivers relate to tactics between major competitors operating in a similar range of geographies.

The international activities of multinational companies are explained by the eclectic paradigm (Dunning, 2000), which serves as a synthesising framework for theoretical approaches. It claims that multinational firms need to gain advantages in three distinct areas. Firstly, ownership advantages are competitive advantages controlled by the company; hence they can provide a good basis for the potential foreign investments of the firm.

Secondly, location specific advantages arise from countries or regions that attract significant investments of multinational firms. These range from access to valuable resources or favourable government policy to the proximity of complementary industries. Rugman and Verbeke (2001) added the distinction that location specific advantages for a multinational firm can be differentiated between the advantages of the parent country and the receiving country in international business relations.

Finally, internalisation advantages exist where multinational firms can benefit from expanding their organisational coordination to new areas instead of relying on market transactions. If and how these advantages are relevant in case of particular industries or firms vary greatly. Nevertheless, the framework provides a useful analytical tool for assessing internationalisation options.

The resources and skills that support the international expansion of a firm fall into four basic categories, according to Dunning (1988, 1998, 2000). These can be sources of competitive advantage, separately or in different combinations, depending on the firm and the markets to target. (1) Market seeking firms focus on additional sales opportunities abroad, (2) efficiency seeking firms are willing to capitalise from economies of scope or scale, (3) strategic asset seeking firms aim to acquire new knowledge through their integration into business networks, while (4) resource seeking firms possess low cost production factors or natural resources.

The Global Context of Professional Sports

In our interpretation, professional spectator sports have become a sector or the entertainment industry, mainly due to their qualities valuable for the media business (Andras, 2011b). Professional sports clubs are companies providing entertainment services to a diverse range of customers[1] (Neale, 1964). The global nature of professional sports is reflected in the challenges they face in today's environment. According to Andras (2011a), illustrated by Table 1, the key economic challenges of the current environment of professional sports are the global economic recession and the changing economic systems (Czako, 2012) that provide a framework for business operations in sports (Chikan, 2010).

Table 1. Key environmental challenges to professional sports

PEST aspects	Key challenges
Political	Lowering barriers to international employment
Economic	Global economy as a framework of sport business, economic recession, changing economic systems, network economy
Social	Glocalism, XY-generations, information society
Technological	Digital revolution (ICT, mobile technologies, segmentation in the media market)

Source: own elaboration based on Andras (2014).

There are sports that are more globally integrated than others. The most apparent common characteristics of these sports are their popularity and attractiveness to the media (Doczi, 2007): football, basketball, ice hockey, Formula-1 etc. However, there are additional drivers of internationalisation in sports. Standardisation is a prevalent aspect of international business (Demeter, 2010). The standardised rules of the game in different sports created monopolistic structures that facilitated the expansion of the sport to new geographies. Another driver is the organisation of events that attract media attention, broadcasting the sport content globally (Dobson & Goddard, 2004). Recent developments in information technology facilitated the proliferation of broadcasting through non-traditional channels, e.g. via the Internet.

Companies in professional sports are increasingly strategising their international expansion, in an effort to target larger markets (Dobson & Goddard, 2004). This

[1] In this study we exclude the American major leagues from our analysis, due to their fundamentally different approach to business.

expansion is typically achieved through sporting events. If a team representing a nation or a club qualifies for international competition, it enables the companies involved to overcome the limitations of domestic markets. For example, reaching a larger target market may create new opportunities for local or national, but also regional and global sponsorship (Andras, 2004), and a widening range of selling merchandise products (Madeiro, 2007).

The market of player transfers has been international for several decades already. If a professional club enters an international competition, the players are exposed to attention from a wider range of agents and other clubs. The frequency of international transfers increases, especially if efforts in sports diplomacy, strategic cooperation or brand building intensify that impact.

The market of television broadcasting has clearly become global (Andreff, 2008). Major sporting events are broadcasted to 170-220 countries over the world. This phenomenon is strengthened by the intention of media companies to sell advertising time for higher fees in reflection of the larger audience reached.

The sponsorship market also shows global characteristics, reflected by the business models of the largest sponsors, e.g. Coca Cola, MasterCard, and Adidas. While the legal regulations across different markets are not universally accepted, there is an increasing tendency to identify certain sports, teams, athletes or stadiums with the name of a key sponsor.

In spite of all the global aspects of professional sports operations, “glocalism” is a real challenge. How can companies adapt their services to both the local and the global needs of customers? Supporters often question the values of the increasing number of athletes with double nationality; domestic competitions with record low number of domestic players, and replacing their team stadium’s traditional name with that of a multinational firm (Thibault, 2009).

Also, internationalisation in professional sports is understood to be a key driver of the commercialisation of sports (Stewart, 2007; Doczi, 2007). It generated more events, more coverage of competitions, created regional championships, international supporter segments, cooperation agreements between companies in different nations (Andras-Jando, 2012), and ultimately changed the traditional nature of how sports are organised.

Recent trends reflect the consequences of globalisation in professional sports in terms of how the business environment changes. International competition intensifies, with a larger number of developing countries joining the global arena, e.g. new locations for Formula-1 races, and Chinese construction companies building stadiums worldwide. Also, national regulations and events are increasingly subject to careful negotiations with the regional headquarters of sport governance bodies. Finally, factor prices tend to level off on a global scale, e.g. the wages of professional players depend less on the strength of the general economy in a given country, as reflected by Hungarian handball clubs signing Scandinavian and Spanish star players.

Competitiveness in Professional Sports

Competition plays a key role in how professional sports are organised. In our interpretation, professional sports are characterised by local and broadcast viewers enjoying athletes' performance, paying a fee for this entertainment programme, while athletes receive their income directly or indirectly related to their sporting performance. In this context, the original interpretation of competition in economics – two or more parties trying to gain advantage against each other, keeping to a defined set of rules (Chikan, 1991) – needs to be adapted to the specific nature of professional sports for a range of reasons (Budzinski, 2011). Firstly, sports companies aim to achieve success both from sporting and from business aspects (Kase et al., 2006). Also, cooperation between competitors is not necessarily against the interest of customers; hence monopolistic structures exist in different sport markets. In addition, self-regulatory bodies play important roles in sports in balancing competition (Feddersen & Maennig, 2005; Krauskopf et al., 2010). Finally, there is strong government intervention in many areas of sports.

Table 2. The interpretation of competition in professional sports

Competition...	is for what?	is against whom?	occurs where?
from sporting aspects	sport results	other participants in the same competition	in competition systems
from business aspects	customers' time and money	other service providers in the entertainment industry	different markets
from public value aspects	government support	other sports	in legislation decisions

Source: own elaboration on Andras (2003; 2011b).

It is a fundamental strategic issue in professional sports how sporting success and business success can be simultaneously achieved (Kase et al., 2006; Wilson et al., 2013). As illustrated by Table 2, clubs compete on-field, and also off-the-field, for the time and money of supporters, for the interest of business partners and, based on the public values they generate (Kozma, 2009, 2013; Green & Collins, 2008), for the support of the different levels of political government (Andras, 2011b).

Competitiveness is a topical issue in economics today (Chikan, 2006). It is normally defined as the ability to sustain in competition for an extended period of time. Competitiveness can be interpreted at four different levels: national, industry, corporate and product level of competitiveness (Chikan, 2006; Czako & Gaspar, 2007). Other approaches differentiate also regional competitiveness of a larger geographic area (e.g. EU, SE-Asia, Buckley & Casson, 1998; Mirza, 1998), or a smaller area (Northern Italy, East Anglia, IMD Reports; Porter, 1998). Chikan (2006) underlined that corporate level competitiveness is less clearly defined and measured in economic literature than other levels.

For the purposes of this study, we understand competitiveness as a company's ability to participate in competition with a reasonable chance of success (see more on this by Chikan & Czako, 2006a). A requirement of competitiveness is the ability to sustain

operations, as well as to proactively adapt to challenges (Chikan, 2006). In assessing competitiveness, macro- and micro-level, ex ante and ex post, internal and external, input and output-related factors can be differentiated (Nemethne, 2010).

As Figure 1 illustrates, macro-level competitiveness is influenced by government policy. This is all the more so in professional sports, as governments often provide funding and a range of allowances to sports, due to the significant public values sports organisations generate. Regarding micro-level competitiveness, sports companies are increasingly exposed to the effects of global competition, because of the complex internationalisation processes that have so profoundly affected the way professional sports operate.

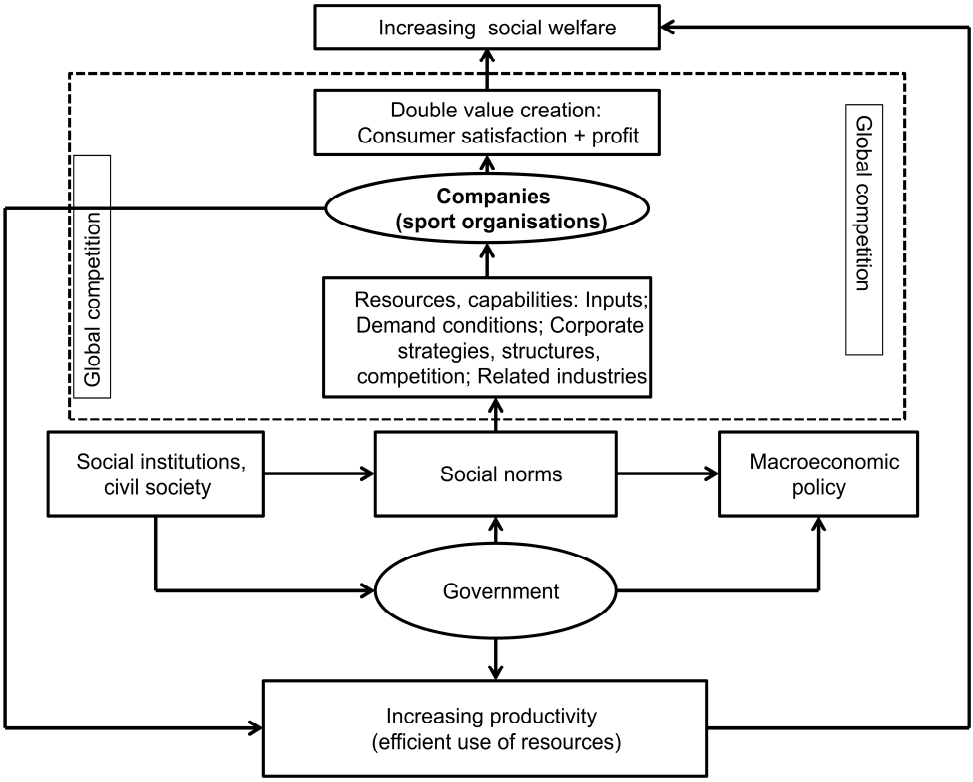

Figure 1. The interrelations between macro- and micro-level competitiveness
Source: Chican (2009).

MATERIAL AND METHODS

Our research approach is based on the interpretative paradigm, using primarily qualitative information. We aimed to apply well tested theoretical concepts in new areas of research, i.e. in professional sports. In this exploratory study we have examined a couple of pilot cases to set the ground for further analytical efforts with an extended number of cases from different sports at varying competitive levels. Our early results

were expected to provide guidance for the conceptualisation of the subsequent stages of our research project.

Our primary research question focuses on how the management of Hungarian professional sports clubs strategise their integration into the international operations of professional sports. "What patterns can be identified in the international strategies of Hungarian professional sports clubs?" We aim to explore the level of club management's consciousness about their company's integration into a European and global network of sports organisations as an avenue to exploit new market opportunities or improve operational efficiency.

For our research purposes we have applied a conceptual model (Figure 2) to frame our investigation, in order to ensure our efforts are linked to the existing literature of international business and our expected results would be tractable enough for fellow researchers to elaborate upon.

The original propositions were organised around the key focal points of the conceptual model, primarily based on our analytical review of relevant academic articles on international business and the economics of sports. Our understanding of the actual operating conditions of Hungarian professional sports clubs provided further support to refining our original propositions so that they could bear relevance both to future academic endeavours and to potential applications in management practice.

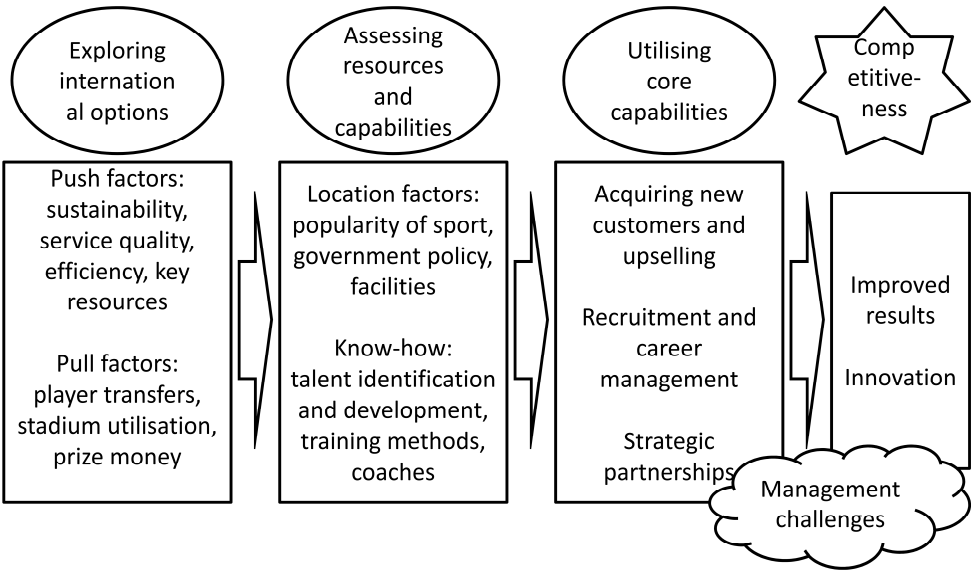

Figure 2. The research model on exploring international strategies
Source: own elaboration based on (Hitt et al., 2007; Czako, 2010).

Research Method

We selected the case study methodology (Yin, 2003) for our research purposes, as it is in line with the orientation of our research question. As there is no extensive database of information collected about the internationalisation process of Hungarian professional

sports clubs, and the relevance of the topic is mostly relevant to a limited range of sports clubs, the preparation of a carefully selected list of case studies seemed to be the best choice for our exploratory study.

As the fundamental theoretical models of international business have not been investigated in the field of professional sports clubs yet, we believe that our qualitative findings would serve well to provide a strong basis for more quantitative research projects that may follow. The perceptual nature of key conceptual elements of the theoretical models – e.g. learning, trust, commitment, career options – also necessitated a qualitative approach to understand the conditions in the examined business field.

The case study methodology applied in our project involved conducting in-depth interviews with senior executives of selected professional sports clubs, and cross-checking the collected qualitative data with information from corporate documentation that has also been collected. In order to ensure better reliability of findings, we used the triangulation principle also to check the validity of information (Babbie, 2012).

The topics of our interviews were linked to the key elements of our Research Model, in the following order: motives for internationalisation; evaluating the strategic resources and competences of the professional sports club; utilising the core competences; management challenges in achieving improved competitiveness; room for further innovation to improve results.

In line with the epistemological approach of case study methodology, we did not aim to apply statistical generalisation to a pre-defined population of units of analysis. Instead, we used our findings for analytical generalisation, highlighting where further examination is necessary to expand the scope of relevance to a wider range of empirical cases (Yin, 2003).

In terms of selecting clubs to our pilot sample of two cases, we studied the general qualitative sample selection criteria listed by Miles & Huberman (1994). Based on the identified options, we selected two of the historically most successful professional clubs of Hungary. Football was a natural choice, because it is the number one sport in Hungary, in terms of popularity, and also because professional football is the most advanced sport in Europe in terms of mass commercialisation. Hence we selected Ferencvarosi TC (FTC) to the sample first. The second sport selected was ice hockey. It is one of the top five spectator sports in Hungary, but with quite a different supporter profile than football. Also, the international competitions in ice hockey are organised differently than in football. Fewer nations support good quality ice hockey leagues; as a consequence, supranational leagues have been established and a number of Hungarian league clubs joined different supranational leagues. Fehervar AV19 (AV19) seemed an easy choice, as it has been the cornerstone of the development of ice hockey in Hungary over a couple of decades, both in terms of sporting development and also from a commercial point of view. Interestingly, AV19 is a country-side club, as opposed to FTC that is the largest club of Hungary operating in the capital city of Budapest.

The Pilot Sample

Case #1: Ferencvarosi TC, Football Club.

Founded in 1899, FTC is the historically most successful football club in Hungary. They are 28 times champions, 20 times Cup winners. Their first international success occurred in 1928 when they won the Central-European Cup. They repeated this feat in 1937, and other significant European cups in 1965 and 1975. In 1995, they entered the group stage of the European Champions League as the first Hungarian team ever.

FTC has the largest base of supporters in Hungary, estimated to be over 300 000 fans, with passive followers amounting to over 1 million. However, even FTC could not bring to their matches more than 6-8 thousand supporters on average.

The government recently built a state-of-the-art new stadium for the club, with a capacity of over 22 000 seats. The management of the new stadium has been contracted out to an internationally reputable facility management company.

The financially most advanced football league in the world is the English Premier League, including professional clubs from England and Wales. The total revenues of the largest English club exceed EUR 400 million, compared to FTC's budget of below EUR 6 million.

Case #2: Fehervar AV19, Ice Hockey Club.

Founded in 1960, Fehervar AV19 (AV19) is one of the historically most successful ice hockey clubs in Hungary. They are 13 times champions, five times Cup winners. They were the first country-side club that could win the championship, breaking the dominance of Budapest club Ferencvaros.

They made a great step in internationalisation, when they joined Interliga, a supranational competition in 1997. Based on their international reputation and good relationship with a number of foreign clubs, they were invited to the more prestigious Erste Bank Eishockey Liga (EBEL) in 2007, where they could play against superior Austrian, Slovenian, Croatian, Czech and Italian clubs. They do not show consistently good performance in EBEL, being the club with the lowest budget in the league, but occasionally they surprisingly beat even their best opponents.

They use a local municipality-owned hall of 3500 seats capacity, built in 1977, which they normally sell out for league games. They also sell out their VIP seats (app. 150 seats) for an increasing level of price every year. There are plans for a new 5000-seat hall to be built by the government in the next few years.

The top league in the world is the North-American National Hockey League, including professional clubs from the USA and Canada. The total revenues of the best Canadian clubs are over EUR 110 million, compared to AV19's budget of just over EUR 1 million.

Limitations of Methodology

In our understanding, the quality of a research methodology lies in the harmony between the research question, the data collected and the analytical methods. We did our best to adjust our methodology to the limited availability of quantitative data, and the newness of the research question as identified through our literature review.

However, there are limitations to how our early results can be processed for further research, due to the following issues.

Firstly, sports are usually strongly embedded into the local culture and social relationships; hence any attempt to generalise findings for the purpose of economic analysis may oversimplify the idiosyncratic nature of club operations. Furthermore, key concepts of the theoretical literature of international business are not familiar to most of the professional club managers, even to the commercially skilled ones. Our efforts to translate the conceptual elements to practical terms may raise issues of validity and reliability. Finally, there is a chronic lack of reliable quantitative data about the business of sports in Hungary, due to a traditional non-business approach to managing sports organisations. Our intention to cross-check interview information with factual written information was sometimes severely compromised by the availability of such information.

PRELIMINARY RESULTS

Based on the answers from our interviewees and the analysis of related documentation, we have been able to refine our understanding of the strategic approach the selected Hungarian professional clubs developed. While the immediate generalisability of our findings is limited, they can serve as a basis for the subsequent stages of our research.

In this section we explain our propositions that we plan to use in the case studies that we have scheduled in for the coming months. Also, we provide explanation of the strategic patterns identified in how the examined professional sports clubs approached the opportunity and the challenge of internationalisation.

> ***Proposition 1****: While push factors dominate the motives for the internationalisation of professional sports clubs in Hungary, pull factors are gaining relevance.*

Both of the examined cases highlighted that the primary motive for setting sights on international competition is a need for improving sporting performance, which has been confirmed as the fundamental strategic orientation of professional clubs. As both clubs in the sample have a tradition of regularly winning their respective domestic championships, if they aim to please their supporters there is no real alternative to entering international competitions and achieving results beyond immediate expectations. This is the requirement of satisfying the profound needs of their domestic fans.

The process of internationalisation along this line of thought follows an interesting pattern, shown by Figure 3. The primary motive was a push factor, i.e. the need to satisfy domestic supporters by improving sporting performance. This strategic goal implied a parallel goal which was the construction of a new stadium, as without a high quality facility supporters were understood to lose interest in attending matches anyway. The challenge of operating the new stadium in a sustainable way called for learning from foreign clubs, in pursuit of new revenue generation opportunities that could provide the financing required to cover the increased operating expenses of the club. After all, the stadium is understood to be a key tool for revenue generation for modern, commercially managed football clubs (Kozma & Kazaine, 2013, 2014).

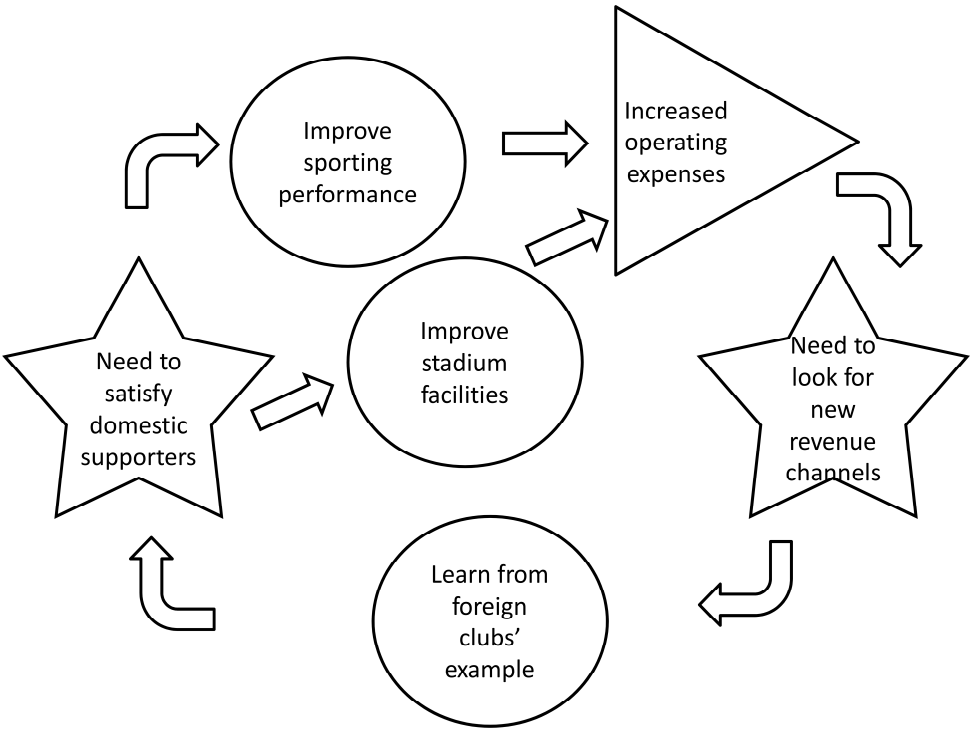

Figure 3. Simplified strategic pattern for internationalisation for FTC football club
Source: own elaboration.

The case of AV19 ice hockey club appears to confirm the identified pattern. As a leading Hungarian club, they play in an international league (EBEL) in order to bring exciting matches to their domestic supporters. In an effort to establish a sustainable future for the club, they plan to upgrade their facility to a larger and better quality hockey arena, from government funds. Whether they will be able to identify new customer segments or benefit from up-selling opportunities is yet to be seen. They certainly do not have an explicit business plan on how to exploit the new options, and may look for examples abroad to understand how more revenues could be generated.

***Proposition 2**: The key push factors are the need for improved sporting performance and the consequent pressure for establishing financial sustainability.*

Our understanding from the case studies is that the usual "play better and pay better" phenomenon prevails in Hungary, but it also acts as a catalyst for internationalisation (Szymanski & Kuypers, 1999). There is a distinct flow of logic that we could identify through our interviews and the analysis of related documentation (Figure 4).

Two parallel processes intensify the pressure on Hungarian professional sports clubs to improve their sporting performance. First, there is a general proliferation of entertainment opportunities through a greater than ever array of electronic platforms and devices. The entertainment tools provide are more visual, more action oriented and

more exciting than any substitute products professional spectator sports had to face before. Also, in relation to the improvement of technological opportunities, there is more depth and breadth of the coverage of top sport matches played in the highest level leagues all around the globe. Both of these trends put pressure on Hungarian professional sports clubs to improve their quality of play and the experience they can offer to their supporters.

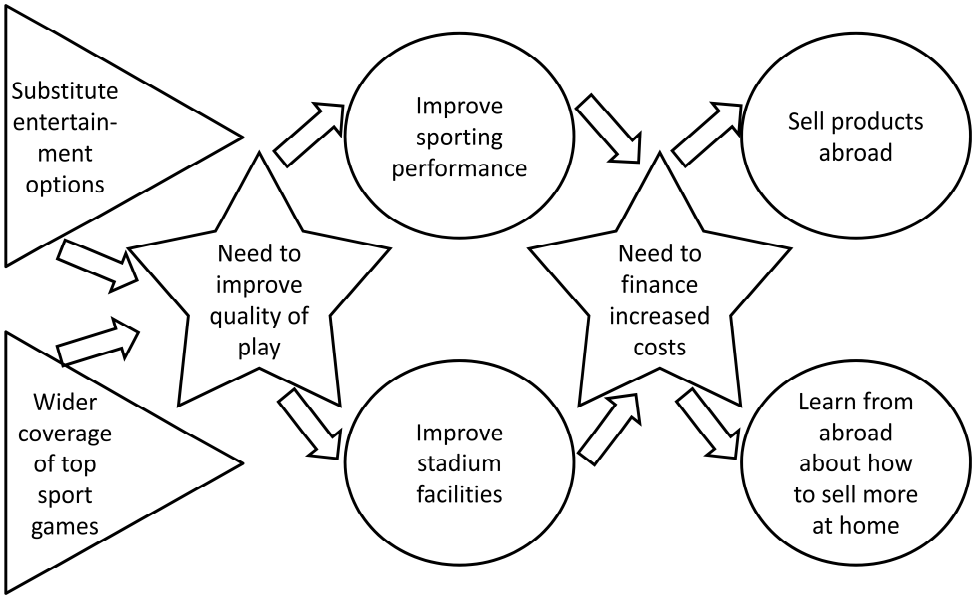

Figure 4. A refined pattern of how push factors lead to increasing internationalisation
Source: own elaboration.

Hungarian professional sports clubs have two major avenues for progressively responding to the financing pressure. First, they aim to sell their products abroad, in larger markets that provide new revenue generating opportunities of almost incomparably larger measure (Kozma & Nagy, 2003). For example, income from playing in the group stage of the European Champions League of football, even if the team fails to win a single match, normally involves additional prize income from the competition that can double the total revenues the club manage to achieve in a year without playing in the Champions League. This way, the sporting performance of the Hungarian club becomes a part of an international product that the European football association (UEFA) can sell to a much larger market to the benefit of all clubs participating.

The other opportunity to positively respond to the pressure is learning from foreign clubs how to gain more revenues from the available domestic market. The size of the domestic market in Hungary is in fact smaller than that of clubs operating in a more sophisticated commercial environment (e.g. Germany and the UK in football, and Scandinavia in ice hockey), but the know-how of utilising revenue generating opportunities from a new facility is still worth to learn. Internationalisation by learning

the best practice in other markets is a powerful strategic opportunity for clubs in Hungary.

***Proposition 3**. Recent improvements in location factors mitigate the strategic disadvantage of Hungarian professional sports clubs in international markets.*

In order to boost the sporting performance of a range of sports, the Hungarian government decided to provide direct funds for the development of a range of state-of-the-art sporting facilities, and indirect funds to support youth development and to an extent also the smooth operations of professional clubs. All of these efforts were meant to close the gap in the competitiveness between Hungarian sports and sports in larger markets.

Youth development and facility upgrades are two strategic areas which are understood to have the potential for supporting the sustainable sporting performance of clubs. Our interviews confirmed that the management of clubs understand this opportunity and aim to build on it.

The two examined cases showed different perspectives of how professional sports clubs could actually benefit from the supportive government programmes. Other location factors affect the two clubs differently. Football has a very large supporter base, though most of them are inactive. Also, Hungary boasts a proud tradition of the "Golden Team" of the 1950s which was almost unbeatable on international scenes at the time. Also, there are clubs with great tradition, a few of which operate, even today, with relatively stable financial background, so that they can provide challenging competition to each other in the domestic league (most notably FTC, DVSC and Videoton). If FTC will enter a European competition and have a good run in the first few rounds, the commercialisation opportunities will be very substantial. With careful management, the extra income could be reinvested into both the playing squad and the development of additional commercialisation solutions.

In case of AV19, such international playing success would not bring a comparable surge in income, and the domestic commercialisation potential is also lower due to the smaller fan base of ice hockey in Hungary. However, they could benefit from applying the best practice of international commercialisation know-how, as their fan base has a higher per capita spending power than that of FTC. This is also confirmed by the fact that, according to clubs statistics, many supporters (over 40%) travel from other cities, even from Budapest over 60 km away, to see the matches of this country-side club.

Overall, the location factors of professional sports clubs in Hungary have improved, but cannot provide a basis for sustainable competitive advantage without new club strategies adjusted to taking advantage of the internationalisation options.

***Proposition 4**. The internationally linked career management of professional players is one of the core competences of strategically successful Hungarian sports clubs.*

Analysis of the two cases appears to support this proposition, though from different perspectives. In this regard, AV19 is in a more advanced position than FTC. More than 15 years ago, the club started to employ foreign head coaches to the professional team. First Russians, than Slovakians came, while Pat Cortina arrived in 2004, starting a succession of Canadian coaches with little interruption. Naturally, foreign coaches opted for contracting foreign players, apart from relying on the talent

coming through the ranks of the club's grass-roots programme. The gradual inflow of quality foreign players helped the coaches to fill the gaps in the roster, where local talent was not available in the required quality. The consequence was a series of sporting success, which also led to the club's involvement in a higher-level regional league (EBEL), including mostly top-tier Austrian and Slovenian ice hockey clubs. More visibility in a higher-level league further improved the attractiveness of playing for AV19 in the eyes of an increasingly wider pool of foreign talent. Our interviews confirmed that the club may serve as a stepping stone in the career of young foreign players so that later they can sign for a top international club, based on the experience gained at AV19. Figure 5 illustrates this strategic pattern.

Our findings from the case of FTC are in line with the pattern identified at AV19, but they have not managed to apply this pattern with equal success yet. Hitherto, there has not been a succession of foreign coaches from a top European football nation at FTC, and the international career paths of FTC's players do not seem to show a consistent pattern. However, it is the intention of current management to benefit from the opportunity to get integrated into the international player career network, both because this is expected to attract more talent to the club, and because there is a potential revenue source from quality players signing to top clubs from FTC. A most recent element of the implementation of this international strategy is the signing of Bosnian Muhamed Besic to a top-tier European club, following its successful years of playing for FTC and also showing his talent at FIFA World Cup 2014.

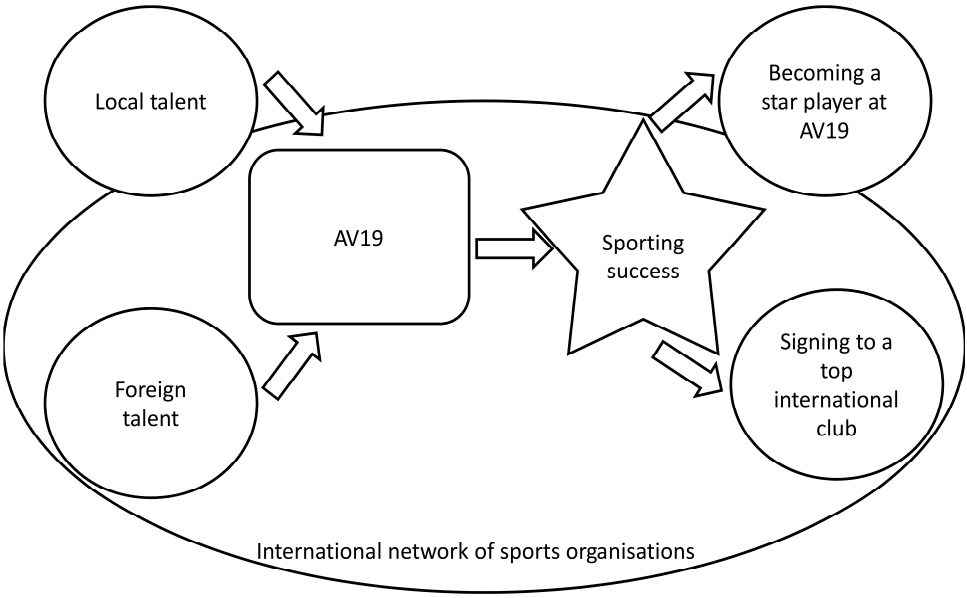

Figure 5. Identified pattern of integration into international player careers
Source: own elaboration.

Proposition 5*. Strategic partnerships can become key opportunities for strategic breakthrough for professional sports clubs in Hungary.*

Both clubs in our sample provided a case for supporting Proposition 5, although in a refined format. FTC leads the way in Hungarian football, in terms of contracting an internationally reputable stadium operator to manage the newly built facility. The rationale behind the agreement is that no operators in Hungary have the international experience that is supposed to be required for utilising stadium capacities outside the needs of the professional team. What content can be attracted to the facility and how this can be achieved is part of the know-how FTC is willing to import to the country.

The case of AV19 can also be interpreted as a story of strategic partnerships and learning. Though the contractual relationship between the club and its succession of foreign coaches was different than that between companies, this long-term relationship channelled international know-how of player management and also club operations to Hungarian ice hockey.

CONCLUSIONS

Our pilot case studies have confirmed the relevance of international business theory to be applied in professional sports and lead to promising conclusions. Firstly, the importance of international pull factors is on the rise, signalling strategic potential in a more conscious pursuit of internationalisation options. Secondly, the integration of Hungarian professional sports teams into the international network of sports organisations is likely to intensify, not only on the input side (i.e. athletes), but also on the output side (i.e. commercial sales) of their operating model. Thirdly, the global competition challenge Hungarian professional sports clubs face is expected to stimulate the development of special strategic patterns that may add depth to the general internationalisation models based on empirical findings of more developed nations. Early results drafted such patterns focused around the development of new sporting facilities and the need to learn the know-how of commercialisation from international examples. These patterns are to be further refined through additional case studies to provide the basis of more powerful analytical generalisation. Finally, the motives for intensifying internationalisation are deeply rooted in the economic structure of professional sports; hence this area of research is expected to remain in the interest of academics and business practitioners for many years to come.

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Analysis of Large-Scale Privatisation in the Czech Republic in the Years 1991-2005 on the Sample of Selected Privatised Companies

Karel Havlíček, Ivana Turková, Gabriela Dlasková

ABSTRACT

Objective: The objective of this paper is to analyse, evaluate and compare the individual methods of Czechoslovak and Czech privatisation in the years 1991-2005 based on long-term economic indicators.

Research Design & Methods: The empirical research focuses on a sample of 60 companies privatised between 1991 and 2005 which were selected from the list of 3500 large-scale privatised firms in the Czech Republic by the National Property Fund of the Czech Republic and divided into three groups.

Findings: The expenditures associated with the large-scale privatisation were covered by the revenues from the sales of property. Based on data analyses, it may be inferred that the best results have been reported by companies sold directly to foreign investors, while lower for voucher privatisation and direct sales to specific domestic investors.

Implications & Recommendations: The privatisation processes aimed at selecting such owners that would have the capacity required to timely complete the subsequent restructuring process and to set up such procedures that would secure continued operation of the enterprises. The revenues from the sold property is a secondary criterion subordinated to the primary objective.

Contribution & Value Added: The originality of this work lies in studying the main steps undertaken as part of the so-called large-scale privatisation, after nearly a quarter of a century, and its measurable impacts on the domestic economic environment

Article type:	research paper
Keywords:	Czech Republic, large-scale privatisation; small-scale privatisation; restitutions; voucher privatisation; direct sales
JEL codes:	L33, P21

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INTRODUCTION

Large-scale privatisation in Czechoslovakia (in the years 1991-1992) and later in the Czech Republic (since 1 January 1993) has long been a highly discussed theme. Since it involved a transfer of all important property in a short period of time from the state to new owners, unique in terms of speed and mode, privatisation has long been a target of political and ideological conflicts. The authors of the text attempt to map, evaluate and compare privatisation methods, not based on their immediate economic effect, but throughout more than 20 years.

In 1989, Czechoslovakia had one of the smallest private sectors of all the post-communist countries, with the private sector accounting for only about 1.2% of the overall labour force and producing a minimal part of the national income. Private enterprises were, however, unlike other socialist economies, in relatively good financial condition. At the beginning of the 1990s in Czechoslovakia 73% of industrial firms were profitable (Pohl et al., 1997). The underlying goal of the privatisation process was to remove the State from the ownership relations of enterprises and, by inference, from all decision-making and control processes (Kočenda & Lízal, 2003). The necessary economic transformation gave rise to a new pattern of ownership relations, market competition and a newly evolving social stratum of entrepreneurs. This concerned the transformation of the originally socialist centrally planned economy into a capitalist model. The transformation consisted in restructuring the overall system as such, its mutual internal relations and creating new institutions intended to provide efficient performance of the economy.

The Czechoslovak and later Czech privatisation was a historically new operation. Undoubtedly, the whole process involved a variety of unconventional methods of tackling the need to privatise the majority of state property within the shortest possible amount of time, and, still more importantly, without the sufficient capital input.

The objective of the article is to map privatisation paths and its results based on the following economic variables: (i) a number of created jobs, (ii) generated added value and (iii) revenues from income taxes of privatised companies. Quantitative indicators have shifted from the year of privatisation of specific selected companies to the present. Based on the obtained data, another objective was to compare and evaluate particular privatisation methods: direct sales to foreign investors, voucher privatisation, direct sales to domestic investors.

LITERATURE REVIEW

"Privatisation consists in one entity, which does not know the actual owner or value of the property, selling something to another entity, which is known not to have any capital" (Kouba et al., 2005, p. 56). This perception of privatisation by J. Lewandowski, a Polish economist, is most fitting in the way it captures the actual initial situation in transition economies. Admittedly, all post-communist countries faced this particular issue. Yet, each of the transition countries headed into the privatisation process under a different set of initial conditions and, therefore, opted for various combinations of privatisation forms (Kouba et al., 2005).

Privatisation, which involves the transfer of public property to private ownership in regions of post-communist countries, has been the focus and research domain of many economists and academic institutions. The Czech privatisation path has not only become a model for many transforming economies, but it has become a basis for modern instruction methods as well (Klaus et al., 2006). However, it has become a target of criticism from many Czech and international economists (Mládek, 1994; Švejnar, 1997). Examples of Czech privatisation are described both in a positive and negative light in publications worldwide. Most of the praise of it focuses on the speed of the overall transformation and, to a certain extent, on the new way of transferring property rights, particularly the voucher privatisation (Katolay & Hunya, 2000) programme[1]. However, the Czech privatisation has been criticised for its lack of legal preparedness. For many years, the academic community has examined different ways to transfer state property rights effectively. An often discussed potential approach is gradual implementation of a fully functional legal environment prior to the gradual transfer of property rights to specific owners. Part of the academia argues that this can help avoid non-transparent transfers and prevent the formation of non-transparent ownership structures of the privatisation funds into which a large amount of privatised property is allocated. The British path carried out by Margaret Thatcher's government is most often highlighted (McAllister & Studlar, 1989). However, supporters (Klaus et al., 2006; Tříska, 2002; Ježek, 2006) of Czechoslovak and later Czech privatisation paths argue that the legal environment was fully functional and that the method fully corresponded to the laws at the time. Waiting for a supposedly better privatisation environment or following the British path would, according to the supporters of Czech privatisation, prolong the entire privatisation process by 10 years. According to this group of economists (Klaus et al., 2006; Tříska, 2002; Ježek, 2006), the state neither had financial accumen, nor knowledge, nor human resources for their administration and management, and there was a risk of unprecedented corruption. Supporters of fast privatisation point out that all economic and legal steps were carried out in the environment of a fragile democracy, when there was a general demand for the immediate transfer of property. Reasons for emphasising speed included the need to come to terms definitively with the Communist past and concerns about the potential reverse trend of the country transformation to the situation before the Velvet Revolution of 1989. The new economic approach involving Czechoslovak privatisation can be attributed to individuals including Václav Klaus, Tomáš Ježek and Dušan Tříska from the Prague University of Economics.

Research of the transformation of Czechoslovak, as well as the Hungarian economy, has been published by a team of researchers led by Libor Žídek (2004; 2006) from Masaryk University in Brno, whose publications and research findings were used as the source material for this article. Critics of the Czechoslovak privatisation methods include leading Czech economist Jan Mládek (1994) and Jan Švejnar (1997) from the Columbia University in New York. The viewpoints of both opposing economists are

[1] Voucher privatisation is a privatisation method, under which the citizens were provided with an opportunity to purchase voucher books, at a low cost, with a certain number of vouchers (coupons), which they could redeem for interests in any state-owned companies released for the voucher privatisation by public authorities.

included in the article. A fundamental problem of the elite Czech economists was their political involvement and low level of economic objectivity. Practically all major Czech economists have gradually become leading politicians, and their arguments in favour of or against privatisation methods have been strongly influenced by their political interests and ambitions. For these reasons, the authors had used also totally independent international sources. One of the aims of the authors of this article was to describe and evaluate independently and, to a maximum extent, objectively the results of the privatisation based on clear economic variables.

MATERIAL AND METHODS

The analysis was carried out in two phases. The first step includes the analysis of general population of privatised companies (N = 16 331 as indicated in Figure 1) and the second step includes the selected sample of privatised companies (n = 60). At first the general analysis of the privatisation processes in the Czech Republic was performed for the years 1990-1995 and based on the publicly available data from the Ministry of Finance (Ministerstvo finance, MF ČR) as well as the Ministry of Privatisation (Ministerstvo pro správu národního majetku a jeho privatizaci, existing in the years 1993-1996) and the National Property Fund of the Czech Republic (Fond národního majetku České republiky, FNM ČR, existing in the years 1991-2005). Secondly, the in-depth analysis was performed on a sample of selected privatised enterprises to evaluate the results of privatisation.

For the purposes of the present analysis, we considered 2005 as the official final year of the privatisation process (Annual Report 2005. National Property Fund, 2005). We decided to explore the effects and parameters set under a group of selected enterprises privatised under the large-scale privatisation. The analysis consisted of quantitative empirical research based on primary data. The general population of all privatised units in the Czech Republic in the years 1991-2005 amounted to 16 331 (Figure 1). The enterprises (the sample research) were picked out of the list of units privatised by the National Property Fund of the Czech Republic. Out of approximately 3500 large-scale privatized units, we picked 60 enterprises from the industrial sector. The main criterion for inclusion and selection of the enterprises to be examined was staff count exceeding 250 at the time of the privatisation. The sample pool consists of only companies that survived. The aim was not to evaluate the proportion of survivors and bankrupt enterprises, but to analyse and compare the economic effectiveness of operating privatized companies.

These 60 selected major enterprises privatised between 1991 and 2005 were divided into three groups equally (3x20) according to the privatisation method employed. The groups were created with an account taken of the importance of the specific methods: enterprises privatised (i) via direct sales to foreign investors; (ii) under voucher privatisation; (iii) via direct sales to domestic investors.

The results of the privatisation process were evaluated on the sample of selected Czech privatised enterprises (n = 60) and were assessed by taking into account the following three factors:

i. The overall public income tax revenue for all the units within the group, starting from the end of privatisation and during the entire existence of the privatised business units or their successors;

ii. Average annual number of direct jobs created by the group of enterprises under consideration, namely starting from the end of privatisation and during the entire existence of the privatised business units or their successors;
iii. Value added per employee generated on an annual basis.

The objective of this paper is to analyse, evaluate and compare the individual methods of Czechoslovak and Czech privatisation in the years 1991-2005 based on long-term economic indicators.

RESULTS AND DISCUSSION

Analysis of Privatisation Processes in the Czech Republic

The privatisation process in the Czech Republic was carried out under three programs (Kočenda & Valachy, 2001):

- restitution started in 1990 and finished in 1991,
- small-scale privatisation introduced in 1990, started and 1991 and officially terminated in 1993,
- large-scale (or mass) privatisation started in 1991 and formally concluded in 1995.

The privatisation process in the Czech Republic, apart from the three above mentioned programmes, still continued after 1995, nevertheless its intensity was lower. The year 1999 may be regarded from the practical point of view as the closing year of the real privatisation process in terms of the decreasing number of projects assigned, although the year 2005 is perceived officially as the end of the privatisation processes in the Czech Republic. The decreasing trend in the number of privatised units is shown in Figure 1.

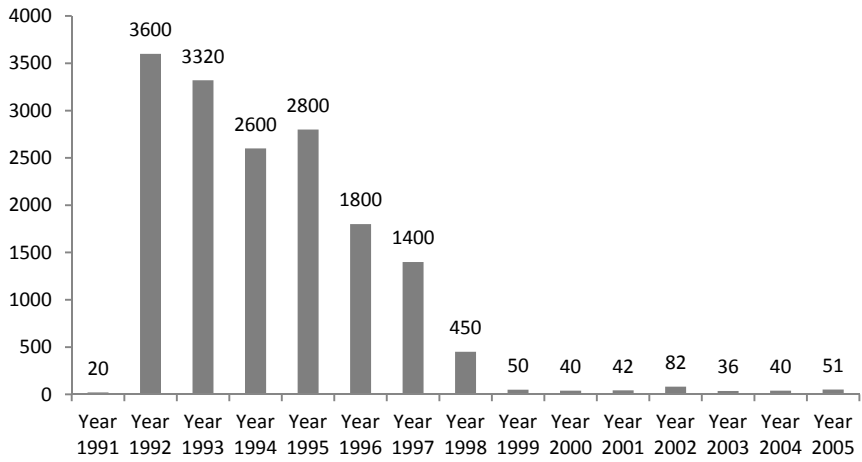

Figure 1. Number of privatised units in the Czech Republic in the years 1991-2005
Source: own elaboration based on National Property Fund (2005).

Two basic methods of approaching privatisation were considered at the beginning of economic transformation in 1991 (Ježek, 2006). The first consisted of converting state-owned enterprises into joint-stock companies, which would initially remain in the hands

of the state, which was expected to restructure the enterprises before selecting an appropriate new owner. The other scenario assumed the enterprises would be privatised immediately and restructured afterwards, under the control and at full expense and risk of the new owner. With the critical criterion and the clear-cut objective being to complete the privatisation project within a short period of time, the former scenario was opted for, i.e. rapid transfer to the selected owners. The overall property rights transfer strategy had speed as its fundamental criterion and involved selecting such owners that would have, if not demonstrable, then at least the minimum capacity required to complete the subsequent restructuring process and to set up procedures that would secure continued operation of the enterprises. The receipts from the sold property rights were a secondary criterion (Tříska, 2002).

The first phase of the privatisation process aimed at establishing a market order, which would create conditions for a higher efficiency of the enterprises. In order for such a market order to be set up, it was first necessary to transfer a substantial quantity of state-owned companies to private hands. In doing so, the efficiency of specific enterprises was a minor topic. The difference between privatisation in Czechoslovakia and that in mature market economies, like Great Britain, was in the ratio between the quantity of property privatised and the volume of savings on the part of the population (Ježek, 2006). The difference was so gigantic, that, on its own, it turned out that the privatisation process in Czechoslovakia became entirely unique (Ježek, 2006). The ratio of state-owned property to savings of the population was of strategic significance in selecting the appropriate privatisation policy. It was unreasonable to adapt the privatisation to the rate of growth in savings on the part of the population since, considering the proportions of state-owned property, the process would take decades to complete. The capital shortage was tackled by a decision, according to which the strategic privatisation path would consist of free-of-charge transfers of state-owned property to domestic private entities (Ježek, 2006).

In April 1990, a decision was passed to develop a mass privatisation programme and in June of the same year, the new Czechoslovak Government, included privatisation in its agenda. It took another year to finalise the privatisation laws. Privatisation was divided into three main groups – restitutions, small-scale privatisation and large-scale privatisation (Švejnar, 1997).

The speed of privatisation was emphasised as one of the key points in the privatisation agenda and has continued to be a subject of many disputes even today. If Czechoslovakia, and, later on, the independent Czech Republic, adopted the same pace of privatisation as was the case of Poland, for example, the whole process would only be completed by 2008-2010 (Spicer et al., 2000). Two scenarios were considered in 1991: (i) a speedy process, which would have doubtlessly brought about a number of issues associated with the selling of the property rights to unproven candidates, and (ii) a slow approach to privatisation, which would have taken decades and would have in all likelihood been associated with a substantial rise in corruption. This was one of the reasons why the Czechoslovak Government ultimately decided to go with the former scenario of a speedy privatisation process.

The privatisation process took place amidst a very favourable social climate, yet at the same time faced complications related to a two-membered federation on the brink

of disintegration (Ježek, 2006). Valuing the property to be privatised was another major problem in the Czech context. The carrying values of property held by the ineffective socialist enterprises,[2] after years of isolation from global markets, constituted a primary information message both for designers of privatisation projects and for banks in their willingness to provide loans, despite the fact that in reality they were practically devoid of any explanatory power. It was effectively impossible to determine the real market value of the assets of the privatised enterprises in the economic environment.[3]

Restitution, as a term, was introduced in Czechoslovak law through Act No. 403/1990 Coll., whereby the property nationalised by the Communist Government after 1948 was returned to its original owners or their heirs. The restitution processes took place between 1990 and 1991 and included property at an overall book value of 200 billion CZK equivalent to 6.8 billion USD in 1991 (Mládek, 1994; Vychodil, 2005). In terms of the volumes involved, Czechoslovak restitutions are unparalleled in the region. The public played an indispensable role in the entire privatisation process. This fact is rather difficult to evaluate from the current perspective, yet it still needs to be noted that the Czechoslovak public at that time had been decimated by the authoritarian socialist state to such an extent that any delay on the part of the Government in transferring the property would have been received extremely negatively This fact was reflected in the Government political considerations. According to the public opinion, restoration of the market structure should have been associated with a renewal of the ownership rights of individuals who had once lost their property due to nationalisation. Property restitutions thus became the speediest method of privatisation (Ježek, 2006).

The first real stage of the privatisation was the so-called **small-scale privatisation,** launched in January 1991 and completed in 1993. The legal framework consisted of Acts No. 427/1990 Coll. and No. 500/1990 Coll. During the small-scale privatisation, small-sized economic units, such as shops, restaurants, etc., were sold in public auctions. In total, 22 212 units were auctioned off at an overall value of 30.4 billion CZK (the amount was equivalent to 1 billion USD in 1991) - as calculated from the final selling prices (Žídek, 2004; Earle et al., 1994). It needs to be added that only domestic candidates could apply for the economic units offered. This stage of the privatisation was generally received positively, with the same process taking place in all neighbouring countries within the Eastern bloc (Žídek, 2004).

The small-scale privatisation along with restitutions and setting up of trades and small businesses helped to quickly reinstate a class of entrepreneurs and laid foundations for dynamic economic growth within the private sector, especially for small and medium enterprises.

Other state-owned productive assets, at an overall value of 350 billion CZK (equivalent to 11.9 billion USD given the exchange rate of 1991) were transferred to

[2]The values of state-owned and privatised assets given in this text are book values, since there is no way to obtain mutually consistent data giving a more "realistic" picture of the value of the assets in the early 1990s.

[3]The role of the capital market during the transformation era was rather symbolic. There were two security markets in the Czech Republic – the Exchange and the RM-System, which evolved as a result of the voucher privatisation method applied. The RM-System made it possible for owners of shares to enter the security market directly.

municipalities and communes and cooperatives at an overall book value of 150 billion CZK (5.1 billion USD), transformed to other forms of enterprises under private control (Mládek, 1994).

The next stage, referred to as **large-scale privatisation,** was launched in the spring of 1991 and mainly concerned large-sized industrial enterprises and banks (more than 3500 entities overall). The legal framework consisted of Acts No 92/1991 Coll. and No 171/1991 Coll. The privatised enterprises, at an amount of roughly 1200 billion CZK (40.7 billion USD in 1991) were either liquidated (with the assets of the liquidated companies generally sold under public auctions), or privatised during one of the two waves of large-scale privatisation, or the privatisation was postponed and the property left under state control. The large-scale privatisation employed both standard methods (i.e. public auctions, public tenders and direct sales) and a peculiar amalgamation of the models proposed by Milton Friedman in the 1970s and formulated as part of a Polish academic discussion led during the 1980s, generally referred to as the Voucher Privatisation, which ultimately had a much bigger role to play in the programme of Czech large-scale privatisation than the standard methods (Kouba et al., 2005).

The overall book value of property entered in the large-scale privatisation process was 1200 billion CZK (in 1991 equivalent to 40.7 billion USD); of which 46% was privatised by the voucher method while 25% was retained by the state and 15% was privatised by standard methods (Vychodil, 2005). Other property at a book value of 350 billion CZK (11.9 billion USD) was transferred to municipalities and communes.

The document central to the large-scale privatisation process was the so-called Privatisation Project. It contained a summary of information defining the privatised property once owned by the State; the forms of acquisition of such property, its price and parts that could not be used for entrepreneurial purposes; the method in which the privatised property was going to be transferred, including the settlement of any claims raised by eligible persons under restitution laws; the legal form of the companies set up; distribution of shares, i.e. the number of shares registered for the Voucher Privatisation; and the volume of state-owned property to be sold, including the price and terms of payment.

From an institutional point of view, the Ministry for National Property Administration and Privatisation and the National Property Fund of the Czech Republic were the two governing bodies in the large-scale privatisation process. The two institutions were responsible for transforming the ownership relations in respect of state-owned property. The National Property Fund of the Czech Republic (FNM ČR) was set up by the Czechoslovak Government to oversee the technical implementation of privatisation-related decisions and to undertake temporary administration of the shares held by the state designated for gradual privatisation. It was established on 24 May 1991, namely via Czech National Council (ČNR) Act No. 171/1991 Coll., concerning the scope of competence of Czech public authorities regarding the transfers of property to other entities, and on the National Property Fund of the Czech Republic. The main mission of the FNM ČR was to manage and privatise state-owned property in line with the approved Privatisation Project. The receipts generated by the FNM ČR as a result of the privatisation, which did not form part of the Czech state budget, could only be used for the purposes stipulated by the law, i.e. removing the damage caused by the more

than 40-year-long state ownership, deleveraging the entities to be privatised, capital strengthening, transformation and stabilisation of the bank sector, strengthening the pension and healthcare insurance schemes, etc. A proportion of FNM ČR's funds were assigned to the state budget in the form of grants. In addition, the expenditures associated with the temporary administration of the privatised property had to be covered. The FNM ČR had no say in determining the manner in which state-owned property would be privatised. Its main task was to implement privatisation projects based on privatisation decisions issued by the Ministry of Finance of the Czech Republic or resolutions of the Czech Government.[4]

Large-scale privatisation was carried out through a combination of several methods. Small enterprises were auctioned off or sold under tenders[5], while medium-sized enterprises were sold under tenders or direct sales. Large-sized companies were transformed into joint-stock companies, with their shares either sold under voucher privatisation, sold for cash, or transferred to municipalities at no charge.[6] It was in no way exceptional for several sales methods to be combined (Kočenda & Lízal, 2003).

The undoubtedly most dominant methods of the overall privatisation process were **voucher privatisation** (Katolay & Hunya, 2000) and **direct sales** (Ježek, 2006). These two privatisation patterns accounted for property rights transfer worth up to 570 billion CZK (equivalent to 19.3 billion USD in 1991), i.e. accounting for 73.1% overall. Therefore, the next chapters and the following analysis will deal, in detail, with these two methods only.

(a) Voucher Privatisation

Voucher privatisation was a privatisation method, under which citizens were provided with an opportunity to purchase voucher books, at a low cost, with a certain number of vouchers (coupons), which they could redeem for interests in any state-owned companies released for the voucher privatisation by public authorities.

The main goal of voucher privatisation was not to assure a sufficient capital infusion, but rather to provide an equitable distribution of property among the population (Ježek, 2006). The voucher privatisation became a dominant method of the large-scale privatisation process and, at once, a guarantee that the essential requirement stipulated for the privatisation process, i.e. its speed and mass character, would be met in order for a gigantic amount of state property to be transformed within an acceptable period of time.

The general concept of mass privatisation was not a Czechoslovak invention. It was first conceived in Poland in 1988 (Earle et al., 1994). The idea of distributing vouchers and providing equal population participation was developed by the market-oriented advisors of the Solidarity Movement in Gdansk, Poland, in mid-1988. The intention was to use vouchers as replacement of the insufficient capital supply. As a specific type of

[4]The Fund was dissolved by Parliament Resolution in 2005, through Act No. 178/2005 Coll., concerning the dissolution of the National Property Fund of the Czech Republic and concerning the competence of the Ministry of Finance under the privatisation of property owned by the Czech Republic. At the end of 2005, the Ministry of Finance assumed the role of the Fund.

[5]Public tender procedure, invitation.

[6]As an example, the property transferred to municipalities mostly involved unused land situated within their territories.

investment currency, the vouchers were distributed among the population and traded for stocks of the privatised companies. The voucher privatisation method was later creatively embraced by a number of European transition countries including former Czechoslovakia.

The full set of fundamental processes and financial parameters of voucher privatisation was listed in the Federal Czechoslovak Large-Scale Privatisation Act. On 5 September 1991, Government Decree No 383/1991 Coll. on the issue and use of investment vouchers was issued. Prior to registering state-owned enterprises in the privatisation process, it was necessary to convert their legal form to that of joint-stock companies as per Act No. 4/1990 Coll. According to the initial plans, 3% of the shares were subsequently transferred to the so-called Restitution Fund, while the remaining 97% were privatised using the voucher method.

Two main variables were established: a specific preset quantity of assets to be privatised in one go, and a defined time period of the process, from its commencement to its ultimate end,. The process eventually had to be split into two privatisation waves. In June 1991, the Government published a list of state-owned enterprises (state-owned joint-stock companies), identifying those that would be privatised during the first and second wave of the privatisation, those that would not be privatised within the next five years and those earmarked for liquidation. Later, a list of enterprises earmarked for voucher privatisation was compiled (Švejnar, 1997).

The demand side of the voucher privatisation consisted of so-called voucher books distributed to the population starting from late 1991 (first wave), and autumn 1993 (second wave). Every Czechoslovak (and Czech, for the second wave) citizen aged 18 and more, with a permanent residence in the country, could apply for one voucher book at a nominal price of 1000 CZK (33.9 USD). Each voucher with a nominal value of 1,000 points was divided into ten sections, 100 points a section. The citizens could then redeem those points for the shares offered under either wave. Each participant in the voucher privatisation could assign the total of their points, or any proportion thereof, to one or more investment funds. During the rest of the privatisation wave, these funds had rights similar to those of participants of the voucher privatisation (Švejnar, 1997).

The first wave of the voucher privatisation was launched in November 1991 and was officially closed on 31 January 1993. During this period, interests in the total of 1491 joint-stock companies were privatised (including 988 in the Czech Republic and 503 in Slovakia) at an overall value of 299.39 billion CZK (10.2 billion USD), of which 212.49 billion CZK in the Czech Republic. The selected privatisation method turned out to be effective in terms of technical implementation. During very few rounds, which took seven months overall, 93.8% of the shares registered under the first wave were sold (Žídek, 2006).

Started in 1991, the voucher privatisation was designed to fit the conditions of a single country – the Czechoslovak Federal Republic (ČSFR) and its first wave was indeed launched in a single country. Yet, it was concluded on 31 January 1993, i.e. a month after the establishment of two independent countries (the Czech Republic and the Slovak Republic). In total, 8 541 000 citizens registered for the first privatisation wave, of which 5 948 500 in the Czech Republic and 2 592 500 in Slovakia (Ježek, 2006).

The second wave was launched following the split of the Federation[7] and only applied to the newly established Czech Republic. The second wave was regarded as a natural completion of the Government Transformation Programme and there were no opponents to the process, not even among the opposition (Tříska, 2002). During the second wave (Table 1), concerns in 861 enterprises were privatised at an overall value of 155 billion CZK (5.3 billion USD according to the exchange rate in 1993). Of the overall number of shares offered, 96.3% were sold.

Table 1. Two waves of voucher privatisation in the Czech Republic

Criteria	Wave 1	Wave 2
Number of state enterprises entering the voucher scheme	988	861
Book value of shares allocated for vouchers in particular wave (in billion CZK)	212.5	155.0
Participating citizens (in millions)	5.98	6.16
Average accounting value of assets per participating citizen (in CZK)	35 535	21 160
% of voucher points with IPFs	72.2	63.5

Source: Kočenda & Valachy (2001, p. 8).

In total, 6 161 000 citizens registered for the second wave. Major interest was also recorded on the part of investment companies, with 349 of them registering for the second wave, most of which had already participated in the first wave. During the second wave, once again, most voucher holders preferred the indirect method of investment, entrusting their points to investment funds. The percentage of these investors, dropped compared to the first wage, to 64% compared to 72%, which was the figure during the first wave (Ježek, 2006).

Not only did the voucher privatisation place no requirements on the state budget, it even brought merits in this area. The net receipts booked by the FNM amounted to CZK 8.6 billion (USD 0.3 billion). Most income was generated by sales of voucher tokens and voucher books, while the main expenditures concerned purchases of IT, operation of the entire system, production of voucher books and tokens and information services, etc. (Ježek, 2006).

Investment Privatisation Funds (IPF) had an active role to play in the application of the voucher privatisation method. As a result of their massive participation in the privatisation, IPFs belong to major shareholders of Czech enterprises privatised via the voucher method. The funds amounted to the most popular investment pattern for the population redeeming their vouchers under the voucher privatisation scheme. The first privatisation wave was initially off to a slow start, but thanks to an advertising campaign several IPFs soon registered a multiple-fold growth in demand. IPFs promised a 1000% return on investment within one year. They drew upon the artificially set amount of 1000 CZK (33.9 USD) per voucher book and the estimated book value of the shares that could be redeemed per book on average, i.e. 35 000 CZK (1187 USD). As a result, a promise of

[7]The split of the ČSFR was addressed by Constitutional means, namely Constitutional Act No. 542/1992 Coll., concerning the expiry of the ČSFR, adopted by the Federal Assembly on 25 November 1992, with a consensus reached on all disputes regarding the state boundaries and division of the federal property.

10 000 CZK (339 USD) per voucher book under the advertising campaign amounted to little risk on the part of IPFs (Kočenda & Lízal, 2003).

During both voucher privatisation waves, Investment Privatisation Funds and holding funds accumulated approx. 60% of the overall property offered. However, of the overall property accumulated by the funds at its market value in 1996, property worth 49.6 billion CZK (1.7 billion USD) was misappropriated – the figure represents a qualified estimate of the Head of Security Commission's Collective Investment Department. The largest part, amounting to 40 billion CZK (1.4 billion USD), was misappropriated from the funds in the context of their transformation into holdings, while the rest, amounting to 9.6 billion CZK (0.3 billion USD), directly disappeared from the non-transformed funds (Ježek, 2006).

(b) Direct Sales

Both privatisation waves combined capital and non-capital privatisation methods. Voucher privatisation was the most widespread free-of-charge non-capital method. Capital privatisation methods included public auctions, direct property sales and direct sales of shares and public tenders. The comparison of specific sales techniques imply that the largest capital inflows registered by the FNM resulted from direct sales and amounted to 52 billion CZK (1.8 billion USD), public tenders to 21 billion CZK (0.7 billion USD) and public auctions to 7 billion CZK (billion USD 0.2) (Ježek, 2006).

For direct sales of property to predetermined acquirers, the FNM would initially draft and enter into a purchase agreement; for sales of property under a public auction or public tender, the FNM was in charge of the preparation and execution of the auctions and tenders. During privatisation by investing state-owned property in joint-stock companies and subsequently selling the resultant shares, the FNM initially acted as the founder of the companies, then as the main shareholder and eventually as the seller or transferor of the shares (Ježek, 2006).

But the intention of Czech entrepreneurs and foreign proponents of privatisation projects under the large-privatisation process, was to win an opportunity to acquire property rights, not just shares. As long as shares were only available, then the intention was to get hold of the controlling interest. Therefore, direct sales became the second most important privatisation method (Ježek, 2006).

It was at this stage of the privatisation process that the candidates eligible to secure ample bank financing for their property acquisitions, entered the process. In many cases, the investors were the management of existing companies or groups of people in possession of sound knowledge of the companies concerned and capable of paying the required amounts. It needs to be noted, however, that during the 1990s, sufficient capital funds had not yet been accumulated in the hands of specific Czech investors, who, in an effort to acquire the resources required to invest in such companies under the direct-sale scheme, used methods that may be regarded as largely unconventional from the contemporary point of view. The mix of internal and external resources, including those of the company, was sometimes a way to make the privatisation process possible. At the same time, the general expectation was that the costs of privatisation for the companies assigned under the control of their respective management would be borne by the companies themselves. In many cases, this was the only way to allow for the transaction to be completed (Ježek, 2006).

The government actors at that time were clearly aware that such procedures were being pursued, yet during the transition, they could hardly be regarded as non-standard. They must be evaluated within the context of the era, among other things, with regard to public opinion (and, by inference, the action of the political elites), which, as an example, did not always favour sales to foreign investors. In addition, only Czech investors capitalising on both their knowledge of the field and political lobbying, were willing to invest in very specific enterprises or companies dealing in strategic commodities, e.g. in the energy sector. The pressure to speed up the sales of property and to accelerate the initial stages of the restructuring process for most enterprises was a priority task for most governments during the 1990s, since the governments themselves possessed neither the funds to restructure the companies, nor the required human resources for their managements (Ježek, 2006).

The sales of companies were further accelerated by the threat of a growing corruption rate recorded in administration of state-owned companies. Foreign groups and medium-sized international investors gradually grew to become dominant investors under the direct sales scheme. The share of foreign operators in the receipts of the FNM generated by the sales of shares finally accounted for over three quarters, 78.4% (Ježek, 2006).

The privatisation resulted in a massive inflow of foreign capital (Uhlenbruck & De Castro, 2000), especially during its early stages. Since its establishment in 1991, the FNM assigned to foreign investors over 60 large-sized companies, with Škoda Mladá Boleslav as the largest of them (Škoda Auto a.s.). At that time, the Czech Government was confronted with the indignation of a major part of the public, which was opposed to what was referred to as the "selling out" of national property to foreigners (Ježek, 2006). During the first years, the influx of foreign capital to the Czech Republic did not have to be induced by any investment incentives, or even any underlying conceptual considerations of the Federal Ministry of Finance on the method of integrating foreign investors into the economy. Therefore, even this part of the project, similarly to the direct sales to domestic investors, was non-standard to a certain extent, yet indispensable from the viewpoint of speedy privatisation. The manner, in which these transactions were negotiated and structured was coordinated by a team of advisors and investment bankers financed by the American governmental US AID. The objective was to guarantee from the Czech Republic investors with long-term plans, building an export-oriented companies and sustaining jobs.

Table 2. Property under large-scale privatisation in the Czech Republic in the years 1991-2005

Type of privatisation	Book value CZK/USD	%
Voucher privatisation	333 billion/11.3 billion	42.7
Direct sales	237 billion/8.0 billion	30.4
Free-of-charge transfer to municipalities and communes	121 billion/4.1 billion	15.5
Free-of-charge transfer to reserve funds of joint-stock companies	64 billion/2.2 billion	8.2
Free-of-charge restitution transfers	25 billion/0.84 billion	3.2
Total	780 billion/26.4 billion	100

Source: own elaboration based on National Property Fund (2005).

For the purposes of the present analysis, we have considered 2005 as the official final year of the privatisation process (among other things, the year of dissolution of the FNM ČR). The property registered under the large-scale privatisation was appraised at its book value and gradually privatised using various methods as described in the preceding chapters. Proportional representation of the methods is shown in Table 2.

Analysis of the Results of Privatisation in the Czech Republic on the Sample of Selected Czech Privatised Companies

Due to a lack of analyses devoted specifically to methods of privatisation and their benefits, we decided to explore the effects and parameters of a group of selected enterprises privatised under the large-scale privatisation. The enterprises were picked out of a list of units privatised by the FNM ČR. Out of approximately 3500 large-scale privatized units, we picked 60 enterprises from the industrial sector. The main criterion for inclusion and selection of the enterprises to be examined was staff count exceeding 250 at the time of the privatisation.

60 selected major enterprises privatised between 1991 and 2005 were divided into three groups under consideration, depending on the privatisation method. The groups were created with an account taken of the importance of the specific methods, namely as follows:

- Group (1) consisted of enterprises privatised via direct sales to foreign investors (n=20);
- Group (2) consisted of enterprises privatised under voucher privatisation (n=20);
- Group (3) consisted of enterprises privatised via direct sales to domestic investors (n=20).

These 60 privatised enterprises, which, at the onset of the process, were expected to "start up the economy", were assessed for the following factors:

a) the overall public income tax revenue for all the units within the group, starting from the end of privatisation and during the entire existence of the privatised business units or their successors;
b) average annual number of direct jobs created by the group of enterprises under consideration, namely starting from the end of privatisation and during the entire existence of the privatised business units or their successors;
c) value added per employee generated on an annual basis.

The principal starting point for the actual comparative analysis, therefore, did not consist in comparing the expenditures of the large-scale privatisation to the receipts from the sales of privatised property. Since, after deduction of the expenditures, the FNM ČR reported a final balance, as at 31 December 2005, in respect of the funds under the large-scale privatisation process of 59 480 224 578 CZK (2483 billion USD). The positive balance of total receipts and expenditures from the start of existence of the FNM ČR reported in the 2005 FNM Annual Report (Table 3) means that the expenditures associated with large-scale privatisation were fully covered by the receipts from the property sold. In this, we draw upon the consideration that the expenditures reported by the FNM from the onset of the privatisation process in 1991 until 2005 represent overall expenditures on the direct privatisation of all units privatised during the above period,

while the receipts of the FNM from the onset of the privatisation process in 1991 until the end of 2005 constitute the overall receipts form the sales of all units privatised during the aforementioned period.

Table 3. Overview of cash receipts and expenditures from the onset of existence of the FNM ČR (1991-2005)

Types of receipts and expenditures	Value in CZK (in USD)
Total receipts, including:	633 376 561 093 (26.44 billion)
Receipts from sales of property and shares	533 721 750 100 (22 billion)
Receipts from loans	36 410 267 000 (1.52 billion)
Public receipts	63 244 543 993 (2.64 billion)
Total receipts	633 376 561 093 (26.44 billion)
Total expenditures	573 896 336 515 (23.96 billion)
Receipts/Expenditures Balance	59 480 224 578 (2.483 billion)

Source: own elaboration based on National Property Fund (2005).

Figure 2 shows overall income tax revenues for all enterprises under consideration per specific groups, starting from the end of privatisation and during the entire existence of the privatised enterprises. According to the studies completed, the group of enterprises privatised under direct sales to foreign investors, i.e. Group 1 (hereinafter referred to as Group 1) could be expected to report the best results in absolute figures, which their comparison to the results reported by Group 2 – enterprises privatised under voucher privatisation (hereinafter referred to as Group 2) and Group 3 eventually confirmed. Group 3 – enterprises privatised by direct sales to domestic investors (hereinafter referred to as Group 3) reported a lower share in the tax revenues. Group 1 and Group 3 contributed 40.4 billion CZK (2.08 billion USD) and 9.5 billion CZK (0.49 billion USD), respectively, to public tax revenues.

Surprisingly, the enterprises privatised under voucher privatisation are evaluated negatively in most available studies, reporting poor results even when compared to stated-owned companies, particularly in the area of efficiency and profitability. From the viewpoint of the present analysis, however, these figures hardly represent factors as important as the overall volume of tax revenues and creation of jobs. Group 2 contributed 18.4 billion CZK (0.95 billion USD) to the public tax revenues (Figure 2).

Figures 3 shows comparison of average annual number of jobs created by the privatized companies. Enterprises of Group 2 had annually, on average, 21 778 employees, from the onset of the privatisation process until now, which puts the companies into the role of major employers in the Czech Republic. However, companies from Group 1 are reported clearly the highest annual numbers of direct jobs, namely 40 367, almost twice more compared to those in Group 2. Companies classified to Group 3 created on 14 454 jobs annually on average.

The Added Value per employee is also the key indicator, both in terms of efficiency and in terms of comparability of all enterprises, regardless of their size. In this area, once again, the group of companies sold directly to foreign investors reports the highest

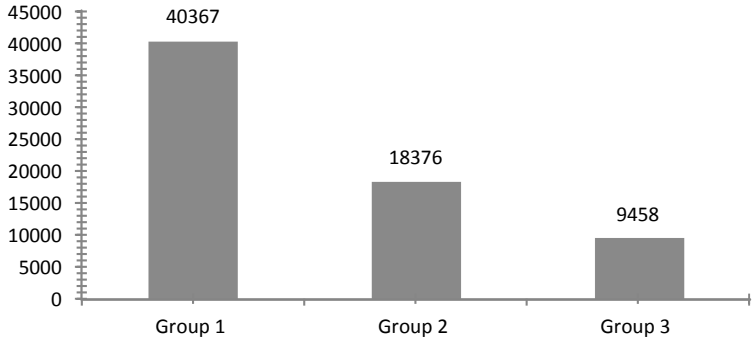

Figure 2. Tax revenues during the entire existence of the companies (starting from the end of privatisation) in millions of CZK (CZK 45 billion = USD 2.3 billion)
Source: own elaboration based on Specific Research of University of Finance and Administration (2013).

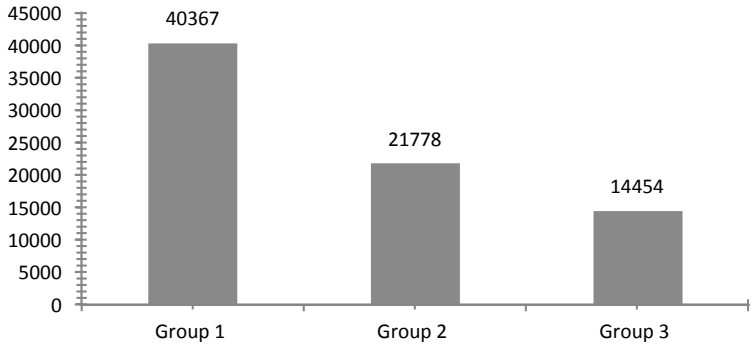

Figure 3. Comparison of average annual number of jobs created by the investigated companies (starting from the end of privatisation during the entire existence of the companies)
Source: own elaboration based on Specific Research of University of Finance and Administration (2013).

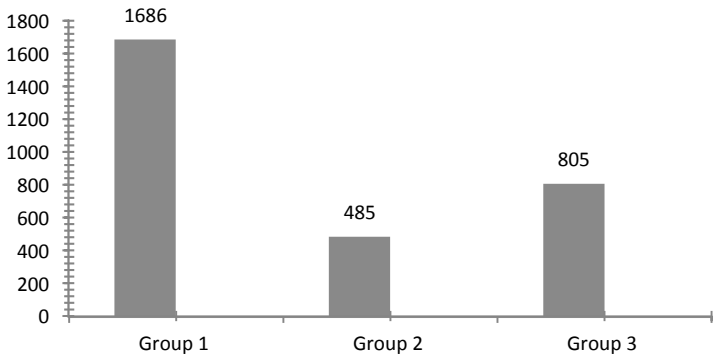

Figure 4. Comparison of Added Value per employee (starting from the end of privatisation during the entire existence of the companies) in thousands of CZK (CZK 1,800,000 = USD 92,500)
Source: own elaboration based on Specific Research of University of Finance and Administration (2013).

values per employee, namely 1 686 000 CZK (86 700 USD). On the contrary, the companies privatised under voucher privatisation report the lower figures, namely 485 000 CZK (24 900 USD). In contrast, the group of enterprises sold directly to domestic investors reports very intriguing Value Added. The comparison of the three groups is given in Figure 4.

CONCLUSIONS

The Czechoslovak and later on Czech privatisation was a unique, historically unrepeatable operation. Undoubtedly, the approaches employed under the whole process were unconventional regarding the tackling of the need to privatise most of state property within the shortest possible amount of time, and, what is even more important, without accumulated capital among the population. The crucial criterion in the privatisation was the time factor, and therefore a scenario which favours a speedy transfer to specific owners was opted for. The overall property transfer strategy had speed of the process as its fundamental criterion and involved selecting such owners that would have, if not demonstrable, then at least the minimum capacity required to complete the subsequent restructuring process and to set up such procedures that would secure continued operation of the enterprises.

The obtained results (values for three selected economic indicators) confirm that the best results in all of the three areas under consideration were reported by the companies sold directly to foreign investors (Group 1). Compared to the companies sold directly (Group 1 & Group 3), the enterprises that were submitted to the voucher privatisation (Group 2) were capable of creating more jobs, while the companies sold directly to domestic owners (Group 3) exhibited a higher value added per employee compared to those privatised under the voucher privatisation, i.e. they were managed more efficiently, which created the required preconditions to their sound lifecycles and further operation.

The expenditures associated with the large-scale privatisation were covered by the receipts from the sales of property rights. Based on the conducted analyses, it may be inferred that despite the fact that the best results have been reported by the companies sold directly to foreign investors, voucher privatisation and direct sales to specific domestic investors can also be regarded as acceptable overall. The general and unique climate of the 1990s, which was characterised by high expectations of the public as regards the fastest possible transfer of state-owned property to private investors made it possible for a large segment of the population to acquire property rights at relative ease. In its very nature, the voucher privatisation literally encouraged both the citizens and investment funds to take part in what essentially amounted to handing out of public property. Considering that neither the population nor investment funds or managers of the companies to be privatised did or could possess substantial capital, the process was generally received as acceptable and therefore cannot be compared to the sales of property in countries with advanced economies.

The results of empirical analysis presented in the article have demonstrated that a quick sale to foreign or domestic owners has been the most beneficial for Czech economic environment as far as the long-term effectiveness of enterprises is concerned,

but the sale via vouchers to a large number of investors was also a benefit for the stability of the economic environment, in view of tax revenues in later years.

Taking into consideration the above discussed results, it is highly recommend for further research to be pursued, especially comparing other economic variables, One suggestion is export volumes and values, as they relate to export turnover and to creation of value added of exported products. A demographic study focused on determining the effects of privatised companies on the sociological environment in regions of the Czech Republic based on individual privatisation methods is another possible research avenue. More comparative studies focused on comparison of privatised methods and companies in Slovakia, Poland and Hungary with those in the Czech Republic are still needed. Furthermore, scientific studies that will evaluate the proportion of survivors and bankrupt privatized enterprises will bring us closer to evaluating the Czech privatisation on numerous levels.

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Risk Factors in Derivatives Markets

Raimonda Martinkutė-Kaulienė

ABSTRACT

Objective: The objective of the article is to analyse and present the classification of risks actual to derivative securities.

Research Design & Methods: The analysis is based on classical and modern literature findings and analysis of newest statistical data.

Findings: Despite their purpose to hedge from risks, derivative contracts are risky as every financial activity in the market. The analysis led to the conclusion, that the main risks typical for derivatives contracts and their traders are market risk, liquidity risk, credit and counterparty risk, legal risk and transactions risk. Pricing risk and systemic risk is also quite important. The analysis showed that market risk is the most important kind of risk that in many situations influences the level of remaining risks. Market risk occurs when the investor misjudges the market direction, counterparty risk occurs when misjudgement refers to the business partner. Some risks exist despite the employment of derivatives.

Implications & Recommendations: It was suggested that risk of derivative contracts can be related with the following factors: main characteristics of contracts; trading conditions; position assumed in the contract; complexity of the contract.

Contribution & Value Added: The originality of this work lies in studying various aspects of risk factors influencing the risks of derivative securities and suggested classification of these factors

Article type:	research paper
Keywords:	risk; factor; derivative security; option contract; forward; future contract; swap
JEL codes:	G10, G23

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INTRODUCTION

Over the last years market conditions and environment for business have dramatically changed. Modern information technologies allowed market participants to create complex individual financial transactions and various portfolios. Because of the huge amounts of events, news and financial information, the behaviour of financial markets participants becomes also more complex.

As financial markets become uncertain and risky, measuring and managing the risks of participants in the financial markets became the main focus of modern finance theory. Financial engineers started to create financial instruments to manage the increasing risks. Changing conditions in the financial markets such as fluctuating exchange rates, interest rates, stock prices, commodity prices were ideal circumstances for the development of derivatives markets. An infinite number of derivative products were created. Their values depend on the value of one or more underlying assets or indices of asset values. Simple futures contracts in foreign exchange, Eurodollars, and bonds evolved into complex swaps and swaptions, strips and straps, caps and floors and other investment strategies whose purpose is to manage financial risk. As many authors state, the introduction of derivatives started a revolution in finance and changed the face of finance by creating new ways to understand, measure and manage risk (Scalcone, 2011). The main reason of the success of derivatives was their ability to relocate the risk. Also they left the possibility to get speculative and arbitrage profit. At the moment the size of derivatives markets is enormous as is their role in both risk management and as a source of risk (The Global derivatives market, 2014). Market participants together with new possibilities to invest and to hedge risks, are exposed to new kinds of risk.

As the statistics shows, some derivatives are highly complex but others are quite simple. The main condition of the successful use of the derivative contracts is understanding, evaluation and management of their riskiness. It is important to compare the necessities and possible dangers of derivatives in order to choose the proper derivative and to manage its risk.

The subject of the research is risk factors affecting derivatives. The purpose of the article is to analyse and present the classification of risks actual to derivative securities. In order to achieve the purpose of the article, some tasks were fulfilled: theoretical analysis of derivatives was made, changes in the derivative markets were evaluated, benefits and risks of derivatives were distinguished and analysed, conclusions and suggestions were made. Analytical-systemic analysis of scientific literature, comparative analysis and graphical modelling were used for the research.

LITERATURE REVIEW

Derivatives are substantially different from standard securities. Various authors describe a derivative security quite similarly (Hull, 2000; Benhamou, 2007; Culp, 2004). The Oxford dictionary defines a derivative as something derived or obtained from another, coming from a source; not original (Chisholm, 2004). In the field of financial economics, a derivative security is generally referred to a financial contract whose value is derived from the value of an underlying asset.

A derivative is a contract between a buyer and a seller entered today into a transaction to be fulfilled at a future point in time. The value of this transaction depends on the value of more basic variables such as stock prices, commodity prices, index levels, interest rates, or/and exchange rates (Rangarajan, 2012). Thus derivatives are financial instruments which payoffs derive from other, primary underlying financial variables (Benhamou, 2007). There are a wide range of financial assets that have been used as underlying, including equities or equity index, fixed-income instruments, foreign currencies, commodities, credit events and even other derivative securities. Depending on the types of underlying, the values of the derivative contracts can be derived from the corresponding equity prices, interest rates, exchange rates, commodity prices and the probabilities of certain credit events (Culp, 2004).

The main categories of derivatives are forward and futures contracts, options and swaps. They are financial instruments that are mainly used to protect against and manage risks, and very often also serve as arbitrage or investment purposes, providing various advantages compared to securities (Benhamou, 2007).

Theoretical description of separate derivatives is widely examined and can be found in works of many authors (Hull, 2000; Benhamou, 2007; Culp, 2004; Sill, 1997; Kolb *et al*., 2010), but in order to analyse benefits and risks of derivatives it is worth to look through them once again.

A forward contract is an agreement made directly between two parties. One party agrees to buy a commodity or a financial asset on a date in the future at a fixed price. The other party agrees to deliver that commodity or asset at the predetermined price (Hull, 2000). Both sides are obliged to fulfil the conditions of the contract, regardless the value of the commodity or asset at the moment of delivery. Because forwards are an agreement between two parties, the contract terms and conditions can be customized. This convenience can present a source of risk because of the default of one party obligations.

A futures contract is similar to a forward contract. One party in the contract agrees to deliver a commodity or asset on a future date at a fixed price and the other party agrees to take the delivery. The main difference is that the deal is made through an organized and regulated exchange, not directly between two parties. So future contracts are somewhat protected against default risk.

Swaps are agreements between two parties to exchange one series of future cash flows for another. Underlying assets on swaps can be different. An example of swap could be borrowing money from the bank at a variable rate and entering into the swap contract to fix costs of funding (Kolb *et al.,* 2010). Swaps are over-the-counter contracts. Swaps are used to manage or hedge the risks associated with volatile interest rates, currency exchange rates, commodity prices and share prices.

The last group of derivatives is option contracts. A call option gives the holder the right to buy an underlying asset by a certain date at a fixed price. A put option conveys the right to sell an underlying asset by a certain date at a fixed price. The purchaser of an option has to pay an initial sum of money (referred to as the premium to the seller or as writer of the contract), because the option provides flexibility and the right to choose. Options can be negotiated between two parties in the OTC market or can be freely traded on organized exchanges, for example, EUREX Traded options are generally

standardized products, though some exchanges have introduced contracts with some features that can be customized (Chisholm, 2004).

Number of types of OTC derivatives is limited only by the creativity of their users. Over-the counter derivatives can be customized according to the need of both parties involved.

According to Kotze (2011) and other authors (Krawietz, 1998; Munter & Rotcliffe, 2001) two types of traders exist in derivative markets: speculators and hedgers. Hedges and speculators have different needs in the market, but derivatives are attractive financial products for both of them. For speculators derivatives are a way to expose their portfolio to some market risk with a view to outperform the market. Derivatives are an alternative to investing directly in assets without buying and holding the asset itself (The Global Derivatives Market, 2014). They also allow investments into underlying and risks that cannot be purchased directly (credit derivatives or weather derivatives). Investors can take positions in the market if they expect the underlying asset to fall in value (Huang *et al.,* 2001). Hedgers, on the other hand, allow investors to reduce market risk to which they are already exposed to (Kotze, 2011).

Derivatives make future risks and object of trade. For example, enterprises use derivatives to protect themselves against changes in interest rates, raw material prices, exchange rates and so on. For example, if a firm regularly needs a particular commodity, such as petroleum, then it can guard against a rise in the price of oil by purchasing a call option. If the price of oil remains low, then the option is not exercised and the oil is bought at the current price in the market, while if the price rises above the strike, then the option is exercised to buy oil at a below-market value (Pineda & Conejo, 2012). Derivatives serve as insurance against unwanted price movements and reduce the volatility of companies' cash flows, which in turn results in more reliable forecasting, lower capital requirements, and higher capital productivity (The Global Derivatives Market, 2014; Cusatis & Thomas, 2005).

As Scalcione states (2011), derivatives allow for the most efficient and cost effective risk fractioning. For the first time derivatives have allowed risk taking on a virtually unlimited spectrum of products and services, on all measurable and identifiable risks that may exist in modern finance. The commoditisation of risk makes the sale of risk possible. Risk buyers effectively take on financial exposure to various types of risk while hedgers unload unwanted exposures. Such convenience helps to diversify risks and to reach greater economic efficiency and more efficient risk taking. Because of the use of derivatives, diversification of risk holding is less costly, more effective, and more available (Scalcione, 2011). Derivatives represent rapid, manageable tools to acquire and eliminate exposure to desired financial variables. In addition, derivatives allow domestic investors to acquire exposure to foreign markets without the necessity of dealing with foreign laws, foreign investments, and currency exchange (Scalcione, 2011).

It can be concluded that derivatives offer organisations the opportunity to divide financial risk into smaller parts and to trade those risks as commodity. They can be used to protect against specific exposure of a business or can be used by market participants to take on risk and speculate on the movement in the value of underlying assets without owning these assets. Derivatives can help organisations meet their specific risk

management objectives, so it could be stated, that derivatives carry economic advantages for many business activities.

RESULTS AND DISCUSSION

If to look through the history, modern financial derivatives have been available for little more than a century, but the fundamental elements of derivative contracts have been available for millennia. Some parts of derivatives contracts have been already found in Babylon (1800 BC), in ancient Japan futures on rice were typically traded in 1740 (Scalcione, 2011). Elements of derivatives have also been found in ancient textbooks in Greece. The description of the first speculative strategy using elements of derivatives was introduced in the work of Aristotle. Origins of derivative contracts were analysed by many authors (Hung et al., 2011; Carruthers, 2013; Miffre *&* Brooks, 2013). All of them emphasise that derivative securities from the beginning were originally used to hedge commodities products such as agricultural production and metals.

The modern history of derivatives began in the middle of 1800s in the U.S. with the creation of the world's biggest commodity market in Chicago and the introduction of the first futures contracts traded on commodities. Since then, the diffusion of derivatives has been unstoppable and the derivatives market today has reached a size that is fascinating and terrifying at the same time (Scalcione, 2011).

According to statistics gathered by FIA from 84 exchanges worldwide, 21.64 billion futures and options contracts were traded in 2013, an increase of 2.1% from the previous year, but still well below the number of contracts traded in 2012 and 2011 (FIA, 2013).

Futures trading accounted for 12.22 billion contracts, just over 56% of total industry volume. Trading of options accounted for the other 44%. By category, contracts based on equity indexes and individual stocks accounted for 11.77 billion, 54% of total volume. Interest rate futures and options accounted for 3.33 billion, 15% of total volume (Figure 1).

Figure 2 presents the key markets for derivatives traded on exchanges which are North America and Asia Pacific, then European markets follow. According data obtained from 84 exchanges worldwide, the biggest trading volumes are attributable to CME Group of exchanges and to Eurex.

Globalisation of financial markets enables derivatives trade is almost limitless. Main participants in the derivative markets are banks, investment firms, insurance companies and corporates, but individual investors can trade in these markets as well. There are two competing segments in the derivatives market: the off-exchange or over-the-counter (OTC) segment and the on-exchange segment (Hull, 2000; Benhamou, 2007)). Over-the counter derivatives are traded privately mostly among banks and their large corporate and institutional customers. Over-the counter market is much bigger than exchange traded market, but OTC market lacks some protective elements, such as margin deposits, price limits, daily value adjustments and guaranties of clearing house. Federal authorities can’t control and regulate all OTC market contracts (Benhamou, 2007).

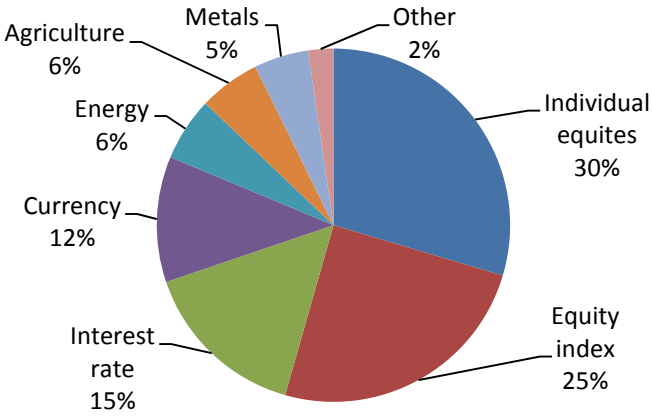

Figure 1. Global futures and options volume by category in 2012
source: FIA Annual Volume Survey 2013.

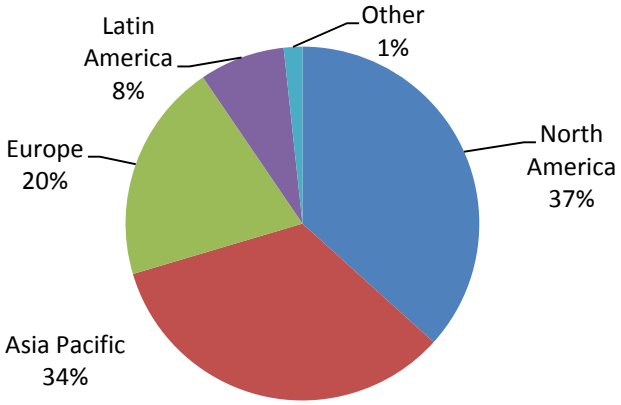

Figure 2. Global futures and options volume by region in 2012
source: FIA Annual Volume Survey 2013.

According to the BIC the over-the-counter derivatives market continued to expand in the second half of 2013. The net amount of outstanding OTC derivatives contracts, which determines contractual payments and is an indicator of activity in OTC derivatives markets, totalled 710 trillion USD at end-December 2013 (BIC, 2014). This compares with 693 trillion USD at end-June 2013 and 633 trillion USD at end-2012. Adjusted for exchange rate movements, notional amounts at end-2013 were about 1% higher than at end-June 2013 and 13% higher than at end of 2012. But the market value of derivative contracts declined, based on market prices at end of December 2013. The gross market value of all contracts amounted to 19 trillion USD at end of December 2013. This is down from 20 trillion USD at end of June 2013 and 25 trillion USD at end of 2012 (BIC, 2013).

The decrease during recent half-year in gross market value of derivatives was mainly due to the decrease in interest rate swaps and options

In the Quarterly review in September 2014 BIC stated that amounts outstanding in futures and options traded on organized markets increased from 24 076.8 billion USD to 29 095.6 billion USD in futures markets and accordingly from 30 037.6 billion USD to 44 302.9 billion USD in options markets. The conclusion can be done that both OTC and exchange traded markets of derivatives are growing.

A few years have passed after recession in the United States of America, but the global economy still feels some consequences and tries to solve the problems. Some authors claim (Kolb et al., 2010) that derivatives have contributed to financial disasters from the bankruptcy of Lehman Brothers in 2008 to J.P. Morgan's trading losses in London in 2012 (Hammoudeha & McAleer, 2013). The major source of problems was the private nature of derivatives contracting with limited public information and the difficulties of understanding the nature and level of taken risks.

According to Marthinsen (2010) problems with the use of derivatives have started in 1993 (Table 1).

Table 1. Major Derivative Scandals in Financial Markets

Year	Company	Loss (Billions)	Financial instruments
1993	Metallgesellschaft Refining and Marketing (MGRM)	1.3 USD	U.S. oil and gas futures contracts
1995	Barings Bank (Barings)	1.2 USD	Japanese equity and government bond futures contracts
1998	Long-Term Capital Management (LTCM)	4.5 USD	Leveraged global spread trades
2006	Amaranth Advisors (Amaranth)	6.4 USD	U.S. natural gas futures contracts
2008	Societe Generale (SocGen)	7.2 USD	European index futures

Source: Marthinsen (2010).

The main reasons for problems associated with derivatives were the highly leveraged, speculative positions (Marthinsen, 2010). In some situations risks from derivatives originate with the customer. Financial derivatives allow the institution to break up risks and distribute them around the financial system using secondary markets while creating various kinds of contracts. Thus, many risks associated with derivatives are actually created by the dealers' customers or by their customers' customers (Hentshel et al., 2009).

Risks are similar to those faced in traditional markets, such as price, interest rate, liquidity, credit risk and so on. Many of the risks are the same for derivatives on all types of underlying interests, although some special risks may apply only to derivative securities of particular types of underlying asset. New types of derivatives are especially risky because of their novelty, complexity and users' inexperience.

Some authors that studied the risk of derivative securities emphasize different kinds of risk characteristic for derivative contracts. Market and credit risks are pointed out as main ones by Gangahar (2000) and Bartram et al. (2011). Besides these two, types

of risk mentioned in other sources point to a third risk – systemic risk – as the combination of market and credit risks (Munter & Rotcliffe, 2001). Sill (1997) points out credit risk, pricing risk and liquidity risk.

According to Options Clearing Corporation (OCC) important risks include strategic, reputation, price, foreign exchange, liquidity, interest rate, credit, transaction and compliance (Hull, 2000). Reinstein & Lauder (2001) mark out market, credit, liquidity, legal and operational. Friedentag (2000) uses the following classification: market risk, credit risk, operational risk, legal risk and system risk. A similar classification is followed by Krawiec (1998). In the paper of Henstel & Smith (1995) agency risk is recognized as quite important.

The above mentioned risks are the same for other traditional lending and investment activities. Yet because over the counter derivatives are customized to meet the needs of a particular counterparty, these risks are often assembled in new and unexpected ways, sometimes leading to unforeseen losses (Krawiec, 1998). Exotic derivatives, for example such as chooser or barrier options have features that make them more difficult to understand then simple derivatives. Some derivatives may end in big losses because of small changes in the value of the underlying asset. Derivatives that are involved into other securities are quite difficult to identify, so the risk of such contracts is bigger because of the possibility of incorrect evaluation.

Market risk of derivative contract is the exposure to the possibility of financial loss resulting from any unfavourable movement in interest rates, equity or commodity prices, and currency rates. That is adverse movements in the price of a financial asset or commodity. Many financial institutions use the term market risk interchangeably with price risk. This risk arises to earnings or capital because of the changes in the value of portfolios of financial instruments (Huang et al. 2001). Estimating the market value of derivative can be difficult because of a variety of existing factors such as time until expiration, interest rates, changes of underlying asset price, dividends and other influence it. In the case of over the counter contracts the lack of centralised market ads additional difficulties (Friedentag, 2000).

Another risk in the use of derivatives regardless their type and able to cause enormous loses is liquidity risk. Liquidity risk refers to the ease with which the contract can be traded. This risk is not specific to derivative contracts, but it can play a significant role in any financial market during periods of significant changes in economics or high volatility. This risk can greatly impact the credit and market risk of a security or portfolio (Krawiec 1998). When securities become illiquid, it is more difficult to determine their market value. Firms trying to sell illiquid securities may find that the real market value of their portfolios and securities differs substantially from the calculated values (Sill, 1997). It is clear that liquidity risk of the derivative contracts is closely related with their market risk and also depends on market conditions and counterparty. Investors who plan to sell a derivative before maturity need to consider at least two major points: how easy or difficult will it be to sell it before maturity, and how much will it cost. In some cases the fees or penalties for selling may occur (Qiu *&* Yu*,* 2012).

Users of all derivative products face two types of liquidity risk: funding liquidity risk and market liquidity risk. Funding liquidity risk refers to situations in which a market participant will be unable to meet its payment obligations on the settlement date or in

the event of a margin call (Krawiec, 1998). Market liquidity risk refers to situations when a market participant may not be able to exit or offset positions quickly, and in sufficient quantities, at a reasonable price. This inability may be due to inadequate market depth, market disruption, or other reasons. Some exotic product markets lack depth because of a small number of market participants (Hull, 2000). The over the counter market is considered significantly less liquid than the exchange-traded market. The standardisation of exchange-traded contracts leads to greater liquidity. The use of clearinghouses, the anonymous nature of exchange trading, and the relatively small contract size all lead to a highly liquid exchange-traded derivatives market that is different from the OTC market (Krawiec, 1998). In the OTC markets, the decision of only a few major market makers to reduce participation in specific markets may decrease market liquidity. The liquidity of certain markets may depend on the activeness of large institutional investors. If these do not trade actively, liquidity in the market will decline (Sill, 1997). Over the counter contracts can be difficult to transfer because of their customized nature and relatively large contract size.

Credit risk occurs in all transactions traded in the market. It is a significant element in the array of risks facing the derivatives dealer and the derivatives end-user. This risk implies that one party may default on the contract. According to Friedentag (2000) credit risk is the exposure to the possibility of financial loss resulting from the other party's failure to meet its financial obligations. Credit risk arises from all activities in which success depends on counterparty, issuer, or borrower performance. Credit risk in derivatives changes throughout the duration of the contract as the variables of the underlying contract change. The credit risk character of exchange-traded and over the counter derivatives differ sharply. Credit risk is not much of a problem for derivatives traded on organised exchanges, since these exchanges are designed in such a way that their contracts are almost always honoured (Sill, 1997). Counterparty credit risk is transformed into a much lower risk of failure of the clearing organisation itself. Credit risk is a bigger problem in the over the counter market, where two parties conclude a derivative contract specific to their needs. Managing credit risk can be difficult because the credit worthiness of the other party can change rapidly and there can be only limited control over that (Arora et al., 2013).

The risk that counterparty in a derivatives contract will not satisfy its obligations under the contract, for example, by failing to supply goods in a futures contract is counterparty risk. This could cause major problems to a counterparty that would be left suddenly without a derivatives contract and no longer receiving payments under the contract. The fact that many derivatives trades are done orally with little or no accompanying documentation complicates the matter even more. Besides the OTC market is largely unregulated so exchange-traded derivatives have much lower counterparty risk, because the counterparty in each transaction is the exchange clearinghouse rather than a single OTC trader (Arora et al., 2013).

Insufficient or unfit documentation, insufficient capacity or authority of counterparty, illegality of a contract, can cause another type of risks. Legal risk presents in all financial activities, including traditional lending and trading activities, and it takes on added importance in the context of derivatives transactions because they are relatively novel and complex (Krawiec, 1998). OTC derivatives, in particular, are subject

to legal risk due to the lack of exchange standardisation of contracts and regulatory review of their terms and conditions to which exchange-traded derivatives are subjected to (Krawiec, 1998; Friedentag 2000). A major legal risk faced by participants in any derivatives market is the risk that a contract will be unenforceable because an entire class of contracts is declared illegal or unenforceable (Krawiec, 1998). Legal risk can also arise from the possibility that counterparty will be declared legally incapable of entering into a derivative contract.

Generally transaction risk is the risk to earnings or capital arising from problems with service or product delivery. This risk is a function of internal controls, information systems, employee integrity, and operating processes. Transaction risk exists in all products and services. Sill (1997), Krawiec (1998) and Friedentag (2000) named such a risk as operational risk. According to these authors operational risk is the risk of loss occurring as a result of inadequate systems and controls, human errors or management failure (Krawiec, 1998). Operational failure can increase other types of risks discussed. For example, the failure to monitor and review trading activity to ensure that counterparty credit limits or risk exposures are not exceeded can increase credit and market risk, respectively (Krawiec, 1998; Mitra, 2013).

Interconnection risk, also known as systemic risk, is the danger that difficulties experienced by any single player in the derivatives market could trigger a chain reaction that might ultimately affect the financial system. Interdependence in the market created by the large number of derivatives contracts determine that the default of one party can have far-reaching implications for the creditworthiness of its counterparties. This can lead to systemic risk. Systemic risk is clearly affected by the size of the counterparty: the larger the counterparty, the greater effect its default causes on the market as a whole.

Risk concerned with derivative securities may be classified according to a number of factors, for example, trading of securities in general, the state of the economy, the supply and demand factors in the derivative and other financial or commodities markets, the factors affecting the values of the underlying interests, market volatility, liquidity and efficiency, various factors affecting the pricing of particular derivatives, the quality or operations of the derivatives markets at any particular time, number of intermediaries in the markets, existence of rules of regulation and so on.

Factors affecting the rise of derivatives risk may be divided according to:

- specific characteristics of derivative (type of derivative),
- trading conditions in the markets (underlying asset, type of the market, time to expiration),
- complexity of the contract (covered position, naked position, plain vanilla derivative or complex one),
- position taken in the contract (holder of the contract, writer of the contract, intermediary).

Identifying the risks associated with derivatives determines the design, operation and evaluation of an effective risk management system. The basic kinds of risks associated with derivatives are not new and different from those associated with traditional financial instruments. But some specific risk can occur especially in the case of exotic derivatives.

CONCLUSIONS

It can be concluded that, despite of failures in markets associated with derivative securities, the use of this financial means is not going to stop. Global financial markets will need and will continue to develop new financial innovations necessary to improve risk management. Nowadays derivative contracts are not only the hedging tool; they are important arbitrage and speculation tools, too. Financial derivatives are important tools that can help organisations to meet their specific risk-management objectives.

Despite their purpose to hedge from risks, derivative contracts are risky as every financial activity in the market. According to the analysed literature, different types of risk exist. The analysis led to the conclusion, that main risks actual to derivatives contracts and their traders are market risk, liquidity risk, credit and counterparty risk, legal risk and transactions risk. Pricing risk and systemic risk is also quite important. The analysis showed that market risk is the most important kind of risk that has close connection with remaining risks and in many situations influences the rise of remaining risks. Market risk occurs when the investor is wrong about the market, and counterparty risk occurs when he is right about the market direction, but wrong about whom to do business with. Some types of risk are more relevant for hedgers, some of them are more relevant for speculators. Some risks are common for all types of derivatives.

Risk of derivative contracts can be related with the following factors: main characteristics of contracts, trading conditions; position taken in the contract, complexity of the contract.

Financial derivatives are important tools that can help organisations meet their specific risk-management objectives. It is important that the user understands the functions and the necessary safety precautions before using derivatives in his risk management strategy. When used wisely, financial derivatives can increase shareholder value by providing means to better control a firm's risk exposures and cash flows.

Further research on the topic will be focused on risks influencing separate derivative securities, because the research showed that it is quite difficult to analyse all derivative securities together.

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Real Time Investments with Adequate Portfolio Theory

Alina Kvietkauskienė

ABSTRACT

Objective: The objective of this paper is to identify investment decision making schemes using the adequate portfolio model. This approach can be employed to project investment in stocks, using the opportunities offered by the markets and investor intelligence.

Research Design & Methods: It was decided to use adequate portfolio theory for investment decision making, simulation of financial markets, and optimisation of utility function.

Findings: In order to achieve better performance of sustainable returns in equity portfolio, different markets, and existing companies' equities and portfolios were selected, investigating their returns based on adequate portfolio theory.

Implications & Recommendations: The main conclusion of article suggests investigating return on individual portfolio level. Real investment is a way to make sure of the soundness of applicable strategies.

Contribution & Value Added: The portfolios were formed from stocks of USA, German and French markets and quoted, using adequate investment portfolio system, in DNB Trade demo version, what allows monitoring of the long-term investment experiment.

Article type:	research paper
Keywords:	investments; adequate portfolio; Markowitz theory; utility function; uncertainty
JEL codes:	G11, G17

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INTRODUCTION

The term "investment" is derived from the Latin word *investire*, which means to put. Investment means capital injection in order for its increase in the future (Cibulskienė & Butkus, 2009).

Investing in the broad sense - is a process, which goal is to preserve and enhance the capital, monetary or other value of the funds (Rutkauskas & Martinkutė, 2007).

Nowadays, investing should not be seen as free allocation of funds for future problems solving but the accumulation, acquisition or rational use of necessary quantity. According to Eurostat data, Lithuania is the country, which reaches the lowest return on investment in European Union practically in all investment areas. It is a focused and important economic problem effecting changes in the country's development challenges. There is a need to ensure a sustainable return on investment and develop conceptual approaches for investment in global financial markets.

The main objective of the paper is to identify investment decision making schemes using adequate portfolio model. Through this approach we can project investment in stocks, using the opportunities offered by the markets and investor intelligence.

The main objective of the article requires investigating return on individual portfolio level. Real investment is a way to assure the soundness of applicable strategies. The portfolios were formed from stocks of USA, German and French markets and quoted, using adequate investment portfolio system, in DNB Trade demo version.

The methods of inquiry are based on: the analysis of primary sources data, the study of secondary data and scientific literature, simulation of financial markets, optimisation of utility function, adequate portfolio technique.

LITERATURE REVIEW

Uncertainty exists in almost all financial markets, thus the formations of investment portfolios are based on modern economic models. One of them is Markowitz model.

Markowitz model was developed in 1952. Modern portfolio theory is based on this model. Until then, although investors understood the concept of risk, there were no measurements for risk. The scientists first suggested the maturity of effectiveness; in order to analyse a set of efficient portfolios, it is necessary to calculate the portfolio expected return and standard deviation of financial instruments. Markowitz quantified how diversification of the portfolio can reduce portfolio risk. The model is based on the expected return of stocks and risk (Valentinavičius, 2010).

Markowitz's theory is based on several assumptions:

- investors look at every investment opportunity as to probability distribution for the expected return on investment for a given period;
- investors seek to maximise the expected benefits for the investment period, and their utility curves show decreasing marginal profitability;
- investors measure portfolio risk as variation of expected return;
- investors make decisions based only on risk and return, so their utility curves are the function of expected return and the standard deviation of expected return;

– at the same level of risk, investors prefer portfolio with higher returns, and under a fixed rate of return, investors will prefer lower risk (Reilly & Brown, 2003).

In order to establish the efficiency of investment portfolio it is necessary to calculate the expected return and standard deviation of profitability for every portfolio. The formation of Markowitz model requires the following data:

– expected profitability of stocks;
– the standard deviation of the profitability, which measures the risk of each stocks;
– the covariance - a measure of equity profitability ratio (Kancerevyčius, 2009).

Expected profitability of portfolio is calculated as the weighted average of separate instruments' expected profitabilities:

$$ER_p = \sum_{i=1}^{d} W_i ER_i \quad (1)$$

where:

ER_p – expected portfolio profitability,
W_i – part of invested funds for instrument i,
ER_i – expected profitability of instrument i,
d – the number of instruments in the portfolio.

The foundation of modern Markowitz portfolio theory is the investor's intention to enable greater return on financial instruments for a given level of tolerated risk. This way, he/she is trying to optimise his/her own investment at the same time and his/her financial toolbox (Markowitz, 2014).

The essence of Markowitz's theory is that creating the optimal portfolio, it is necessary to take into account the volatility of stock returns while the variance or covariance can be used to assess these factors quantitatively (Valentinavičius, 2010).

Markowitz model does not impose the sole optimal portfolio; it defines the effective threshold, where all portfolios are optimal. These combinations are possible, but not necessarily correct (Markowitz, 1952; 1956). In order to determine the optimal portfolio, it uses indifference curves. These curves represent investors' attitude to risk and profitability. The higher curve represents a more desirable situation. The task of every investor is to find the portfolio tangent under the best (highest) indifference curve (Figure 1).

The point, where the efficiency limit is tangent of the indifference curve, represents an efficient portfolio of financial instruments.

The application of Markowitz's portfolio theory related to a number of restrictions, for which it is absolutely impossible to form an efficient portfolio for the following four reasons (Valentinavičius, 2010):

– The usage of past data. The calculations of expected profitability and risk are based on existing information. Composed portfolio today, may be inefficient tomorrow, because it depends on the performance of companies, investment environment, the sentiment of market participants, and many other factors.
– Changes in proportions. Changing prices of financial instruments and the proportions of portfolios, requires for the calculation of effective limits to use average rates.

– Liquidity of financial instruments. Liquid financial instruments, due to their price fluctuations can "lift" the effective limit of above, although often it is not possible to include them in portfolio precisely because of their lack of demand and supply.
– The historical period. In order to accurately assess the effectiveness of the portfolio long-term historical data should be used, such as three years.

Markowitz developed a portfolio construction model to achieve the maximum return for a given level of risk or the minimum risk for a given level of return (Markowitz, 1952, 1956, 1959, 1987). It has long been noted that investors should diversify internationally rather than domestically and the number of securities is much larger than the U.S. market's securities (Deng & Min, 2013).

To better extend the portfolio construction methodology and techniques on U.S. market to the international market, Guerard et al. (2012; 2014) briefly review the applied U.S. and "Global equity investment research". These authors test whether a mean-variance optimisation technique, using the portfolio variance as the relevant risk measure, dominates the risk-return trade-off curve.

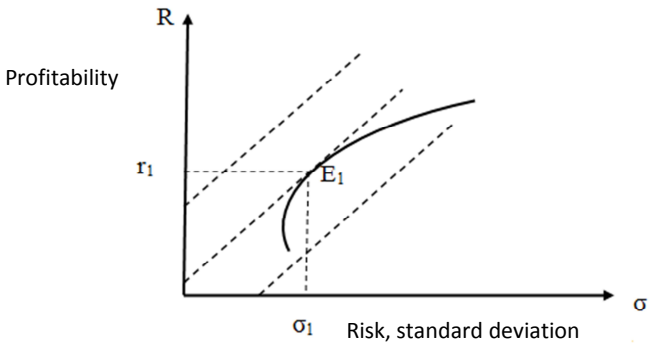

Figure 1. Effective limit and the indifference curves
Source: Leipus & Norvaiša (2003).

The expected return of portfolio is counted as separate instruments expected weighed average profitability. Meanwhile, the portfolio risk is calculated by two indicators - covariance and correlation. Although the model estimates the profitability and risk, it does not impose the optimal portfolio for the investor. Using historical simulation, Markowitz and many other scientists use the arithmetic average of return in order to determine the expected profitability.

However, the average may not reflect the actual expected return on financial instrument due to presence of uncertainty in financial markets and cyclical fluctuations. In the opinion of the author, there is not enough approaches for finding a constructive investment decision. Therefore, the author uses the adequate portfolio model for market selection and investment decisions (section 3).

MATERIAL AND METHODS

The above briefly discussed investment portfolios have become the classic works at investment decisions management. New knowledge is built and new problems are formulated by studying them. In author's opinion, in many investment situations it is necessary to evaluate all the possibilities for investor in order to choose the best.

Formation and management of portfolio requires effective evaluation of various portfolio conditions existing on the efficiency curve, description of their interaction, and analysis of other portfolio characteristics. Portfolio decisions should be achieved when it is impossible to describe the profit possibilities of portfolio as point estimated, but as their distribution of probability (Rutkauskas, 2000).

Before examining the concept of adequate portfolio, it should be understood that this is a common set of financial assets that determine the reliability of profitability. The idea of this portfolio first was proposed by Rutkauskas (2000), in the following works he examined the specific features of this theory (Rutkauskas, 2001, 2005a, 2005b, 2006, Rutkauskas et al., 2009; Rutkauskas & Kvietkauskienė, 2013b). The essence of this theory is assessment of investment portfolio risk, profitability and reliability.

The guidelines of modern portfolio theory is not clearly adaptable in practice, since, as mentioned earlier, not all of the investment portfolio owners can quantify their utility curve as the measure of profitability and risk unification.

In terms of the profitability of investment portfolio and its measurement, the concept of average return is one of the solutions feasibilities, but not the most accurate, not the only one. The average of arithmetic profitability - is a generalised status of potential portfolio return for all investments. In each particular case, the average profit will be one of the profit opportunities that fully describe only their probability distribution. The alternative to this approach offers Rutkauskas (2000), as the average portfolio return is the calculation method that gives a way to the quintile or percentile performance.

The examination of adequate portfolio theory is a common set of financial assets, for reliability of profitability determination. Analysed investment portfolio process allows extending the opportunities of Markowitz modern portfolio, because, in author's understanding, the adequate portfolio is a natural extension of Markowitz portfolio. One of the main advantages of investment decisions is assessment of reliability. Standard deviation is widespread among investigators and is not an appropriate tool to describe the objectives of investor. It is important not only investment riskiness, but the attention must be given to the reliability of each option (Rutkauskas, 2000). The effective decisions of modern investment portfolio become the starting point for adequate investment decisions. The propinquity of modern and adequate portfolio is illustrated through effective and maximum areas, as well as three-dimensional utility function of finding the most advantageous portfolio for the investor.

Knowing the parameters of profitability and risk, it is possible to determine the effective limit of portfolio, where the rational investor should choose the portfolio. The limit of efficiency shows the composition of the portfolio combinations that give the highest return for a given risk, and, similarly, those portfolios have the lowest risk for a given level of return.

In order to establish an effective portfolio limit (in case of more than two securities), the process should start from the identification of portfolio set. All the possible combinations of portfolio risk and return presented graphically establish the potential portfolio field.

The concept of adequate portfolio enables the identification for investment portfolio holder the overall profitability of active possibilities, thus simplifies the decision-making path. It would be appropriate to compare the classical and adequate portfolio models (Table 1).

Table 1. The comparison of classical and adequate portfolio

Classical portfolio theory	Adequate portfolio theory
Determines the efficiency line, where existing portfolios possess expected (average) profitability among given portfolios of riskiness.	Determines the efficiency zone, where level of possible portfolio risk possesses the distribution of maximum possibility profitability.
The indifference curve of investor allows to choose a portfolio structure, where investor will be able to gain the maximum of average profitability.	Utility function of investor can experience the level of risk and the highest possibilities distribution that maximise the investor's benefit.
The choice of investment and portfolio investment is made in the interaction between average profitability and riskiness of profitability possibilities (often - standard deviation) trends that take into account investor's indifference curve of average profit.	Profitability possibilities of investment portfolio are examined together with recipient of risk ant utility function, which takes into account the possibilities probability distributions.

Source: own elaboration based on Rutkauskas (2000; 2005a).

In order to understand the guidelines of adequate portfolio theory it is necessary to analyse the geometric image of investment portfolio. The choice of investor should be moved into a three-dimensional plane where the portfolio risk is deferred in abscissa, portfolio profitability possibilities – in ordinate, and the third characteristic - the portfolio profitability reliability – in applicate (Rutkauskas, 2000). This three-dimensional surface view is called the efficiency zone that is made up of all quintile effective lines (Rutkauskas & Stankevičienė, 2003). According to the adequate theory model, the investor will seek to maximise the guarantee that the profitability will be no less than the selected level. The set of effective lines is defined as izoguarantee of investment portfolio – the line of opportunities surface, connecting points of equal guarantees. If probability of all izoguarantee portfolio value at not less than changing value, the investor should choose the maximum of the probability possibility (Rutkauskas, 2003).

If the set of possibilities of Markowitz portfolio (Figure 2 top row) generates an effective line, where the possibilities of optimal solution concentrate and each of them, these situations are described as possibilities of average profitability and riskiness. Then the bunch of possibilities for adequate portfolio generates the bunch of effective lines (Figure 2 bottom row).

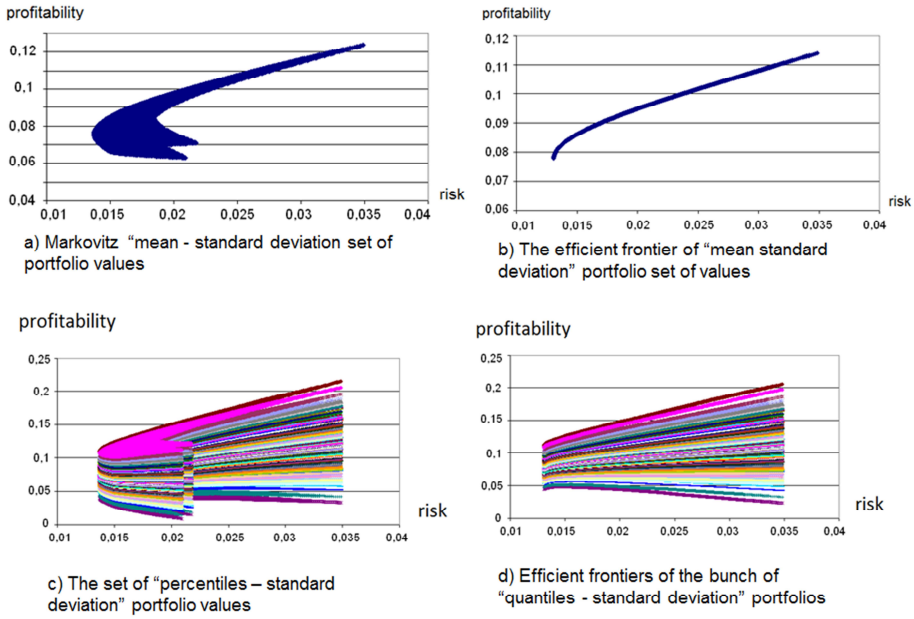

Figure 2. Scheme of formation sets of portfolio efficient values
Source: Rutkauskas et al. (2013, p. 862).

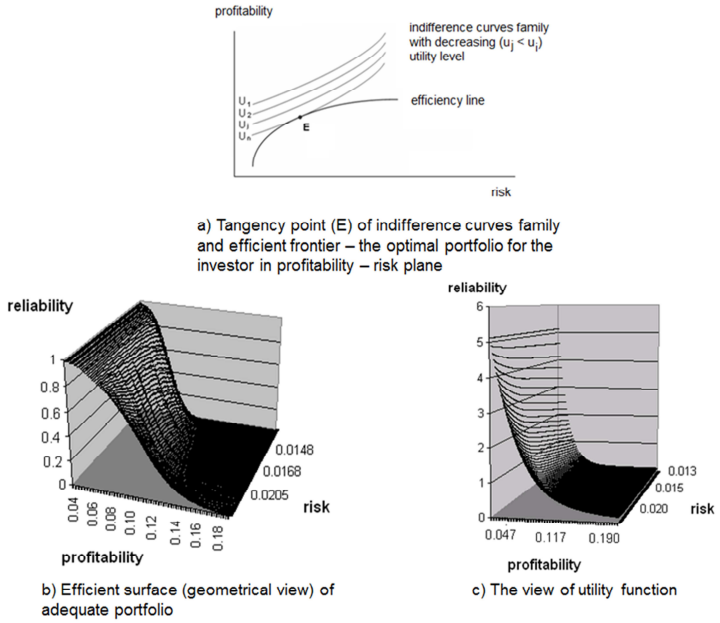

Figure 3. Possibilities' surface of adequate portfolio and investor's utility function
Source: Rutkauskas *et al.* (2013, p. 863).

As shown below (Figure 3), if the optimal solution in Markowitz portfolio is indicated by tangency of efficiency line and utility curve (bottom row in Figure 3), the optimal solution is found in adequate portfolio by tangency of return surface with surface utility function.

The view of three-dimensional effective area especially is useful for understanding the influence of distributions of individual investments forms on overall portfolio opportunities distribution form.

The Optimisation of Utility Function

The utility function is the rule by which assignment is done and depends on the preferences of the individual decision maker. In utility theory, the utility measures of the consequences are assumed to reflect a decision maker's preferences in the following sense:

- the numerical order of utilities for consequences preserves the decision maker's preference order among the consequences;
- the numerical order of expected utilities of alternatives preserves the decision maker's preference order among these alternatives (Zavadskas & Turskis, 2011).

In this work in order to explore and identify the opportunities, which the market offers for investors, were taken into account the impact of globalisation to financial markets. The authors (Rutkauskas & Kvietkauskiene, 2012, 2013a) define that the rate of return on financial assets is possibilities probability distribution.

In order to effectively allocate available resources in the financial markets, it is important to identify the opportunities offered by the markets, profitability and risk level. This way markets are selected, where investors, by taking the appropriate level of risk, will receive the complex of utility and reliability (Rutkauskas et al., 2013).

In this case, in order to achieve successful investment decisions, it should appeal to the survival function, which would allow evaluating each market opportunity by the size of possibility and guarantee of this size. This scheme will enable quicker, than with all other models and methods, review of market opportunities. The choice of useful options for entity is associated with equivalent recovery of utility function.

Whereas the utility is associated with efficiency, reliability and risk, it is possible to invoke the utility function:

$$U = \frac{f(e) \cdot f(p)}{f(r)} \tag{2}$$

where:

U – is utility function,
$f(e)$ – efficiency,
$f(p)$ – reliability,
$f(r)$ – riskiness.

In order to select the utility function, which is the most useful, it is necessary to take into account the profitability and reliability. Utility function depends on the efficiency and reliability, and reliability is associated with riskiness, so from the available data are calculated and plot the so-called survival function. On the basis of calculations

and diagrams all selected capital markets can be ranked according to the investor's utility function approach.

RESULTS AND DISCUSSION

Using adequate investment portfolio system in DNB Trade demo version the stocks portfolios in USA, German and French markets were analysed. DNB Trade platform was chosen because of its functionality and the similarity of the investors operating tools in global capital and currency markets. It is easy to manage investments (buy and sell financial instruments), replicate with technical analysis indicators (graphs and their modifications) and publish required data for fundamental macro analysis and news flow. The process of transaction and the order submission is fully automated.

The author offers such model of real investment in selected appropriate financial markets (Figure 4).

Selection of companies stocks based on financial indicators – the first step, where these sectors are identified, in which investment funds mainly invest. The goal of this stage is to select stocks for chosen markets.

Selection of the companies by investment funds. The main aim of this stage - to identify sectors, where the biggest part of investment funds capital is invested.

Portfolios formation for chosen markets (50%/50%). The main aim of this stage is to analyse the financial indicators of selected stocks and to determine, which stocks are chosen by selected funds and which are selected by author.

Portfolios simulation with adequate portfolio theory – to perform investment decisions for coming weeks using portfolio simulation with adequate portfolio theory.

Portfolios performance comparison with index. The aim of this model stage is to compare investment results with benchmark.

Investment portfolio were formed in NASDAQ, DAX, NYSE and CAC40 markets by adequate investment portfolio system support that was discussed in theoretical and methodological part. Investments were made with selected companies' shares.
Weekly investment was chosen for several reasons:

1. In this way the cost of sales and buying is reduced.
2. It is appropriate to use a weekly investment, when active portfolio manage-ment model is used for investment.

Testing period – 2012.12.04 – 2014.10.01 (102 weeks, from which 40 weeks required for system analysis and these results are submitted in this article, and during the remaining 62 weeks active investment of simulated nature were conducted).

During the investigation, using an adequate portfolio method with week data were used 0.003 (0.3%) rebalancing charges for entering or closing position. Taxes choose using the average tax rate that is used by DNB Trade platform.
Created portfolios were managed using a program of simulations, which evaluate the profitability of assets, risk and profitability reliability. The short description of investment strategy:

- a separate stock portfolio was formed in every financial market. Every portfolio was formed from six shares;
- initial every portfolio amount - 100000 EUR;

– the purpose of portfolio - to reach as far as possible a sustainable return on investment, i.e. return closely to or above the benchmark over the long period;
– investment decisions were performed for coming week, after week portfolio is reviewed and, if necessary, reformed.

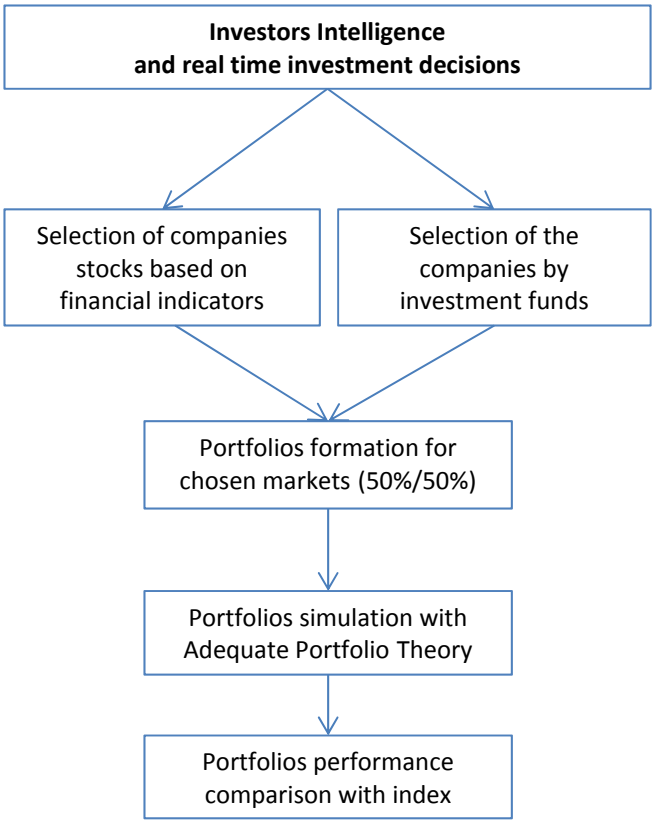

Figure 4. Investment decision-making model
Source: own elaboration.

Four portfolios formed 2012-12-04 and managed until 2014-10-01. As the experiment, the least diversified portfolio was composed for USA (NASDAQ) market. Only companies from technology sector were selected for this portfolio. Other portfolio for USA (NYSE) market was composed of stocks from different sectors.

The most objected thing is comparison of results and index, which is used by many experts and practitioners, because, according to comparison of results and index, we can assess the results. In order to clarify whether the portfolio has been successfully optimised, the results were compared with NYSE index (Figure 5).

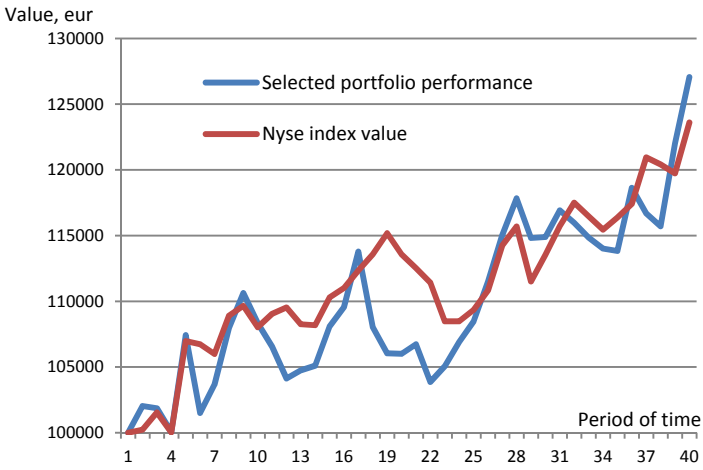

Figure 5. Comparison of portfolio and NYSE index
Source: own elaboration based on investment results.

It is seen that, based on created investment model, managed portfolio value is greater than the value of the index during the analysed period. This means that the portfolio management has been successful and the desired result was achieved. Since market is examined during conditions of globalisation, the results should be compared with the overall S&P 500 index and benchmark (MSCI World index) (Figure 6).

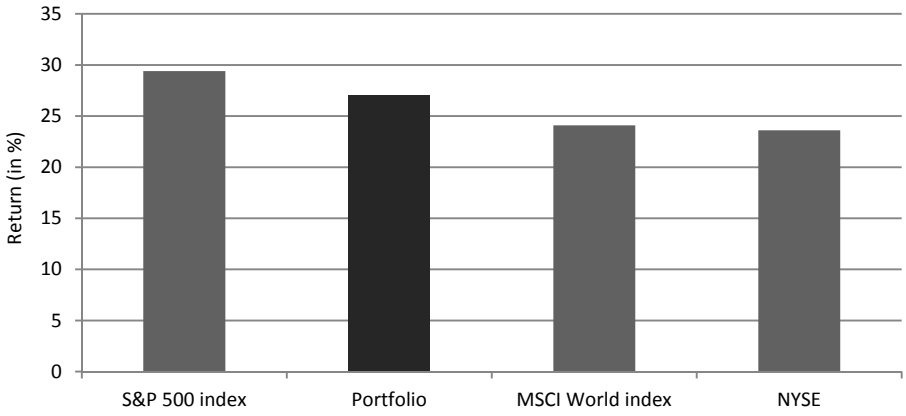

Figure 6. Comparison of portfolio and S&P 500, MSCI World index and NYSE index
Source: own elaboration based on investment results.

Only the return of S&P 500 index exceeds the portfolio return by 2%, and the result of own portfolio exceeds the MSCI index by 3% and NYSE index - 4%. As the sustainability can be understood as return on long-term investment period, which is close to global

index, it can be concluded that sustainable investment return has been obtained in the USA market.

It would be appropriate to compare the results of the portfolio with the USA (NASDAQ) portfolio profitability (Figure 7).

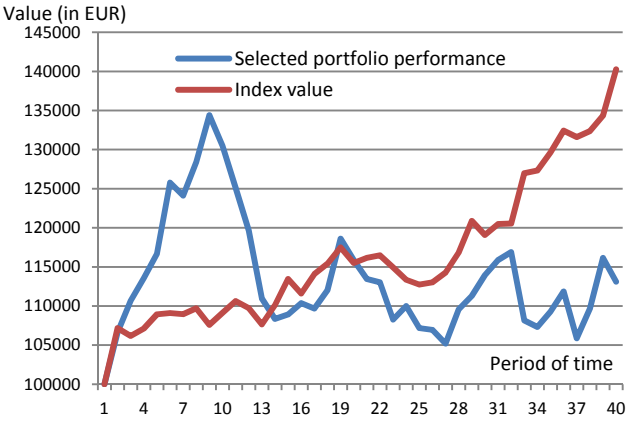

Figure 7. Comparison between portfolio and NASDAQ index
Source: own elaboration based on investment results.

The profitability of this portfolio is 13.19%, but the profitability of benchmark is about 40% during analysed period. This can be related to the following reasons:

- during investment period, Nasdaq market was only the analogue of sector by its specifics, because the portfolio was formatted only from stocks of technology sectors;
- higher market fluctuations were present in Nasdaq market;
- liquidity of Nasdaq market is less than the liquidity of NYSE market.

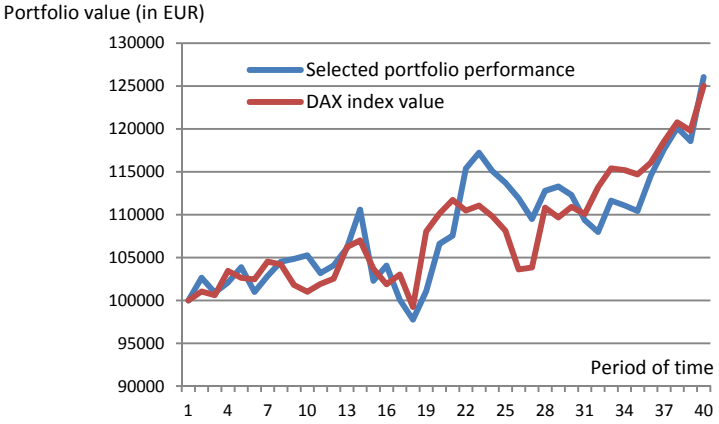

Figure 8. Comparison between portfolio and DAX index
Source: own elaboration based on investment results.

The investments in German (DAX) market were relatively stable. As seen from obtained results, the portfolio return (after elimination all taxes) over the period is 25.05%.

In order to clarify whether the portfolio has been successfully optimised, the results were compared with benchmark (DAX index) (Figure 8).

The return of benchmark is less by 1%. In order to clarify whether the portfolio has been successfully optimised the MSCI Europe index, which reflects the stock market, the results of portfolio and index were selected for comparison.

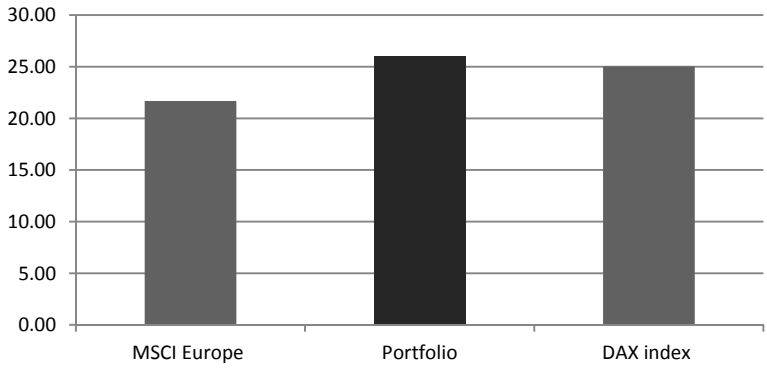

Figure 9. Comparison between portfolio and MSCI Europe
Source: own elaboration based on investment results.

The portfolio return exceeds the return of MSCI Europe index by 4.36 percentage point (Figure 9). Investment decisions have been formed using the system of adequate portfolio model. It would be appropriate to compare the results of the German (DAX) portfolio with the profitability of French (CAC 40) portfolio (Figure 10).

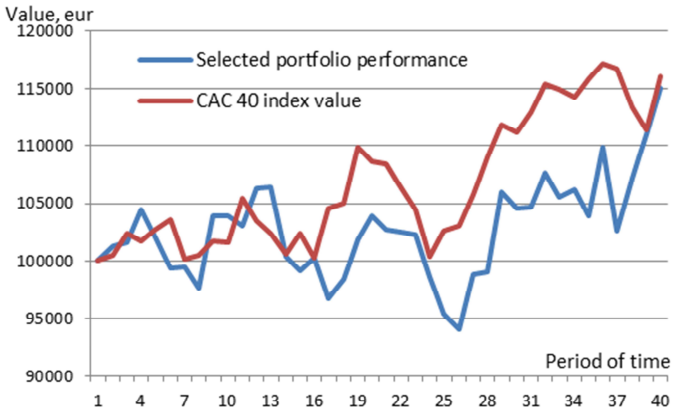

Figure 10. Comparison between portfolio and CAC 40 Index
Source: own elaboration based on investment results.

The profitability of this portfolio is 15.08%, but the profitability of benchmark is about 17% during analysed investment period, so the portfolio result does not exceed benchmark. The following reasons can be distinguished:

- the French market has its own specification;
- the standard deviation of French market is higher than the standard deviation of German market, so as small as possible standard deviation means less value of the shares, and therefore smaller risk.

CONCLUSIONS

The effective decisions of modern investment portfolio become the starting point for adequate investment decisions. The propinquity of modern and adequate portfolio is illustrated through effective and maximum areas, as well as three-dimensional utility function of finding the most advantageous portfolio for the investor.

The adequate portfolio model is more suitable for investment, when stocks in portfolio are from different sectors.

The German market has been identified as the most stable and one of the most suitable markets for investors. Testing the market in real time, the results of this market were one of the best compared with the index (25.05% return).

USA market was assessed according to profitability, efficiency and risk and other indicators were also selected for further investment. However, the USA market was divided into two separate markets at the investment stage: the NYSE and Nasdaq. The investment result in NYSE market was also one of the best (25.65% return). The experiment was done with Nasdaq market - the structure of portfolio consisted of selected technology sector shares. Although the investment portfolio in this market generated a positive return, but it was not greater than the index returns.

Analysis of the markets allowed choosing the French market, but taking into account a risk. Risk was confirmed, the return in French market was about 15%, but they were not higher than the index.

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Knowledge Management in Composition of Construction Contracts

Eva Trinkūnienė, Vaidotas Trinkūnas

ABSTRACT

Objective: The objective of this paper is to present a model which will allow knowledge management in construction contracts composition.

Research Design & Methods: It was decided to investigate the possibilities to manage knowledge in constructions contracts composition. The complexity of construction process interested parties, construction contract life cycle, multilayer construction contracts modelling possibilities were evaluated.

Findings: There are many possibilities for construction contracts composition. In order to make well-considered construction contract it is not enough to know the civil law, construction, management and so on. You have to use experience earned during long time. Good practice and earlier mistakes have to be evaluated.

Implications & Recommendations: Proposed model can be used and practically implemented in construction contracts evaluation system. The structure of proposed model allows realising complex view to contract preparation, evaluate corporation knowledge and can be very helpful for construction contractors, subcontractors, investors and other related construction process participants which can improve construction contracting using collected experience and best practice in construction contract making allows to avoid mistakes.

Contribution & Value Added: In the following research, model of information system for construction contracts structural analysis (previously developed by the authors) is additionally developed by taking into consideration the possibility to use the knowledge management.

Article type: research paper

Keywords: knowledge management; construction contracts; contracts evaluation

JEL codes: K120

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INTRODUCTION

Construction is becoming one of the most important parts of economy. According to the Ministry of Economy of The Republic of Lithuania in the year 2012 share of investments in construction sector was more than 55% of all country material investments. According to the Statistics Lithuania in the year 2013 the investments growth was 12.3%, comparing to the year 2012. The construction sector is very important not only for Lithuania but also for all Europe Union countries. This sector creates about 10% of GDP in Lithuania.

The importance of construction sector predicts very large number of participants. According to the international NACE classification the main activities related to the construction sector are construction of buildings, civil engineering, specialised construction activities such as demolition and site preparation, electrical, plumbing and other construction installation activities, building completion and finishing. There are many participants with different tasks and functions also (Figure 1). Those make construction not only one of most important but also one of most complicated processes with a number of stages, which must be appropriately adjusted and managed.

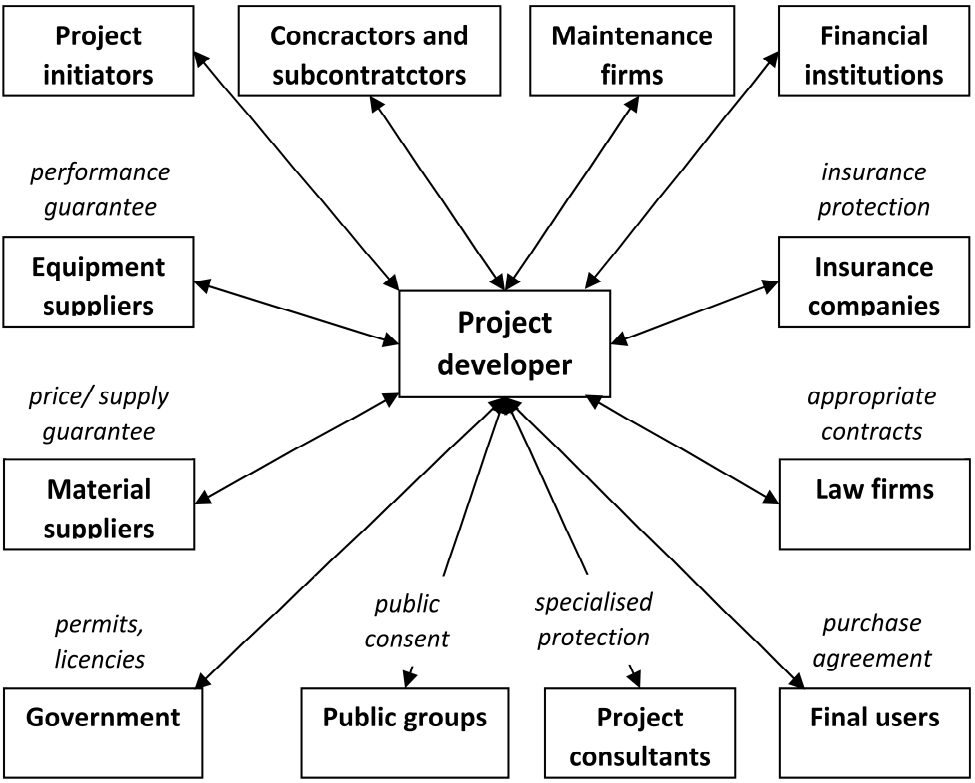

Figure 1. Main interested groups in construction project development
Source: own study.

All the construction process, terms, financing conditions, security requirements, risk management and final results (Mitkus & Trinkuniene, 2008) must to be considered and clearly described in construction contract. It is important to take into consideration that contracts have to be signed among all different participants and there is not possible to have one typical contract.

There are many numbers of projects taking place around the world and contracts are signed for each project comprising of major firms in action. The client parties shall quote their title objective in the contract and expect the contractor to abide by their agreement for mutual benefits. This shows the importance of contract strategy, requires huge and extensive knowledge and experience. This makes construction contract making difficult process where founds the pale using of specialised information systems. Using specialised information system allows not only collect big amount of related data, implement specialised models for contracts evaluation, but also makes contract making structured, more clear process with the possibility to use collected experience in different fields negotiated under the contract. The objective and is the formation of information systems model for construction contracts structural analysis. The aim of this article is to present the model, which allows making contracts structural analysis and using earned knowledge and best practice in a particular area.

LITERATURE REVIEW

The analysis of different publication related to the construction contracts making, use of information systems and technology in construction, decision making and structural analysis were performed. In this part some publications related to mentioned areas are briefly reviewed.

Construction process associates with great responsibility, important decisions, effective management, etc. Because of the significance and various risks, complexity and importance the construction sector is under consideration by different authors. More and more challenges are related to information and communication technologies. Different authors describe those research results in this field. The research is related to general usage of information technologies. For example Chen and Kamara (2011) introduced a framework for the implementation of mobile computing on construction sites, which comprised an application model and a technical model. Some research works are more concentrated on different level decisions. Chen, Okudan and Riley (2010) described Construction Method Selection Model (CMSM), which is designed to aid building team members during early project stages in evaluating the feasibility of prefabrication and exploring an optimal strategy to apply prefabrication in concrete buildings. Aguilar and Hewage (2013) described the system that transmits safety related information of multiple construction projects into a centralised database, where real-time safety indicators are generated.

Scientific literature increasingly pays attention to analysis of construction contracts in general, but separate parts and stages of the contract, too. Skitmore analysed construction contracts by various aspects. He alone and with coauthors prepared many different publications on research in this field. During the recent years of this research Xiong, Skitmore, Xia, Masrom, Ye and Bridge (2013) analysed how the performance of construction project participants affects contractor project satisfaction in terms of the

client's clarity of objectives and promptness of payments, designer carefulness, construction risk management, the effectiveness of their contribution and mutual respect and trust. Skitmore (2008) analysed construction auctions organising theory and practice; Skitmore and Smyth (2007) described pricing of construction works from marketing viewpoint. Skitmore, Pettitt, and McVinish (2007) analysed possibilities to use Gates' method in evaluating closed-bid competitive procurement auctions in order to determine the probability of placing a winning bid for a given mark-up level.

Tieva and Junnone (2009) analysed possibilities of proactive contracting in Finnish public-private partnership projects. They clarify what proactive law is about in terms of contract law and contracting especially in public-private partnership. They discussed the risks in risk management in terms of proactive law while focusing on public-private partnership in Finland.

Dutch housing associations use procurement methods such as performance-based maintenance in order to maintain their housing stock. For contractors a performance-based approach implies major challenges in methods and work processes. Straub and Van Mossel (2007) analysed the execution of activities such as providing advice on maintenance strategies, the design of maintenance scenarios, performance measurements and conducting customer satisfaction surveys in order to contractors selection for performance-based maintenance partnerships.

Even when the construction contractor is selected and the price, work terms and other conditions are negotiated, there is the possibility to choose at least several variants of contracts. Selection of the most favourable variant is a multiple criteria task, and different methodology can be used for its solution.

Important role in every process in construction belongs to consultants. Chow and Ng (2007) derived that more and more clients seek to measure the performance of Engineering Consultants and amass a set of Consultant Performance Evaluation records with an intention to monitor the quality of consultancy service and facilitate subsequent decisions. In those research set of common Consultant Performance Evaluation criteria pertinent to the service offered at the design stage and the Quantitative Indicators pertinent to each criterion are first identified. In order to improve the fairness of Consultant Performance Evaluation, the expectations that best describe the various performance levels of each Quantitative Indicator are unveiled. Having a better understanding of the expectations of various performance levels could ensure the Consultant Performance Evaluation conducted in a more objective and unified manner.

Multicriteria methods may be used not only for selection of contractors or consultants. Zavadskas, Ustinovičius and Stasiulionis (2004) have analysed possibilities to apply Electre III method evaluating the effectiveness of investment to commercial objects. The authors note that while evaluating effectiveness of investment to commercial objects, total effect of various criteria must also be evaluated: amount of construction works in commercial objects, trends, legal issues and available construction solutions.

Maintenance of existing buildings is also important. It is expedient to make a multicriteria system for decision-making related to buildings' maintenance. Vilutienė and Zavadskas (2003) have presented a system of criteria, which helps to make decisions related to maintenance of residential houses. Evaluation was made using the following

multicriteria methods: WSM (weighted sum model), WPM (weighted product model), AHP (analytic hierarchy process), ELECTRE and TOPSIS methods' variation and the multicriteria complex proportional evaluation method. A new model was introduced after the research. The model helps to organise management processes in buildings' economy more effectively and to improve work quality.

Possibilities to use various methods of the game theory while making decisions in the construction sector were analysed by Zavadskas, Ustinovičius, Turskis, Peldschus and Messing (2002). Authors have created a software which enables calculations using simple min-max principle, extended min-max principle, Wald's rule, Savage criterion, Hurwicz's rule, Laplace's rule, Bayes's rule and Hodges-Lehmann's rule. Investment to construction or reconstruction of a residential house in Nida is provided as an example of this software.

Another important issue in construction is selection of construction materials. Zavadskas, Kaklauskas and Trinkūnas (2002, 2003) have analysed systems of e-trading for construction materials and goods and offered the model of an internet decision support system for trading in construction materials. The model is based on determining criteria which define construction materials and goods, on importance of the criteria and on application of multicriteria evaluation methods. A pilot internet decision support system for trading in construction materials was created on the basis of the model suggested by the authors.

Multiple criteria methods can vary depending on different criteria. Different authors described usability of different multiple criteria methods: MOORA method (Braurs et al. 2008; Braurs & Zavadskas, 2009), SAW and CLARA methods (Shevchenko et al., 2008), Game theory methods (Peldschus, 2008), AHP approach (Podvezko, 2009). Some of authors (Turskis, 2008; Ustinovichius et al., 2009; Ginevicius et al., 2008) analysed the use possibilities of different multiple criteria methods for different purposes.

Observations and literature analysis according to the construction contracts making, use of information systems and technology in construction, decision making and structural analysis show that different techniques and methods can be applied but there is still the question how those useful researches connect into one system which makes the possibility for construction contracts structural analysis.

Authors presented model of information system for construction contracts structural analysis (Trinkuniene & Trinkunas, 2014). In the following research, this model was additionally developed by taking into consideration the possibility to use the knowledge management.

MATERIAL AND METHODS

The basis of developed multilayer contracts modeling system is made on construction contract life cycle model (Figure 2).

Each of the construction contract lifecycle phases have its input and output information. And each phase has its own purpose:

– Contract request phase – different parties of the construction process can use such system and there are different types of the contracts. In this phase user is at the starting point and have to decide which type of the contract he/she needs.

– Authoring phase – there are a lot of different contracts, but in most cases it is impossible to use exactly the same contract few times. At this point user can edit existing contracts so it matches existing needs.
– Negotiation phase – this phase is related to the presentation of drafts and versions of authorised contracts for review by other employees, or even vendors/customers/clients, etc.
– Approvals phase – in most cases construction contracts are complex and have to be checked by different stakeholders, even within the same organisation. Such reviewers can be: authorised staff, different subject matter experts, legal and appropriate.
– Contract execution phase – at this phase final contract has to be prepared and signed.
– Obligations phase – the life of a contract and its relationships continues and does not end after signing the contract. At this moment starts very important post-execution stage with alerts, workflow processes, risk assessment, spend management, compliance monitoring, and advanced reporting metrics.
– Compliance phase – reporting capabilities provide organisations with visibility into all contractual relationships including fully audit for contract.
– Contract renewal phase – this phase is related to the organizations' possibility to capitalise on each and every renewal opportunity by identifying candidates for renewal, alerting employees to these contracts in time to make business decisions, and creating new contracts or drafts based on existing ones.

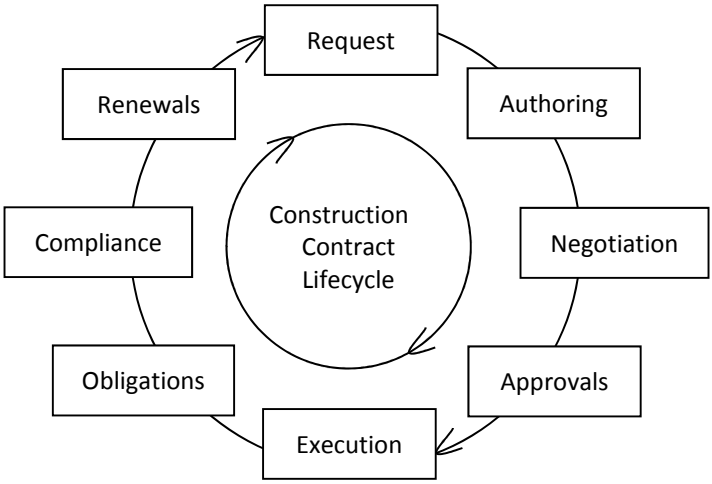

Figure 2. Construction contract life cycle model
Source: own study.

Each phase consists of different elements which are very important in the realisation of the purpose related to the exact phase. There are different structures for each phase, and those have to be analysed separately.

At the same time if we talk about contract request or renewal phases we can see stronger or not so strong relations among different contracts. This makes the possibility to use an existing experience and organise all information system as multilayer contracts modeling system.

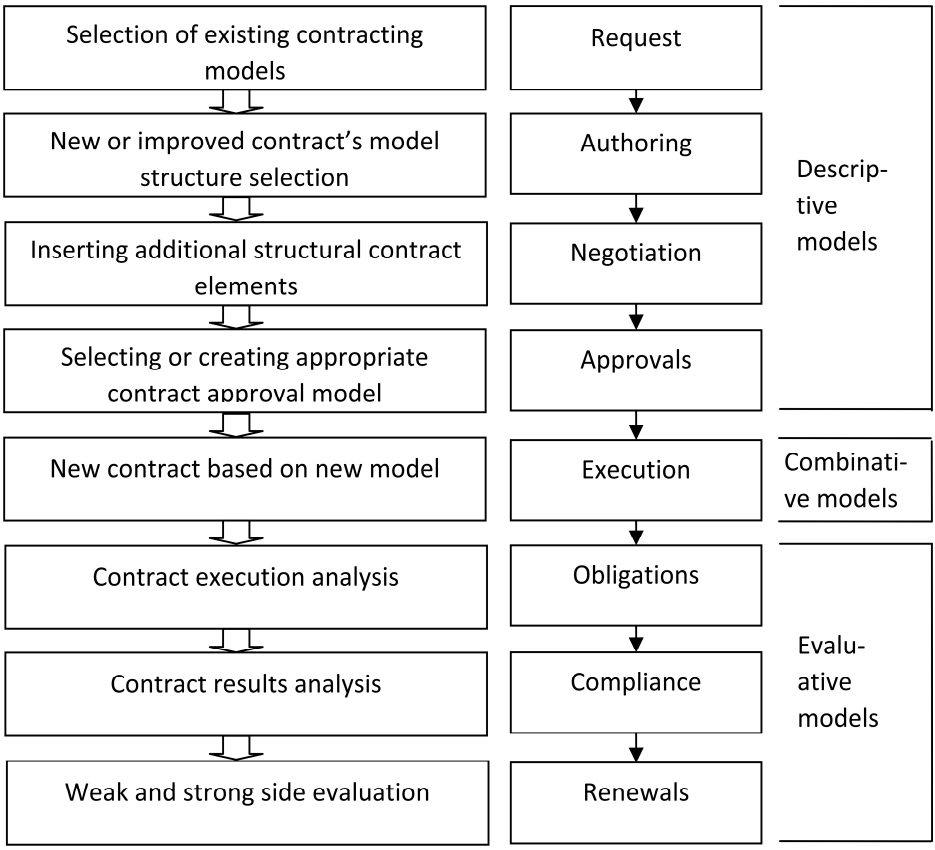

Figure 3. Multilayer construction contracts modeling systems structure
Source: own study.

Throughout construction contract making process numerous models are needed, which are often created independently and designed to solve different tasks.

In order to make construction contract there is no one right model. There are different models with different strong and weak sides. Taking this principle into account multilayer construction contracts modeling system architecture was created and presented in Figure 3.

The basis for this model is taken from construction contract lifecycle model (Figure 2). One phase of construction contracts life cycle constrains one layer in construction contracts modelling system structure. There are 8 separate layers. Each layer consists of its own schemas and discovered gaps in those schemas are filled by creating new schemas. The main idea is that number of schemas is not limited and each new schema helps to solve different tasks and makes possibility to improve contracts in the future. According to these principle models are grouped in three classes: descriptive models, combinative models and evaluation models (Figure 2).

Descriptive models class consists of four levels. Those levels are organised in hierarchical manner. All those levels are described in construction contract lifecycle model description.

The class of combinative models contains only one element or one layer. It means that upper four layers are linked together via process model.

Evaluative models class is constructed from three levels which represents evaluation in different stages of construction contracts implementation. With the process-centric integration of engineering, management, legal and other information and properly organised ontology it is possible to create a variety of new formalised evaluative models which helps to use semi-automatic or automatic analysis of created structures.

During assessment or interpretation of evaluation results, different construction contract provisions may be treated differently. This, on its turn, may cause some misunderstanding, erroneous results or erroneous interpretation of the results. Therefore, it is very important to elaborate each construction contract provision.

As the possible authoring layer structure it was used scheme were expert evaluation methods was adapted. In order to determine indicator significance in calculations more objectively, an opinion of a group of experts was evaluated.

The experts were surveyed by questionnaires. The questionnaire was prepared on the basis of the method of paired evaluation of indicator significance. The generalised calculations of survey results showed that the compatibility of expert opinions meets the requirements; therefore, it is possible to claim that indicator significances derived during the expert survey are reliable and can be used for typical evaluation of contract. However, these indicator significances would change with changing economic situation and upon evaluation of specific requirements of a construction project; anyway they serve as a basis for initial calculations.

It is good solution to use experts, but it is not always the best way. For example it is necessary to make the contract during short time, or experts can be busy at those main positions and it makes problems to organise evaluation process, the experts can change and new experts do not have enough experience. It looks that proposed model have to be improved by evaluating the knowledge gained during company life. It means that the model has included knowledge management possibility.

RESULTS AND DISCUSSION

Knowledge management decisions make possible getting the right knowledge to the right person at the right time. This may not seem so complex itself, but it implies a strong tie to corporate strategy, understanding of where and in what forms knowledge exists, creating processes that span organisational functions, and ensuring that initiatives are accepted and supported by organisational members. In our case, most important is possibility to use knowledge management in new knowledge creation, knowledge sharing, storage, and refinement.

The objective of knowledge management solution is to create value and to leverage, improve, and refine the firm's competences and knowledge assets to meet organisational goals and targets which are directly implemented in contracts. Implementing knowledge management has to be based on few separate organisational levels:

– Strategic – it necessary to manage, share, and create relevant knowledge assets that will help meet tactical and strategic corporate requirements.
– Corporate culture - the way people interact inside of the organisation, how the knowledge is created, how the changes are made, and how the knowledge is shared.
– Implementational - processes, environments, and systems that enable implementation of knowledge management in the organisation.
– Technological – properly designed and implemented systems, tools, and technologies.

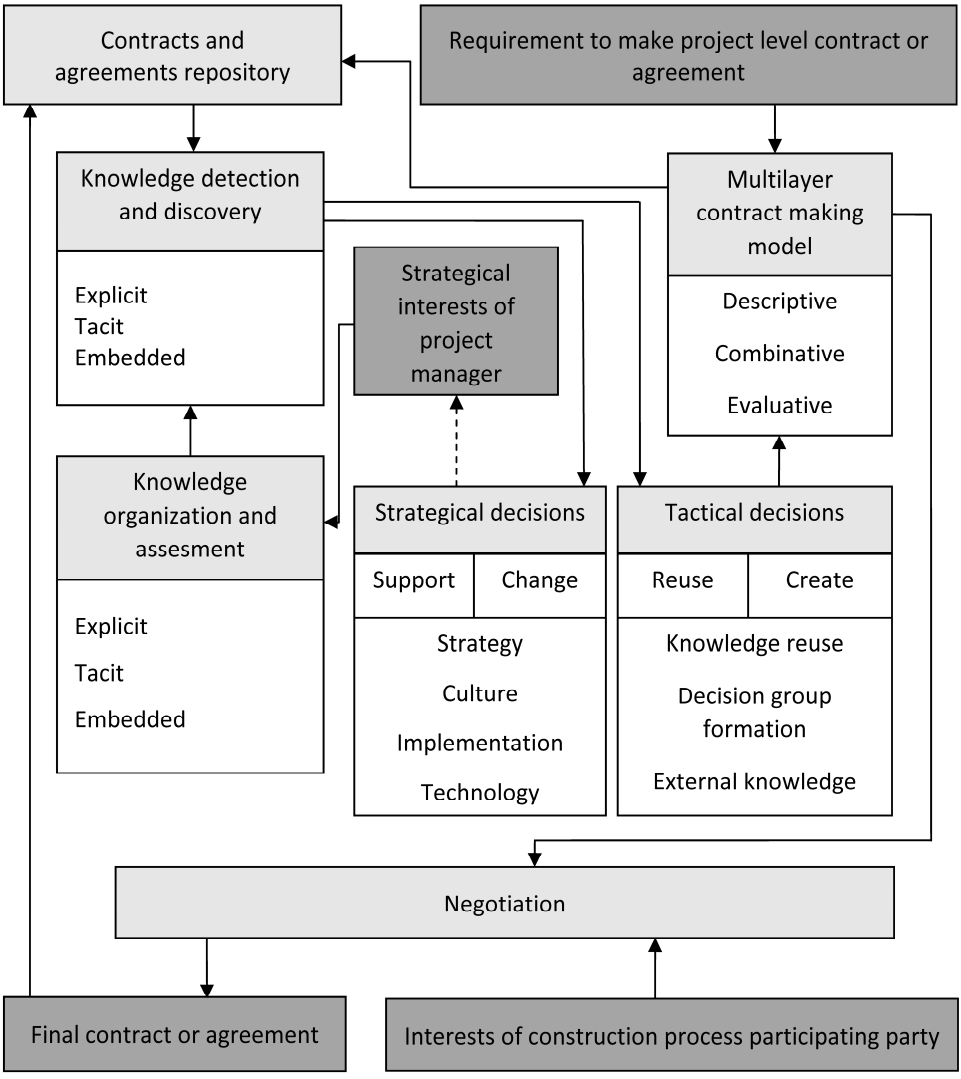

Figure 4. Knowledge management model for construction contracts information system
Source: own study.

Proposed model of knowledge management in forming construction contracts is presented in figure 4. Model consists of such basic elements:

- Contracts and agreements repository - includes all contracts and related records like tacit and embedded knowledge taken into consideration responsible people, organisational culture, and processes.
- Module for knowledge detection and discovery - identifying existing knowledge sources, discovering hidden knowledge in data and information. This module consists of three knowledge groups: explicit knowledge (documents, different data sources etc.); tacit knowledge (surveys, questionnaires, interviews etc.); embedded knowledge (reverse engineering, knowledge retrieved from procedures, products etc. with help of special identifying tools).
- Module for strategic decisions – allows making strategic decisions at different organisational levels. It can be decision to support existing model or improve it by making changes.
- Module for tactical decisions – supposes to make possible tactical decisions in contract forming process. It can be some possible solutions such as reusing existing knowledge, improving basic models, forming special decision group, getting additional information from external sources (external data bases, customers, competitors, partners etc.).
- Multilayer contract making model – makes the structural basis for construction contract making at free different layers (descriptive, comparative and evaluative).

Proposed model presents basic structure of knowledge management model and can be implemented only by taking into consideration exact possibilities to adopt it to a particular company. Mode is important from practical point of view as it makes suggestions to improve construction contracts making process and contracts quality.

CONCLUSIONS

Proposed model of specialised information system for construction contracts preparation allows not only collecting big amount of related data, implementing specialised models for contracts evaluation, but also made contract making structured, clearer process with possibility to use collected experience in different fields negotiated under the contract. Therefore information systems model for construction contracts structural analysis was prepared. This model is based on construction contract lifecycle and multilayer structure and additionally extended with knowledge management model. The structure of proposed model allows realising complex view to contract preparation, evaluate corporation knowledge and can be very helpful for construction contractors, subcontractors, investors and other related construction process participants which can improve construction contracting using collected experience.

Knowledge management decisions make possible getting the right knowledge to the right person at the right time. This in itself may not seem so complex, but it implies a strong tie to corporate strategy, understanding of where and in what forms knowledge exists, creating processes that span organisational functions, and ensuring that initiatives are accepted and supported by organisational members.

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