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Obsah+Contents

THE ECONOMIC CRISIS AND COMPANY MANAGEMENT: INFLUENCES AND CONSEQUENCES

Barbora Antonová, Šárka Zapletalová

Introduction

The global crisis in 2007–2012 brought about dramatic changes to the business environment in both the global and international context. The impact of this crisis is visible in the changed market supply and demand as well as in the management of businesses across all industries.

An industry particularly hit was tourism, due to its nature, as it deals with "dispensable" products. These are products not necessarily needed by the customer, ones that only help to improve the life quality and living standard. Businesses in the tourism sector affected by the world crisis are looking for new possibilities and opportunities in the market. On one hand, the global crisis brought about considerable challenge to survival of companies in the tourism, on the other hand, it provided a whole range of potential. Businesses need to find and build a sustainable competitive advantage in the long term so that they can survive and continue to expand their service portfolio. The new terms and the changing environment have urged to formulate new strategies and new strategic targets so that they match the market requirements, being sufficiently competitive at the same time.

The aim of the present article is to illustrate the impact of the economic crisis on the crisis management in selected businesses within the tourism industry, specifically accommodation providers. The initial section of the paper will discuss a theoretical context of the relation between the economic crisis and management of the tourism business. This theoretical background will then lead to establishing hypotheses regarding the determination of the impact of the global economic crisis on company management. The subsequent section will present the methodology used, the data and results from the primary research. The data presented in this paper were obtained through the primary research among providers of accommodation services in the Czech Republic.

1. The Economic Crisis and Its Impact on Tourism in the Czech Republic

The global business environment is characterized by high volatility and turbulent developments. So far, the most significant event of the 21st century effecting, shaping and dramatically recasting the global business environment has been the global crisis (sometimes referred to as the global financial crisis) in 2007–2012. The roots of the current economic crisis, along with parallel developments, can be found in the previous wave of recessions in the 1990s, starting with the East Asian crisis, Brazilian, Russian, up to the dotcom bubble (the crisis triggered in the 1990s by a flow of investments into the IT). Today, there is already a range of studies investigating the causes of the current crisis, or setting it within a historic and global context [11].

This crisis has been labelled by a number of economists as the worst financial crisis since the great depression in the 1930s [13]. The main impetus behind the rise of the global financial crisis was the mortgage crisis in the United States, which began to manifest itself since mid-March 2007, with a significant impact on the US capital markets since mid-July 2007. The roots of the crisis lie in the American mortgage market through provisions of cheap mortgages.

What at first seemed to be a mere crisis of the financial market, extended with time across the whole economy in the USA. The decline in consumption of American households as one of the manifestations of the crisis was reflected in a declining demand for domestic and foreign products. This decrease in demand for foreign products extended the crisis to other countries where it slowed down the economic growth. Because of the high degree of global interconnection all over the world as well as liberalisation of international trade, the crisis affected also the countries which were not directly affected by the financial crisis. The crisis spilled over to Europe in the first half of August 2007, and after Europe, China and Russia were next being affected. The nervousness that has affected the markets since the last wave of decline in orders resulted in a recession affecting major economies worldwide, thus turning the initial financial crisis into the global economic crisis [18].

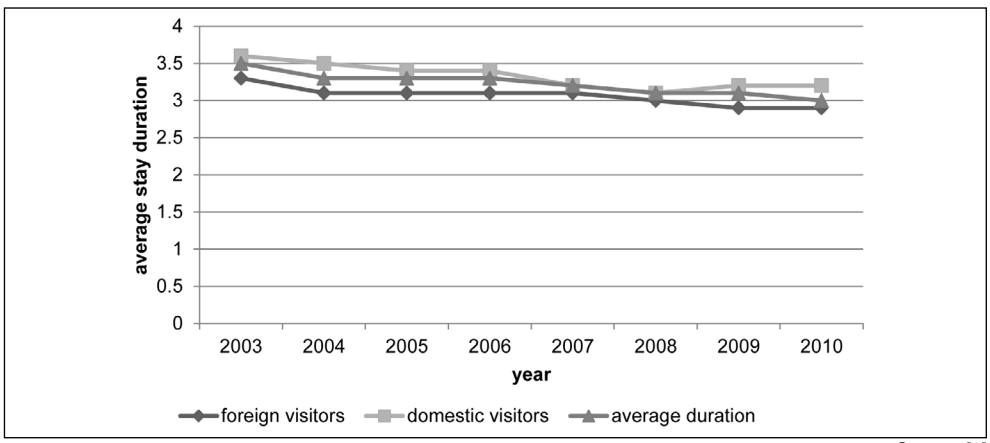
In the OECD countries, the first problems in financial markets began to occur by slowing down the economic growth at the turn 2007 and 2008. The recession began around mid-2008 and as early as the second half and towards the 2009, it reached the bottom. The decline in real economies were markedly visible in unemployment, which gradually went up to 10% both in the USA and the EU, and despite the improvement outlook in GDP, it remains a major problem. As a result of attempts to address the financial crisis, the overall debt ratio of nations soared, reflected in new turbulences in financial markets and in restrictive fiscal policies.

The primary indicator of the crisis within the Czech Republic was the slumping Czech currency, the crown, which generated problems particularly for companies involved in imports and exports to and from the country. The heaviest initial blow of the economic crisis was received by manufacturing industries [8]. The crisis then continued spreading, and its influence, the positive one as well as, more often, the negative one, was noticed in nearly all business sectors.

Despite the original assumptions tended to claim that “things would be better out in 2010”, as we may see in the subsequent quotation of the 2009 statement, the overall condition of the Czech economy failed to improve. “Business people are concerned that the economic recession has not reached its assumed bottom yet. Companies continue to struggle with a considerable decline in orders, and the fact that most companies expect a reversal for the better as late as in 2010 bodes badly for the national economy”, said the President of the Economic Chamber, Petr Kužel [16].

The crisis impact has been largely demonstrated by a mass job termination in manufacturing industries, stricter terms for mortgages and funding for real estate developer projects, reduced exports and consumer spending. Czech banks are more careful now when providing credits.

Fig. 1: Average duration of stays by foreign and domestic visitors in the Czech Republic in 2003–2010



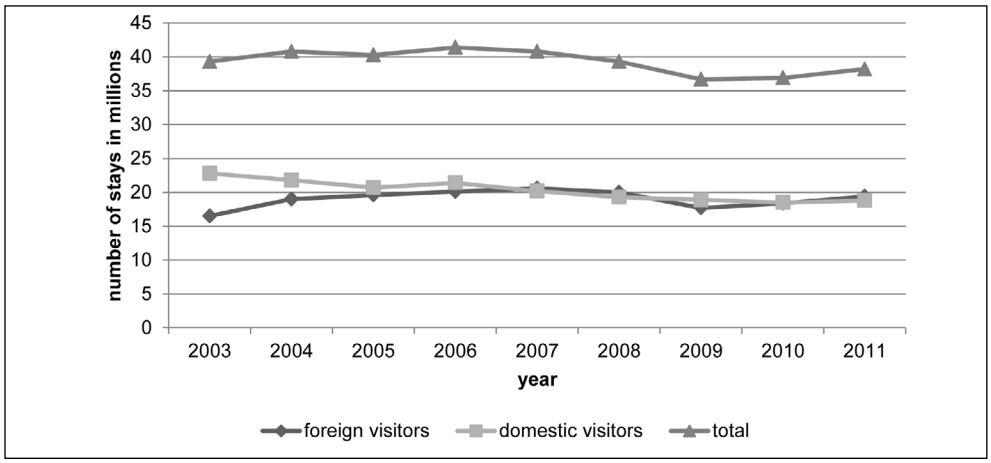
Source: [3]

The economic crisis hit also the tourism industry, where it occurred later, but as a dramatic phenomenon, in particular for accommodation service providers, owners of travel agencies and similar. As early as 2007, the trend to reduce the average stay duration was noted. Visitors spent average 3.0 nights in lodging facilities (Figure 1).

The first effects of the global crisis were noted in 2008. Roughly in the second half of 2008, news started occurring in the Czech media covering the impact of the crisis on tourism, in particular in terms of declining demand for services. That is when the press started publishing news of a decline in the Czechs' interest in tours and a decreasing number of visitors to the Czech Republic.

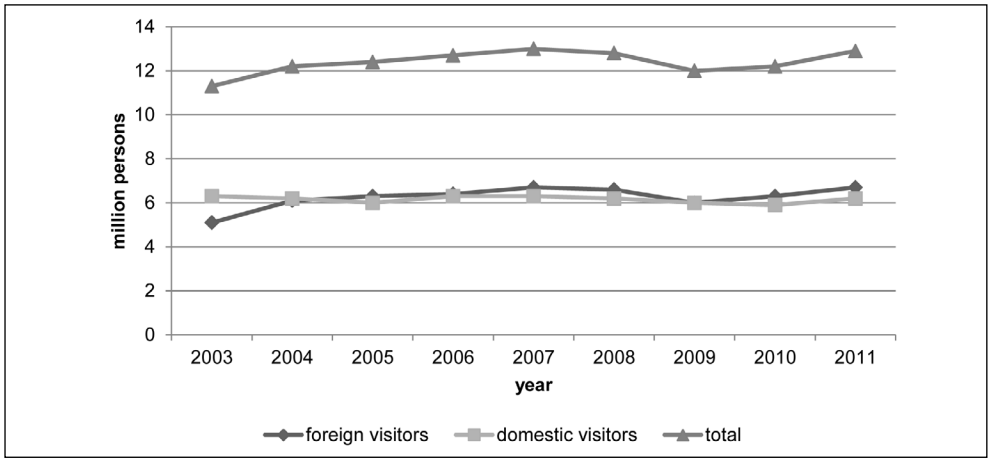
Towards the end of 2009, the following prediction was offered by Mag Consulting director, Jaromír Beránek: "The crisis in the tourism industry, with its first symptoms recorded by statistical evidence as early as the second quarter of 2008, will continue at least till the end of 2010. The small and medium-sized

Fig. 2: **Number of foreign and domestic visitors to public lodging facilities in the Czech Republic in 2003–2010**



Source: [3]

Fig. 3: **Number of foreign and domestic visitors to public lodging facilities in the Czech Republic in 2003–2010**



Source: [3]

hotels can be assumed not to resist this kind of pressure, having to close down." [9]. In this case he was right.

A decrease both in visitor numbers and the stay of duration in public lodging facilities were noted (Figure 2, Figure 3).

As predicted by him, the number of accommodation providers in the Czech Republic really dwindled. Since the end of 2007 they began to wane in our country. As evidenced by the CSO statistics (Table 1), the most perceivable decline occurred between 2009 and 2010, reaching over 4%. The year 2010 was, of course, the year when the decrease in tourist traffic to the Czech Republic finally stopped. And Czech entrepreneurs in the tourism sector felt a change in the course of the year 2010 when in the summer foreign tourists started returning to the Czech Republic.

Tab. 1: Number of accommodation facilities in the Czech Republic

	Number of group lodging facilities
2007	7,845
2008	7,705
2009	7,557
2010	7,235
2011	7,657

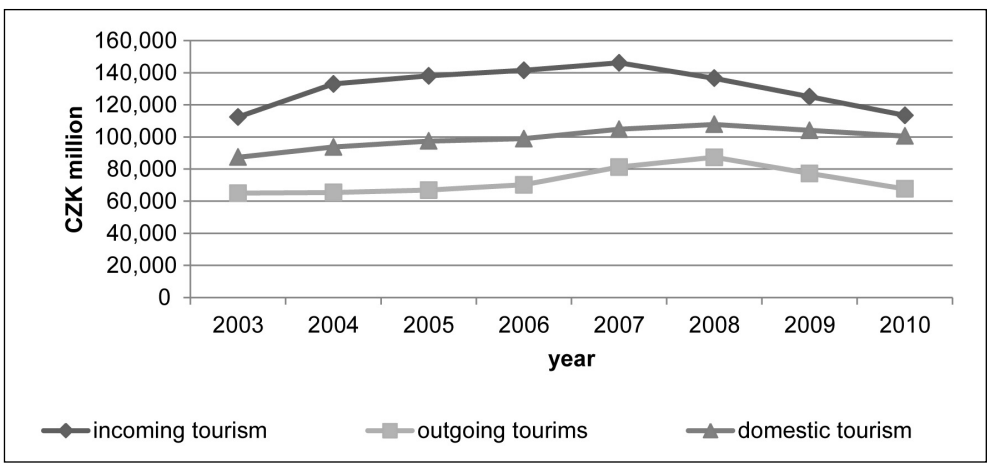
Source: [3]

A decline in visitor numbers and stay duration was noted again in 2009. The reduced numbers of visitors, overnight stays and stay duration were necessarily reflected in the tourism consumption, which is noted in the satellite balance of tourism. Tourism consumption is understood as the total volume of funds spent on tourism by non-residents and residents. The reduced consumption in tourism is matched with the decreased spending per trip (Figure 4, Figure 5).

The crisis in tourism, however, resulted not only in a decrease in potential clients, but it is also followed by a need to reduce costs. In many cases, this meant job redundancy. As said by Jaromír Beránek: "The number of people in the tourism in 2009 didn't change significantly, but the employers' revenues fell sharply. So they will have to cut on jobs, otherwise their existence would be challenged." According to a survey by the World Travel & Tourism Council, in 2010, there was a 2009% decrease in jobs in tourism, compared to 7 [4].

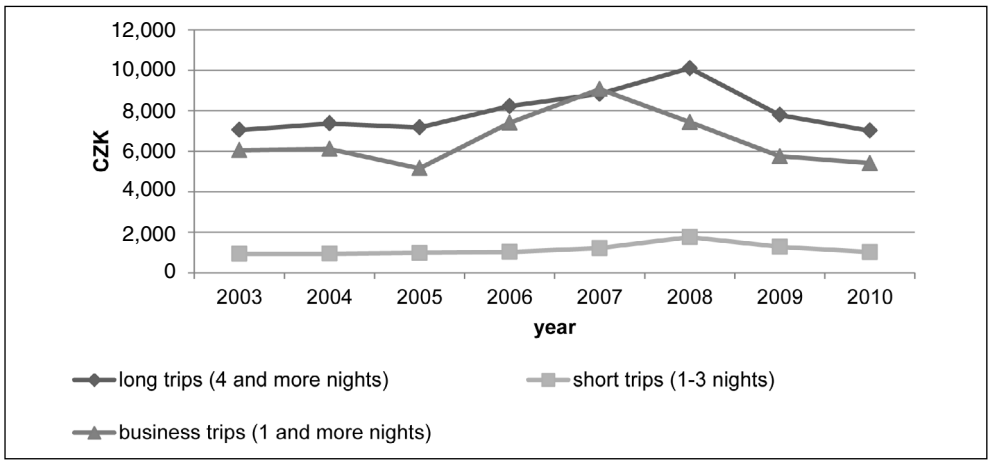
But as early as in 2010, the first time since 2008, the decline in visitor numbers and stay duration stopped. A growing trend in these fields was recorded also in 2011.

Fig. 4: Consumption in incoming, outgoing and domestic tourism in the Czech Republic in 2003–2010



Source: [3]

Fig. 5: Average spending by Czech residents per trip, in CZK



Source: [3]

2. The Economic Crisis and Its Implications for Business Management in the Tourism Industry

Quite naturally, at a time of a global crisis, there are changes in management of business within the industry, that is, tourism. By reducing available potential of clients, a visitor rate decreases in lodging facilities, with all accommodation providers, which means businesses often have to change management objectives. These changes are reflected in all levels of management, strategic, tactical and operational. In the tactical and operational context, companies address the operational issues related to the insufficient interest in services on offer by guests. On the strategic level, managers address the achievement of the objectives set down within the context of the market and corporate resources, and these changes result in a significant impact on the entire business.

The changes brought about by the global crisis, influencing the strategic management of accommodation providers, do not necessarily involve negative aspects, but they may also generate certain opportunities and impulses. The changing market conditions provide opportunities for private tourism businesses (and often a necessity) to generate new, competitive strategies for the domestic and international markets. The strategy of the accommodation provider is a result of a comprehensive managerial decision making process, formulating corporate objectives and steps towards achieving these, and is a result of a strategic management implemented by top managers. The success of the strategy depends on its degree of conformity with the new environment, the new market. It is the global crisis that is dramatically changing the business environment for accommodation providers. Companies active in tourism start developing new products for their future clients, such as tourism enhanced with food, wine trails, etc. These new strategies must both reflect the expectations on part of the customers and take the competition and their strategies into consideration. The success of the accommodation provider depends on the success of meeting customer requirements and generating a suitable competitive advantage. Building a sustainable competitive advantage is actually the objective of strategic management and the competitive advantage for today's clients of accommodation services within the framework of tourism is no longer a low price, but the service quality provided cost efficiently, as well as long-term customer handling. This strategy of the accommodation provider leads to generating long-term good relations with clients so that they keep coming back and using the services on offer again. It goes without saying that over

the course of time, the competitive advantage will be eliminated to a certain extent, but the company needs to boost the competitive advantage on an ongoing basis, or search for and generate new competitive advantages. Creating and building a long-term competitive advantage is highly challenging due to the fierce competition in tourism. Sometimes it seems as if everything has been created and one cannot come up with something new, interesting and unique. Client handling may sometimes facilitate the process of generating a competitive advantage, as the client may becoming a certain provider of ideas.

The impact of every crisis is adverse for both the subject directly affected by the crisis as well as its environment. Thus, companies affected by the crisis try to eliminate their consequences, resorting to crisis management.

As with the classical management there are a number of definitions for crisis management. According to Antušák [1], crisis management is an interdisciplinary branch of science which can be understood as a coherent set of approaches, methods and recommendations applicable to a hierarchy-based, function-linked system of public authorities, legal entities and natural persons.

The word crisis is derived from Greek "krino" (meaning "separate, choose, decide, assess"), denoting a final, irrevocable decision made within two options, or an urgent need, a feeling of uncertainty, search for help and accident prevention [14]. As early as the 19th century, the notion of "crisis" was defined as uncertainty, suffering and test, referring to unknown future [12]. A crisis is a challenging, dramatic situation, a difficulty, mess, a period of certain instability or status of a change approaching. It is a significant, often unexpected event with a high potential of negative impact, a situation in which balance is significantly harmed. It is a negative deviation from the normal state.

As in many other fields, also in crisis management, the basic issue is to come up with a uniform definition for the notion of "crisis". The problem of inconsistent terminology and the definition of the basic concepts is typical of crisis management, especially in companies. Thus, it is necessary to focus on defining the principle that determines the outbreak of a crisis.

To define a company crisis, we will then invoke the definition by Zuzák and Königová [19]: "The crisis is understood as a situation of different duration when the decision is being made whether the company will, as a minimum, return to the status just before the occurrence of the crisis, or there is a potential threat to achieving company goals, and its possible further existence".

Crisis management is built on two pillars, these being a crisis management plan and crisis communication. Crisis management is in no way a set of mechanical rules, procedures and activities, but a set of innovative processes and progressive steps aimed at anticipating the comprehensive nature of the crisis [15].

The aim of crisis management in the tourism is to minimize the chances of the crisis outbreak, to reduce the damage scope, to minimize the crisis duration, to eliminate the consequences of negative factors of crisis situations and an effort to recover the system and return to its original state.

Based on the assumptions specified above, the following hypotheses were established.

Hypothesis 1a: A change in company management of the accommodation provider, as a result of the economic crisis, is manifested through a change in services on offer. There is a reduction in the supply of services.

Hypothesis 1b: A change in company management of the accommodation provider, as a result of the economic crisis, is manifested through a change in pricing for services on offer. Specifically, there is an increase in prices for services on offer.

Hypothesis 1c: A change in company management of the accommodation provider, as a result of the economic crisis, is manifested through a change in the staff size. The staff size is reduced.

Hypothesis 1d: A change in company management of the accommodation provider, as a result of the economic crisis, is influenced by the size of the company. Changes in the management practices are best visible in small and medium-sized enterprises.

Hypothesis 1e: A change in company management of the accommodation provider, as a result of the economic crisis, is influenced by the type of the company. A change in management occurs mostly in companies such

as boarding houses, camp-sites, bungalow sites and hostels. Hotels as a category are not influenced considerably by changes in management.

Hypothesis 1f: A change in company management of the accommodation provider, as a result of the economic crisis, is influenced by the perception of the crisis and its impact on the company. A change in the company management occurs especially if the crisis is seen as a negative factor of the company development.

Hypothesis 2a: Perceptions of the economic crisis, as a major external factor of the accommodation provider, depend on the company size. Small and medium-sized enterprises perceive the economic crisis as a threat to their commercial activities.

Hypothesis 2b: Perceptions of the economic crisis, as a major external factor of the accommodation provider, depend on the company type. Boarding houses, camp-sites, bungalow sites and hostels perceive the economic crisis as a threat to their commercial activities.

Hypothesis 3a: The generation and use of a contingency plan is influenced by the size of the accommodation provider. Contingency plans tend to be made rather by large companies.

Hypothesis 3b: The generation and use of a contingency plan is influenced by the type of the accommodation provider. Contingency plans tend to be made by hotels.

3. Research Study

The aim of the research study was to determine the impact of the economic crisis on management of companies in the tourism industry, more specifically, in accommodation services. Because of the aim defined, the choice was made in favour of short-term research of primary data of descriptive and explanatory nature. As a research method, polling was selected, more specifically, spoken interviews. The research tool consisted in a questionnaire.

3.1 Methodology

To test the hypotheses established, a sample of accommodation providers operating in the Olomouc region was selected. The selection of informants for the research was made as an intentional quota selection.

The questionnaire was submitted to the managers or directors of 72 accommodation providers. In spite of the figure not being high, it is deemed statistically sufficient due to the explanatory nature of the research study. There were 72 applicable questionnaires. So the questionnaire return rate was 100%. This high return rate for questionnaires was ensured by a polling officer present during the questionnaire filling process. Before presenting finally, the questionnaire was tested on the sample of 5 companies. The research was carried out in the Olomouc region in June–July 2012.

Variables

Dependent variable

The dependent variable in this study is a change in company management in tourism in 2007–2011.

Independent variables

Independent variables include crisis perceptions, changes in the scope of services on offer, modified pricing, changes in the staff size, the company type and the company size.

Crisis perception is about the company perceiving the crisis to be a positive or strictly negative factor for the company.

Changes in the service scope on offer (hereinafter referred to as services) denote if companies reduced, increased, or kept the scope of services.

Changes in pricing (prices) are about whether any changes were noted in the reference companies in 2007–2011.

Changes in the staff size (staff) denote if the reference companies increased the staff size or the staff size was left unchanged.

The company type (type) followed the systematic pattern used by the Czech Statistical Office, with these categories: 4-star hotels, 3 star hotels, 2 star hotels, 1 star hotels, other hotels, boarding houses, camp-sites, bungalow sites, hostels and others.

The company size (size) was indicated in the number of employees. This legislation distinguishes between four categories of business entities, these being micro-enterprises (1–10 employees), small business (up to 50 employees), medium-sized enterprises (50–250 employees), and large enterprises (more than 250 employees).

To analyse the data obtained, the software application SPSS 11.5 for Windows was employed. To test the hypotheses, an analysis of categorical data was used. To describe and

analyse the relationship type of the qualitative variables (also known as categorical variables), an analysis of contingency tables was used, thus, we have an analysis of categorical data at hand. This is an analogy to the correlation analysis of continuous variables. The difference is that in case of analysing the frequency tables, both categorical variables are considered random [7]. The contingency tables are two-dimensional tables produced by sorting based on two variables: the tables allow following marginal sums of lines and columns. Line/ /column lines can be expressed in absolute and relative frequencies [7]. Hypotheses for the contingency tables are usually defined in terms of stochastic independence, applying certain conditions. The relevant statistical tests are called sometimes good fit tests, comparing the compliance of variable metric diameters [7].

To measure the strength of the relationship in a contingency table, we suggest a number of coefficients working similarly as the correlation coefficient. The contingency table relies on an adjusted contingency coefficient according to Pearson and Cramer [7]. The Cramer coefficient may read: 0–0.1 (negligible dependence), 0.1–0.3 (weak dependence), 0.3–0.7 (high dependency), 0.7–1.0 (strong dependence) [2]. Hypothesis tests concerning the independence of categorical data are performed using the test statistics λ2 (Pearson statistics – Pearson Chi-square). The test is based on a comparison of the frequency found (njk) and theoretical frequency (nj. nk/n) of variant pairs which should be very similar in a relevant zero hypothesis. The Cramer coefficient and Pearson correlation coefficient involve values within the scope of 0 to 1. A zero value in the table indicates no relation; the coefficients amounting to 1 indicate a complete relationship [7].

3.2 Research Results

Before proceeding with the analysis of categorical data and the deviance analysis, the diagnostics was performed for collinearity through correlation (table 2).

Tab. 2: Descriptive statistics and correlation analysis

	SH	SO	1	2	3	4	5	6	7	8
management	1.61	0.491	1							
crisis perceptions	4.38	3.265	-0.373**	1						
services	2.38	0.615	0.256*	-0.232*	1					
prices	2.06	0.948	0.229	0.020	-0.181	1				
staff	2.50	0.805	0.250*	-0.190	0.242*	-0.092	1			
type	6.39	2.958	0.212	-0.234*	0.406**	0.163	0.373**	1		
size	1.17	0.411	-0.233*	0.173	-0.139	-0.133	-0.298*	-0.529**	1	
contingency plan	2.47	0.530	-0.150	0.116	-0.248*	0.003	0.033	-0.316**	0.474**	1

* The correlation is significant at the 5% significance level.
* The correlation is significant at the 1% significance level.
SH – the mean, SO – relevant deviation

Source: custom data

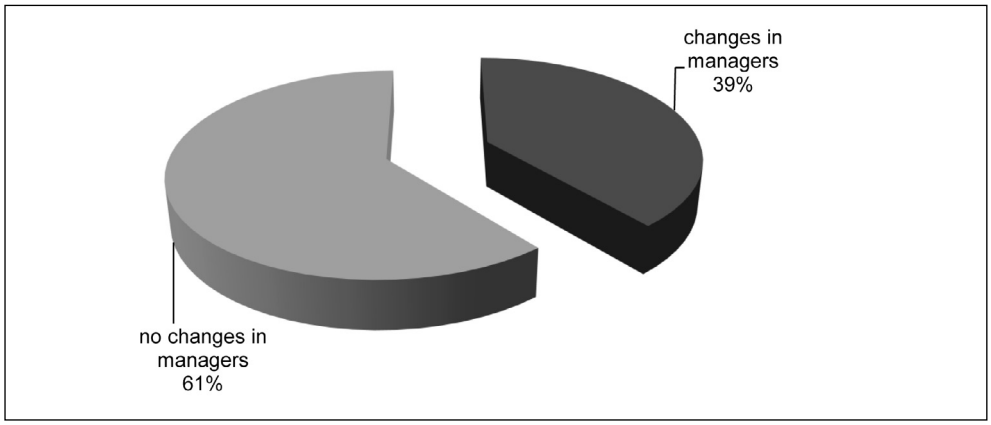
Changes in Company Management due to Economic Crisis

The research study allowed finding out that the economic crisis did not bring a change in management for most companies (refer to Figure 6).

Changes in company management, as a result of the economic crisis, were not influenced by the company size. The influence of the economic crisis failed to change pricing and reduced the staff size. The only change confirmed in business management, caused by the economic crisis, was a change in the service scope on offer. It was interesting to note that the offer scope grew, rather than declined (refer to Figure 7), which would have been expected.

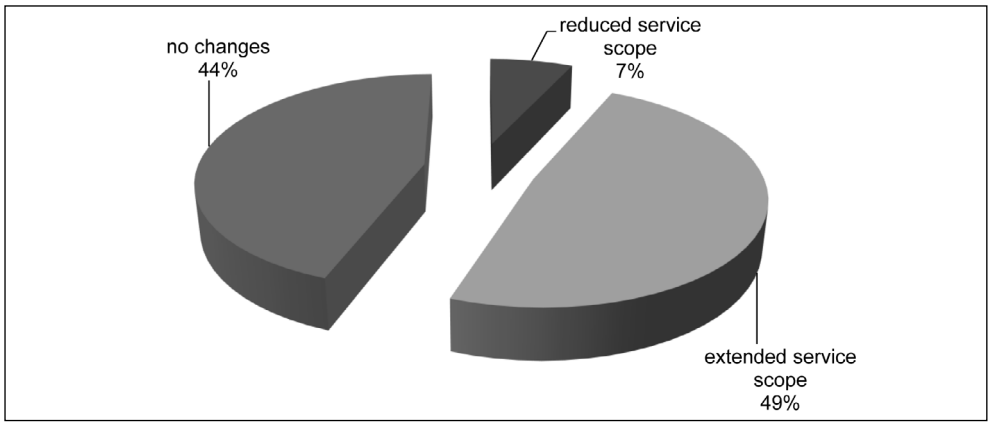
To confirm the set of hypotheses H1a–H1e, an analysis of categorical data analysis was performed, with its results recorded in Table 3 below.

Fig. 6: **Impact of the economic crisis on changes in management of service providers**



Source: custom data

Fig. 7: **Changes in service scope due to changes in company management**



Source: custom data

Tab. 3: **Analysis results of categorical data for Hypotheses H1a–H1f**

	Pearson coefficient	Cramer coefficient V	p
change in service offer	7.392	0.320	0.025
change in pricing	4.180	0.241	0.124
change in staff size	5.502	0.276	0.064
company size	3.958	0.234	0.138
company type	10.172	0.376	0.337
crisis perceptions	14.047	0.442	0.015

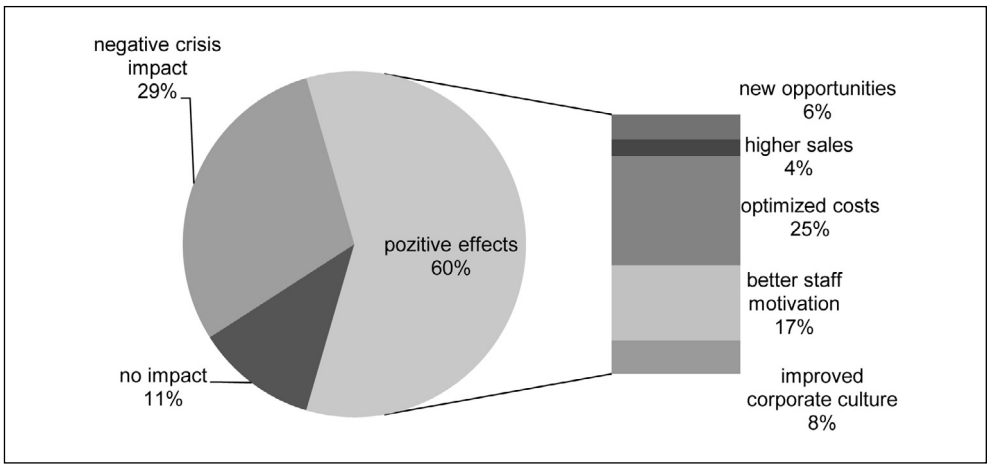
Source: custom data

Hypothesis 1a presumed an influence of change in company management on service offer. This hypothesis was partly confirmed ($p < 0.05$). This means that the economic crisis has a certain impact on changing the service scope on offer, but the scope was not reduced (as assumed), but extended. The impact of this factor on the method choice indicates medium dependence ($V = 0.320$). Hypothesis 1b presumed an influence of change in company management on pricing of the services. The hypothesis was not confirmed ($p > 0.05$). Hypothesis 1c, presuming an impact of management changes on staff size, was not confirmed ($p > 0.01$). Hypothesis 1d, presuming the impact of the company size on changes in company management, was not confirmed ($p > 0.05$). Hypothesis 1e, involving the influence of the company type on changes in company management, was not confirmed ($p > 0.05$). Hypothesis 1f, presuming the influence of crisis perceptions on changes in company management, was confirmed in part ($p < 0.05$). The crisis was seen as a positive factor, not as a negative factor the way it was presumed. The impact of this factor indicates medium dependence ($V = 0.442$).

Perceptions of the Economic Crisis as the External Influence Factor of Company Performance

Generally, we can say, as shown in Figure 8, that the crisis is perceived rather positive in terms of changes in company management. This means that the crisis is seen as a source of new opportunities and potential for functional improvements in the company.

Fig. 8: Perceptions of the economic crisis as the influence factor for company



Source: custom data

The perception of the economic crisis as a factor influencing the situation of a company depends on the company type and is independent on the company size. It is perceived as a negative factor by businesses such as a lodging house, a camp-site, a bungalow site and a hostel. Hotels perceive the economic crisis rather as a positive factor that can bring new opportunities for the company.

To confirm hypotheses H2a–H2b established, an analysis of categorical data was performed, with its results shown in Table 4 below.

Tab. 4: Analysis results of categorical data for Hypotheses H2a–H2f

	Pearson coefficient	Cramer coefficient V	p
size	14.235	0.314	0.163
type	67.391	0.433	0.017

Source: custom data

Hypothesis 2a presumed an influence of the company size on perceptions of the economic crisis as an external factor

influencing the company performance. This hypothesis was not confirmed ($p > 0.05$). Hypothesis 2b, presuming the influence of the company type on perceptions of the economic crisis, was confirmed ($p < 0.05$). The impact of this factor on the method choice indicates medium dependence ($V = 0.433$).

Generation and Use of Contingency Plan in Tourism Enterprises

To confirm the set of hypotheses H3a–H3b, an analysis of categorical data analysis was performed, with its results recorded in Table 5 below.

Tab. 5: Analysis results of categorical data for Hypotheses H3a–H3b

	Pearson coefficient	Cramer coefficient V	p
size	81.624	0.753	0.000
type	47.982	0.577	0.000

Source: custom data

Hypothesis 3a presumed an influence of the company size on the generation and the use of a contingency plan within the company. The hypothesis has been confirmed ($p < 0.01$). The impact of this factor indicates high dependence level ($V = 0.753$). Hypothesis 3b, presuming an influence of the company type on the generation and the use of the contingency plan, was confirmed. The impact of this factor on the method choice indicates medium dependence ($V = 0.577$).

A summary of the hypotheses and analysis results is listed in table 6.

4. Discussion

At present, a large number of economies around the world are struggling with the economic crisis, which brought about significant impact on quite a number of industries. The global crisis, affecting all levels of the global business environment, from the macro-environment down to the micro-environment of enterprises, is the most noticeable change affecting business management. As a result of the global economic crisis, the hospitality and tourism industry experienced a serious downturn in sales and profitability [9]. The current economic crisis has affected a large number of individuals, companies and countries [17].

The effects of the global economic crisis can be seen from different points of view. This research study focuses on the impact of the economic crisis on management of companies active in the tourism industry. Tourism industry is vulnerable to various crises and disasters, and its growth has been impeding due to unpleasant situations [6].

The research results presented above have led to certain interesting conclusions in terms of changes in the management of tourism companies. As obvious from previous results, a change in company management hardly involved pricing, service scope and file size.

The research study allowed finding out that most companies approached (55%) do not use and generate a contingency plan. Micro-enterprises and small enterprises do not generate contingency plans, thus unable to use them either. Medium-sized enterprises typically create contingency plans, but fail to use them in the context of the economic crisis. Regarding the company type, the results looked identical. Businesses within the hotel category do write contingency plans, but fail to use them throughout the economic crisis. Businesses in the category of boarding houses, camp-sites, bungalow sites and hostels do not generate contingency plans and do not use them.

Apart from affecting the business environment in the Czech Republic, the current global crisis has a truly international, global impact. The changes are visible not only on the level of demand and supply in goods and services, but they reach deeper, up to the managerial practices within the companies.

Due to the nature of tourism, which is a non-essential product, the industry was severely hit but the crisis. Apart from the changes in customer preferences and needs that had to be addressed flexibly by managers, there was a need to change the managerial practice within companies operating in the tourism industry. Managers were pushed to take austerity measures, at the same time ensuring better satisfaction on part of customers. Despite the declining demand on part of clients, the scope of services on offer as well as their quality improved. As proved in the research study, nearly 40% of accommodation providers in the Olomouc region carried out changes within the management of the company during the crisis.

Tab. 6: Summary of hypotheses and results

hypothesis	result
H1a: Change in company management of the accommodation provider, as a result of the economic crisis, is manifested through a change of services on offer. There is a reduction in the supply of services.	confirmed partially
H1b: Change in company management of the accommodation provider, as a result of the economic crisis, is manifested through a change in pricing for services on offer. Specifically, there is an increase in prices for services on offer.	not confirmed
H1c: Change in company management of the accommodation provider, as a result of the economic crisis, is manifested through a change in the staff size. The staff size is reduced.	not confirmed
H1d: A change in company management of the accommodation provider, as a result of the economic crisis, is influenced by the size of the company. Changes in the management practices are best visible in small and medium-sized enterprises.	not confirmed
H1e: A change in company management of the accommodation provider, as a result of the economic crisis, is influenced by the size of the company. A change in management occurs mostly in companies such as boarding houses, camp-sites, bungalow sites and hostels. Hotels as a category are not influenced considerably by changes in management.	not confirmed
H1f: A change in company management of the accommodation provider, as a result of the economic crisis, is influenced by the perception of the crisis and its impact on the company. A change in the company management occurs especially if the crisis is seen as a negative factor of the company development.	confirmed partially
H2a: Perceptions of the economic crisis, as a major external factor of the accommodation provider, depend on the company size. Small and medium-sized enterprises perceive the economic crisis as a threat to their commercial activities.	not confirmed
H2b: Perceptions of the economic crisis, as a major external factor of the accommodation provider, depend on the company type. Boarding houses, camp-sites, bungalow sites and hostels perceive the economic crisis as a threat to their commercial activities.	confirmed
H3a: The generation and use of a crisis plan is influenced by the size of the accommodation provider. Contingency plans tend to be made rather by large companies.	confirmed
H3b: The generation and use of a crisis plan is influenced by the type of the accommodation provider. Contingency plans tend to be made by hotels.	confirmed

Source: custom data

Conclusion

As demonstrated by the research study, the change itself did not influence aspects such as staff downsizing and price rises for the services provided. No influence was proved to be linked to the size and type of the accommodation facility in terms of manager replacement. A significant change in management occurred in particular where the crisis was perceived in negative terms. In such cases, there was a partial, sometimes complete replacement of top managers, involving considerable changes in the management policies.

The crisis was perceived negatively even if the business people decided to ignore the crisis, either through a lack of activity in terms of manager replacement, or through their unwillingness to adjust to customers. A decline in the customer demand for the specific accommodation facility was noted then, and clients moved elsewhere, mostly to competitors.

By contrast, those operators who have taken advantage of the great changes in the market and began to adapt in a flexible way were able to welcome a sufficient number of satisfied customers to their facilities, and they assessed the crisis outcome in positive terms.

Whatever the reaction of managers was, the fact remains that the crisis brought about a purifying effect on companies. There has been a development of the enterprises prepared and able to take tourism a step further, thus enjoying a potential for future; at the same time, companies without this essential potential lost ground or were entirely dissolved.

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Abstract

THE ECONOMIC CRISIS AND COMPANY MANAGEMENT: INFLUENCES AND CONSEQUENCES

Barbora Antonová, Šárka Zapletalová

The tourism industry has been considerably affected by the global economic crisis over the most recent years, with its roots identified in the US mortgage market segment. This crisis has caused fluctuations in the markets across all industries, triggering uncertainty in nearly every businessperson in the Czech Republic.

By their nature, tourist services are non-essential products, used by customers to satisfy their needs only. Thus, in those times of uncertainty, customers tend to cut down on these services to a certain minimum level. This fact manifested itself during the crisis in 2007–2012.

The article presents the impact of the global crisis on the tourism industry, in particular, on accommodation providers in the Olomouc region. The aim of the article was to explore the impact of this crisis on management of group accommodation facilities. The introductory chapter discusses the theoretical aspect of the economic crisis and its relations with company management, as well as the impact of the crisis on provision of accommodation services in the reference period across the nation. Following this, hypotheses are established, to be subsequently assessed by means of the primary research run as the questionnaire poll in the Olomouc region. The article focuses essentially on a change of managers in accommodation facilities, other measures taken by managers during the crisis, and the consequences of these measures.

Key Words: *Management, crisis management, tourism, world crisis, accommodation facilities.*

JEL Classification: *F18, F14, M10.*

20 LET VÝVOJE ČESKÉ EKONOMIKY – SROVNÁNÍ SE SLOVENSKEM

Ladislav Hájek, Lukáš Režný

Úvod

Do roku 1993 se rozvíjela česká ekonomika ve společném státě se Slovenskem. Od roku 1993 se vznikem České republiky (ČR) a Slovenské republiky (SR) se nacházejí obě ekonomiky ve stejných mezinárodních podmínkách, ale podstatné rozdíly jsou v tempu ekonomického rozvoje. Vývoj hrubého domácího produktu (HDP) je, přes všechny výhrady k jeho měření a mezinárodnímu srovnávání, [16] důležitým makroekonomickým i psychologickým faktorem, který ovlivňuje podnikové kalkulace rentability a rozhodování, kdy především změny jeho objemu a struktury (spotřeba domácností, celkové investice, vládní výdaje a vývoz) ovlivňují objem a strukturu prodaného zboží a služeb, utvářejí určité podnikatelské očekávání.

Ekonomické analýzy dosud nepostihovaly celé dvacetileté období vývoje obou národních ekonomik, ani vzájemné srovnání dlouhodobých časových řad vývoje HDP ČR a SR. Změny v tempu ekonomického růstu jsou v těchto studiích vysvětlovány v souvislosti s růstem či poklesem jednotlivých komponent hrubého domácího produktu, kterými je spotřeba domácností, investice (popř. tvorba hrubého fixního kapitálu), vládní výdaje (nákup zboží a služeb) a čistý export (objem vývozu snížený o dovoz). [27]

Při zkoumání rozdílů v HDP na obyvatele mezi zeměmi vlivem souhrnné produktivity výrobních faktorů je aplikována metoda strukturální dekompozice Cobb-Douglasovy produkční funkce a metoda růstového účetnictví. [7] Tyto studie přicházejí k obecnému závěru, že vysoká tempa růstu HDP jsou založena na růstu souhrnné produktivity výrobních faktorů, jako tomu bylo v případě Slovenska. [22]

Někteří autoři zkoumající vliv souhrnné produktivity výrobních faktorů na ekonomický růst ČR přistupují k mezinárodnímu srovnávání relativní úrovně souhrnné produktivity výrobních faktorů ČR se zeměmi Evropské unie. [18]

Z této metody nevycházíme z důvodu existence tzv. agregačního problému, který zpochybňuje samotnou existenci Cobb-Douglasovy produkční funkce. Agregační problém se týká podmínek, za kterých je možné agregovat množství mikroekonomických produkčních funkcí do jedné agregátní produkční funkce. Výše uvedená metoda je založena na předpokladu, že technologická úroveň ekonomiky může být reprezentována agregátní produkční funkcí. Studie zaměřené na tento problém prokázaly, že podmínky, za kterých lze agregovat mikroekonomické produkční funkce jsou natolik striktní, že je v reálné ekonomice není možné splnit a metodu strukturální dekompozice Cobb-Douglasovy produkční funkce a růstového účetnictví v praxi aplikovat. [13]

Při zkoumání vlivu dílčích faktorů ekonomického vývoje je často využívána vícerozměrná regresní analýza. Aplikace této metody spočívá v identifikaci proměnných, u kterých je očekáván prokazatelný vliv na sledovaný rozptyl míry růstu makroekonomického produktu vybrané skupiny států. Tyto proměnné jsou určitými indikátory vnitřního ekonomického prostředí dané země. Vývoj a změny jejich hodnoty od počátku sledovaného období jsou využívány k vysvětlení vykazovaných diferencí míry růstu mezi jednotlivými ekonomikami v určitém časovém období. [3] Z této metody vychází řada prací, jejichž výsledky byly v tomto článku využity pro determinaci faktorů, které by mohly přispět k vysvětlení pozorované diference v míře růstu HDP mezi ekonomikou ČR a SR.

Metoda regresní analýzy je v literatuře aplikována také pro kratší časové řady a se zaměřením na analýzu procesu internacionalizace, jejíž úroveň je vyjádřena objemem přímých zahraničních investic a obchodní otevřeností ekonomiky vůči zahraničí. Analýza prokazuje

pozitivní efekt přílivu přímých zahraničních investic, míry domácích investic a růstu zaměstnanosti pro Slovensko. [23]

Vedle analýzy vývoje HDP za uplynulé období jsou konstruovány kompozitní předstihové indikátory, které umožňují predikovat vývoj hospodářského cyklu do budoucna. Komponentami předstihového indikátoru je např. tvorba hrubého fixního kapitálu, export zboží a služeb, průmyslová výroba, indikátor spotřebitelské důvěry, tržní kapitalizace. [28]

Rychlý růst HDP nemůže být jediným a dokonce ani hlavním cílem hospodářské politiky. Již Simon Kuznets, autor tohoto systému měření ekonomické výkonnosti uváděl, že při posuzování ekonomického rozvoje je nutné brát v úvahu i rozdíly mezi kvantitou a kvalitou růstu, mezi náklady a výnosy a rovněž mezi krátkým a dlouhým obdobím. Ekonomický růst jako jeden z cílů hospodářské politiky by měl být jednoznačně specifikován z hlediska jeho měření i účelu. [25] Stranou by neměla zůstat ani problematika celkové velikosti ekonomického systému, kterou analyzuje Herman Daly. Zdůrazňuje, že ekonomika roste v určitém vnějším prostředí, které je tímto procesem degradováno. Důležité je stanovit a prosazovat jen takové tempo ekonomického růstu, při kterém jeho přínosy ještě převažují nad negativními důsledky jako je znečištění životního prostředí a vyčerpávání neobnovitelných přírodních zdrojů. [19]

1. Metoda výzkumu

Počáteční fází tohoto výzkumu je zjišťování, statistické zpracování a kvantitativní i grafická deskripce dlouhodobých časových řad vývoje hrubého domácího produktu v ČR a v SR při využití indexové metody.

Východiskem k vysvětlení pozorovaného rozptylu v mírách růstu je v literatuře používána metoda vícerozměrné regresní analýzy. Zde ji pouze stručně zmíníme, protože v článku není v celé své šíři aplikována. Je však důležitá v souvislosti s další literaturou, z které vycházíme při výběru analyzovaných proměnných ve snaze postihnout více faktorů a jejich souběžný vliv na ekonomický růst. V současné literatuře byla identifikována celá řada makroekonomických i mikroekonomických faktorů, které dlouhodobě ovlivňují tempo ekonomického rozvoje. Jednotlivé vybrané proměnné zde vystupují v rovnici ve tvaru:

$$\gamma = \alpha + \beta_1 * x_1 + \beta_2 * x_2 + ... + \beta_n * x_n + \varepsilon \quad (1)$$

kde γ je vektorem míry ekonomického růstu vybraných zemí, α je konstantou a $x_1, ... x_n$ je vektor vysvětlujících proměnných. Ekonomická teorie však zde neposkytuje jednoznačný výčet faktorů, které by měly být brány v úvahu. Na základě různých teoretických modelů a dostupnosti dat se nabízí široká škála faktorů, které by mohly vystupovat v roli vysvětlujících proměnných. Záleží potom především na úvaze autora, které proměnné do rovnice zařadí a které pomine.

Problémem pak je i určitá nestabilita takových modelů, protože výběr proměnných (zahrnutí či vyloučení určitých faktorů) může změnit vlastnosti celého modelu. Může dojít ke ztrátě statistické signifikance některých proměnných (tyto proměnné v modelu ztratí svoji původní roli) nebo se změní jejich charakteristika. Vybraná vysvětlující proměnná modelu tedy v jednom případě zdánlivě ovlivňuje ekonomický růst pozitivně, ale po změně konfigurace modelu může působit negativně.

Tomuto vážnému problému používání metody vícerozměrné regrese jako nástroje k vysvětlení pozorovaných rozptylů ekonomického růstu jednotlivých zemí se podrobně věnovali zejména autoři Robert Barro a Xavier Sala-i-Martin, z jejichž práce vycházíme při určení proměnných, které by měly přispět k vysvětlení pozorovaného rozdílu v míře ekonomického růstu mezi ČR a SR. Výše zmínění autoři se soustředili na určování **tzv. robustních vysvětlujících proměnných,** tedy takových proměnných, které jsou statisticky signifikantní ve většině konfigurací modelů a jejich vliv na ekonomický růst je stálý, ať již v pozitivním, nebo negativním směru. Tuto analýzu autoři provedli pro globální vzorek 88 států a do modelů vysvětlujících sledované odchylky ekonomického růstu zahrnuli celkem 68 proměnných, pro něž byla dostupná data již od roku 1960. [2], [24]

Vyloučíme proměnné, které nemohou vysvětlit rozdíly v tempu ekonomického růstu v případě ČR a SR (např. pomocná proměnná pro východoasijské ekonomiky) a dále proměnné vykazující nepodstatné rozdíly mezi oběma zeměmi (např. míra docházky do základní školy, očekávaná délka života). Zaměříme se tak pouze na proměnné, které jsou výše zmíněnými autory považovány za robustní

a jejich hodnoty se v případě sledovaných ekonomik významně odlišují. Těmito proměnnými jsou následující ukazatelé: **výchozí úroveň HDP na obyvatele, hrubá tvorba kapitálu, podíl veřejných výdajů na HDP.** Kompletní seznam proměnných identifikovaných autory výše zmíněných prací jako robustní lze nalézt v citované literatuře.

V další části doplníme tyto tři proměnné o další faktory ekonomického růstu v relativním mezinárodním a souhrnném vyjádření, které charakterizují **institucionální kvalitu,** jako jsou **podmínky k podnikání, celkové daňové zatížení a vnímání korupce.**

2. Vývoj hrubého domácího produktu ČR a SR v letech 1993–2012

Proces transformace československé ekonomiky byl provázen na počátku a na konci 90. let poklesem HDP. V prvních třech letech ekonomické transformace 1990–1992 došlo k absolutnímu poklesu objemu HDP, další čtyři roky (1993–1996) následovalo krátkodobé oživení. Nepříznivý vývoj pokračoval v letech 1997–1998, kdy bylo tempo růstu HDP ČR opět záporné, zatímco v SR po oba uvedené roky činilo 4,4 %. Hlavní příčinou byla nekoordinovaná, restriktivní fiskální politika české vlády a restriktivní monetární politika České národní banky (ČNB). Největšího ekonomického růstu bylo v první dekádě transformace české ekonomiky dosaženo v roce 1995 (6,2 %) a na Slovensku rovněž v roce 1995 (7,9 %).

Za transformační období 1990–2000 bylo tempo růstu HDP ČR záporné a činilo -3,9 %. Ekonomika ČR tak na rozdíl od sousedních transformujících se ekonomik ještě v roce 2000 nedosáhla podle původních, nerevidovaných údajů výchozí úrovně. K nejhlubšímu poklesu HDP došlo v roce 1991 (-11,6 %). Více byla postižena slovenská ekonomika, kde se HDP snížil o 17,5 % především v důsledku podstatného zredukování těžkého a zbrojního průmyslu. Pokles HDP celého Československa v roce 1991 činil 12,5 %. Od roku 2000 dochází k oživení ekonomiky až do roku 2009. [5]

Současná relativně vysoká ekonomická úroveň ČR je však dána výhradně lepšími výchozími podmínkami, neboť v průběhu 90. let se relace vůči Evropské unii (EU) i ostatním kandidátským zemím na členství v EU zhoršovala. Ekonomický růst ČR byl do roku 2000 ve srovnání se zeměmi střední a východní Evropy nejpomalejší. Průměrné roční tempo růstu HDP ČR v letech 1993–2000 činilo 1,6 %, zatímco na Slovensku za stejné období 3,6 %.

Po období ekonomického růstu se v roce 2008 projevila v ČR globální ekonomická krize především výrazným poklesem poptávky ze zahraničí. Podle údajů Eurostatu (Tab. 1 a Obr. 1) vzrostl HDP ČR v roce 2008 o 3,1 %, v SR o 5,8 %, zatímco v roce 2007 dosahoval tento ukazatel v ČR 5,7 % a 10,5 % na Slovensku. V roce 2009 došlo k absolutnímu poklesu HDP ČR, a to o -4,5 %, na Slovensku o -4,9 %. V roce 2010 již vzrostl HDP ČR o 2,5 % (v SR o 4,4 %) a v roce 2011 o 1,9 % (v SR o 3,2 %).

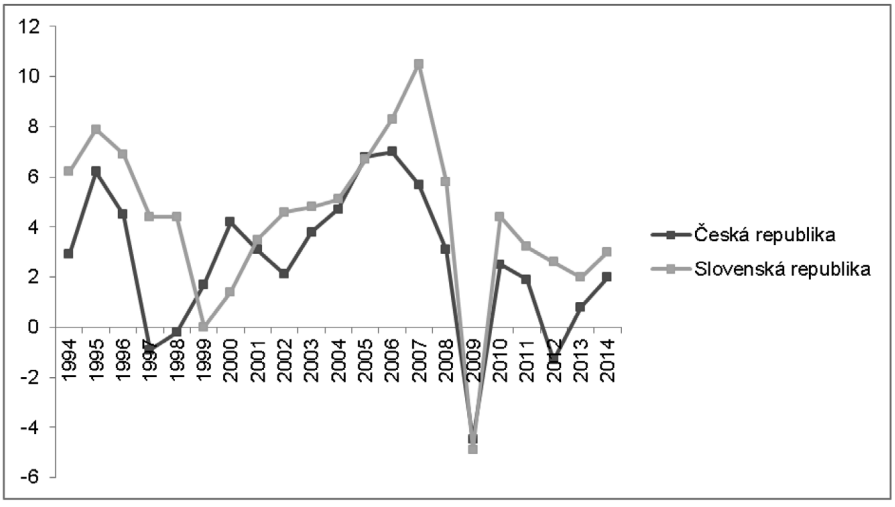
Tab. 1: Porovnání vývoje HDP ČR a SR v letech 1994–2014

Tempo růstu HDP (v %)	Roky	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Česká republika	2,9	6,2	4,5	-0,9	-0,2	1,7	4,2	3,1	2,1	3,8
	Slovenská republika	6,2	7,9	6,9	4,4	4,4	0	1,4	3,5	4,6	4,8
	Roky	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013***
	Česká republika	4,7	6,8	7	5,7	3,1	-4,5	2,5	1,9	-1,3	-0,4
	Slovenská republika	5,1	6,7	8,3	10,5	5,8	-4,9	4,4	3,2	2	1

* údaje za rok 2013 jsou odhadem

Zdroj: [11], vlastní zpracování

Obr. 1: Vývoj HDP ČR a SR v letech 1994–2014 (meziroční změna v %, stálé ceny)

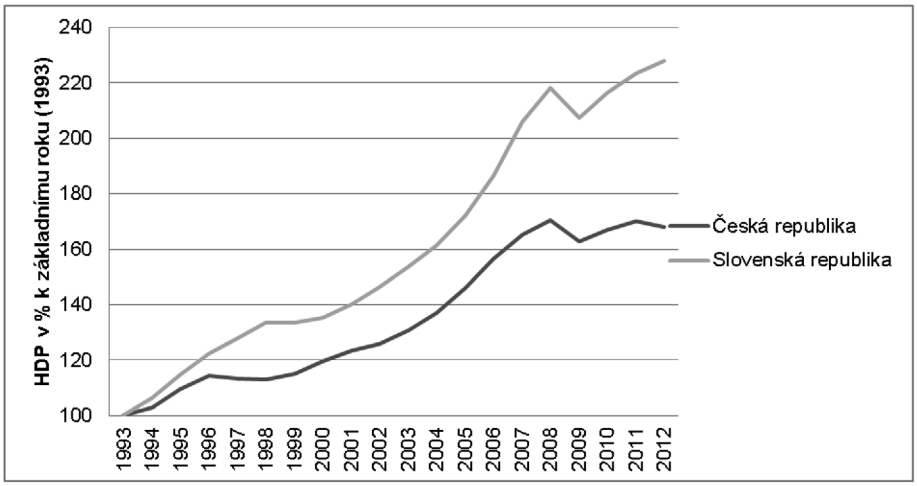


Zdroj: [11], vlastní zpracování

Na pokles v roce 2009 měla (z hlediska výdajové metody měření HDP) největší vliv začínající recese v EU, především v Německu, které je hlavním obchodním partnerem ČR. Negativní dopad na ekonomický růst mělo rovněž nižší tempo spotřeby domácností, růst cen surovin a rychlé posilování kurzu české koruny. Kurz koruny dosáhl svého vrcholu v červenci 2008, kdy se v průměru od začátku roku koruna zhodnotila o 11,5 % vůči euru a o 23,1 % vůči americkému dolaru.

Od vzniku dvou samostatných republik, v letech 1993–2012, se rozvíjelo Slovensko

Obr. 2: Vývoj HDP ČR a SR v letech 1993–2012 (meziroční změna v %, stálé ceny, rok 1993 = 100)



Zdroj: [11], vlastní zpracování

ve srovnání s ČR podstatně rychlejším tempem. **Za 20 let** od vzniku ČR a SR v roce 1993 do roku 2012 **se zvýšil HDP ČR o 67,9 %, ale HDP Slovenska za stejné období o 128 %, tj. více jak dvojnásobně** (2,28 krát) – Obr. 2.

Hospodářská politika Slovenska v porovnání s hospodářskou politikou českých vlád za celé sledované období 1993–2012 se z hlediska růstu HDP na obyvatele i z hlediska konvergence k EU jeví jako úspěšnější. Oproti Slovensku dosáhla hospodářská politika ČR lepších výsledků v oblasti zaměstnanosti a inflace. [15] Pro ekonomiku ČR a SR byl důležitým podnětem ekonomického růstu vstup do Evropské unie v roce 2004. Pro Slovensko kromě toho i vstup do Evropské měnové unie a přijetí eura v roce 2009. [14]

Přijetí eura urychlilo nominální i reálnou konvergenci Slovenska k Evropské unii. **V roce 1995 dosahoval slovenský HDP na obyvatele jen 63 % úrovně ČR, v roce 2012 to bylo již 82 %.** Slovensko patří v posledních letech k nejrychleji se rozvíjejícím zemím EU. [4]

Celkový pohled na výkonnost ekonomiky ČR prostřednictvím ukazatele HDP na obyvatele v paritě kupní síly (PPS) ukazuje, že ČR ztrácí pozice vůči Slovensku i EU jako celku. V roce 2001 dosahoval **v ČR HDP na obyvatele** 73 % průměru EU, v roce 2007 to bylo 83 %, ale **v roce 2012 poklesl tento podíl na 79 % průměrné úrovně EU. Na Slovensku** v roce 2001 činil HDP na obyvatele pouhých 53 % průměru EU, v roce 2007 68 % a v roce 2012 75 %. [5]

3. Hrubý domácí produkt, tvorba hrubého kapitálu a veřejné výdaje

3.1 Výchozí úroveň HDP na obyvatele

Pozorované rozdíly v dlouhodobých trendech ekonomického růstu různých zemí jsou vysvětlovány na základě vývoje mnoha odlišných faktorů. Jedním z nejčastěji uváděných faktorů je úroveň HDP na obyvatele, spojená s hypotézou **absolutní konvergence.** Dle této hypotézy by **země s nižší úrovní agregátního produktu na hlavu měly vykazovat vyšší tempa růstu**, tedy jistou tendenci přibližování se k úrovni produktu vyspělých ekonomik, bez stanovení jakýchkoliv dalších podmínek na charakteristiku těchto méně ekonomicky rozvinutých ekonomik. V tomto případě je tedy **vysvětlujícím faktorem pozorované míry růstu dané země pouze počáteční velikost HDP na obyvatele.** [3]

Tuto hypotézu testovali Robert J. Barro a Xavier Sala-i-Martin za období let 1960–2000 pro 112 vybraných zemí. V analýze dospěli k opačnému závěru, tedy že míry růstu daných zemí byly mírně pozitivně korelovány (r = 0,19) s jejich počáteční pozicí – země s vyšší úrovní agregátního produktu na obyvatele tedy vykazovaly tendenci k rychlejšímu růstu. [3] Tento závěr je v souladu s dalšími autory, kteří zkoumali data za obdobný časový úsek. [1], [8]

K jiným výsledkům při použití aktuálních dat (perioda let 1998–2008) dospěli autoři studie nazvané Dimenze globalizace. [21] Pro daný časový úsek nejprve analyzují úplný soubor všech států a přicházejí k podobnému závěru jako výše uvedení autoři. Výsledkem pro daný soubor je negativní korelace mezi průměrnou výší růstu HDP na hlavu a počáteční úrovní HDP roku 1998 na hlavu, r = -0,062. Tato korelace je však statisticky nevýznamná. Výsledky tedy vyvracejí hypotézu nepodmíněné konvergence. [21]

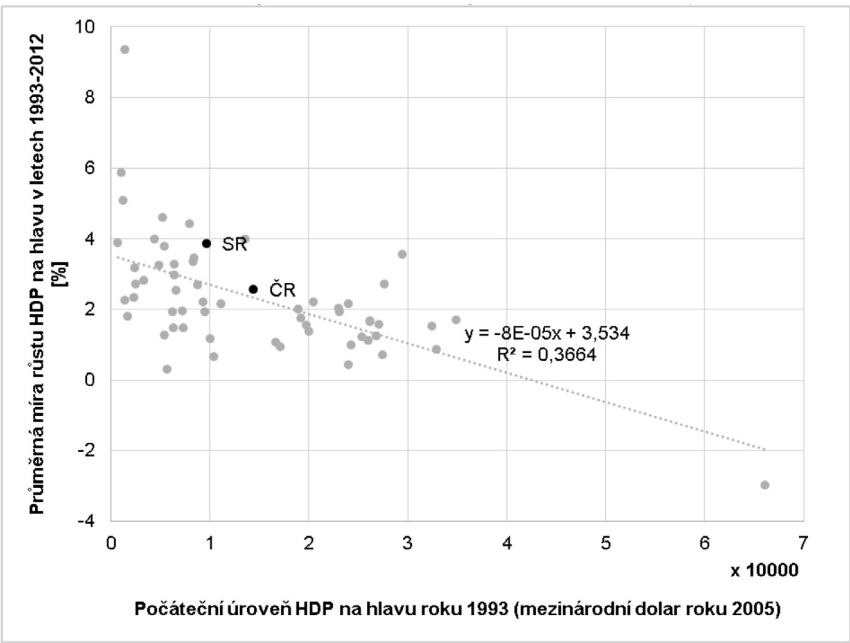
Autoři na základě získaných dat však konstatují, že ekonomiky s nižším příjmem (vyjádřeno úrovní HDP na hlavu) a celkově menší absolutní velikostí ekonomiky trpí nestabilitou, tedy velkými výkyvy v míře růstu HDP na hlavu. Lze tedy říci, že tyto ekonomiky vytvářejí v daném souboru jistý informační šum, zkreslující celková data a přitom tyto státy zaujímají pouze několik málo jednotek procent celkové světové populace a stejně tak představují malou část světového HDP. To autory vede k postupnému vyřazování těchto ekonomik z datového souboru, kdy v každém kroku vždy znovu zjišťují výslednou korelaci počáteční úrovně HDP na hlavu a průměrné míry růstu HDP na hlavu v následujících obdobích.

Výsledkem je postupný růst negativní korelace mezi sledovanými veličinami, stejně tak růst statistické významnosti této korelace. Například pro datový soubor nezahrnující ekonomiky s celkovým výkonem menším než 40 miliard mezinárodních dolarů (k roku 2005), který stále ještě zahrnuje ekonomiky ČR a SR je výsledná korelace r = -0,51, p < 0,0001, tedy poměrně silný a statisticky signifikantní negativní vztah. Závěrem této studie je tedy potvrzení hypotézy absolutní konvergence v rámci větších ekonomik. [21]

Pro účely této práce se tedy nabízí otázka, jestli pozorované rozdíly v mírách růstu ekonomik ČR a SR lze vysvětlit počáteční úrovní HDP na hlavu dosahovaných v těchto zemích. Za tímto účelem byl sestaven datový soubor obsahující všechny světové ekonomiky s celkovou výší HDP roku 1993 vyšší než 50 miliard dolarů. Slovensko je s hodnotou 516,1 mil. mezinárodních dolarů roku 2005 posledním z celkem 62 států, které tuto podmínku splňují. Vybrané státy souhrnně v roce 1993 tvořily celkem 98,53 % světového HDP, tedy jeho naprostou většinu. Tyto údaje byly porovnávány s průměrnou mírou růstu HDP na hlavu těchto zemí za období let 1993–2012. Účelem bylo mapovat období od vzniku samostatných státu ČR a SR. Zdrojem dat byla databáze Světové banky. [31]

Výsledky se shodují s výše představenou studií [21] i přes odlišně zvolené časové období. Korelace sledovaných veličin má očekávanou negativní hodnotu r = -0,605 a je statisticky signifikantní ($p < 0,0001$). Tyto **výsledky tedy potvrzují hypotézu absolutní konvergence** v rámci výše zmíněného souboru ekonomik. (Obr. 3)

Obr. 3: Míra růstu HDP na obyvatele v závislosti na výchozí úrovni HDP na obyvatele



Zdroj: [31], vlastní zpracování

Pokud ze získaných dat sestavíme jednoduchý regresní model, kde nezávislou proměnnou je úroveň HDP na hlavu roku 1993 a závislou proměnnou průměrná míra růstu HDP na hlavu v období let 1993–2012, získáme regresní přímku (Obr. 3). Výsledný index determinace tohoto jednoduchého regresního modelu je $R^2 = 0,3664$, tedy **36,64 % rozptylu hodnot je vysvětleno modelem.** Tato hodnota se nemusí jevit jako příliš vysoká, ale jde o významný výsledek, v kterém je modelem predikována ekonomická výkonnost daných ekonomik pouze na základě jednoho parametru, tj. na základě jejich výchozí ekonomické úrovně vyjádřené pomocí HDP na obyvatele.

Nyní můžeme porovnat modelem předpokládané míry růstu pro ekonomiky ČR a SR. Už z grafu je patrné, že ekonomika SR se od regresní přímky odchyluje mnohem výrazněji, než ekonomika ČR, která se nachází téměř na

regresní přímce. **Vytvořený model předpokládá pro ekonomiku SR průměrnou roční míru růstu 2,76 % a pro ekonomiku ČR 2,38 % na základě jejich výchozích úrovní HDP na obyvatele** (9 692 dolarů pro SR a 14 401 dolarů pro ČR, vyjádřeno opět v konstantní měně).

Skutečně pozorované hodnoty průměrné míry růstu jsou však odlišné, a to zejména pro ekonomiku SR, která ve sledovaném období 1993–2012 vykazovala **průměrné roční tempo růstu 3,86 %, tedy o více než jeden procentní bod vyšší oproti hodnotě predikované na základě výchozí úrovně HDP na obyvatele SR modelem.** Jinými slovy řečeno, vykazovaný rozdíl mezi oběma zeměmi, tj. **rychlejší růst Slovenska lze přibližně jen z jedné čtvrtiny (z 26 %) vysvětlit nižší výchozí ekonomickou základnou** (vyjádřené objemem HDP na obyvatele). Rozdíly v tempech růstu ČR a SR tedy závisí i na dalších faktorech, z nichž některé dále zmíníme.

3.2 Tvorba hrubého kapitálu

Tvorba hrubého kapitálu zahrnuje především tvorbu hrubého fixního kapitálu a změny stavu zásob. Ukazatel tvorby hrubého fixního kapitálu představuje hodnotu pořízení hmotného i nehmotného investičního majetku nakoupeného (včetně finančního leasingu), bezúplatně převzatého nebo vyrobeného ve vlastní režii, sníženou o hodnotu jeho prodeje a bezúplatného předání. V modelech zkoumajících robustnost a významnost jednotlivých proměnných vzhledem k ekonomickému růstu se jedná o jednu z nejvýrazněji působících proměnných na ekonomický růst (v pozitivním směru), ale pro rychlejší tempo růstu Slovenska ve srovnání s ČR neposkytuje dostatečné argumenty. [3], [24]

Vývoj tohoto ukazatele měl v ČR i SR ve sledovaném období podobný trend a rovněž jeho hodnoty se v obou zemích podstatně neliší. **V ČR dosáhl nejvyšší hodnoty v roce 1996 (33,8 %), v SR v roce 1997 (34,3 %). V SR od roku 2007 podíl tvorby hrubého kapitálu na HDP s určitými výkyvy klesal,** byl nižší než v ČR a v roce **2012 poklesl na 19,4 %,** což je vůbec nejnižší hodnota za celé sledované období 20 let. **V ČR v roce 2012** činil tento ukazatel **23,3 %.** (Tab. 2, Obr. 4)

Příčiny rychlejšího rozvoje Slovenska nemůžeme vysvětlit na základě rozdílů v objemu a vývoji tohoto ukazatele, ale hledat je ve struktuře tvorby hrubého kapitálu, technologické úrovni a efektivnosti daného procesu, který do velké míry závisí na kvalitě institucionálního prostředí.

Tab. 2: Tvorba hrubého kapitálu v ČR a SR v letech 1993–2012 (v % HDP)

Tvorba hrubého kapitálu (v % HDP)	Roky	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Česká republika	25,1	28,3	32,1	33,8	30,5	28,6	27,5	29,9	29,7	28,2
	Slovenská republika	24,7	21,0	24,3	34,1	34,3	33,6	27,8	26,0	29,6	29,1
	Roky	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
	Česká republika	27,0	27,1	26,5	27,7	29,8	28,9	23,8	24,8	24,5	23,3
	Slovenská republika	24,6	26,3	28,9	28,0	27,8	27,7	19,5	22,6	23,8	19,4

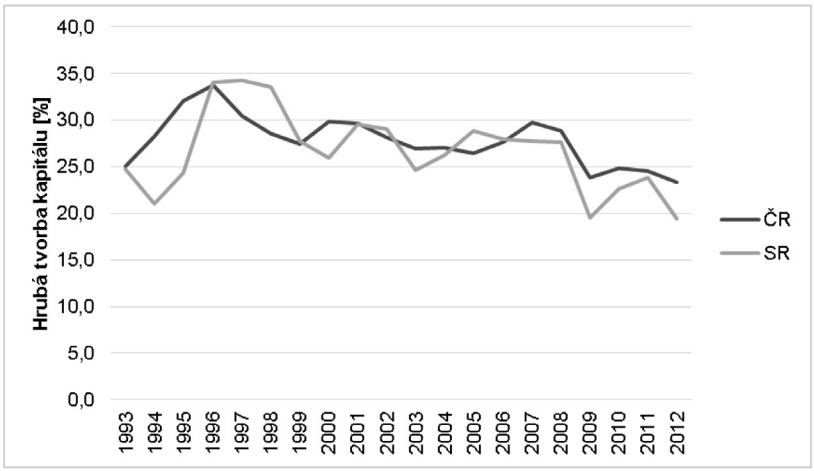
Zdroj: [32], vlastní zpracování

3.3 Podíl veřejných výdajů na HDP

Dalším faktorem považovaným z hlediska růstu ekonomiky za robustní a negativně růst ovlivňující je **podíl konečné vládní spotřeby na HDP.** [3], [24] **Konečná vládní spotřeba** se skládá z vládních výdajů na produkci netržních statků a služeb pro konečnou spotřebu a také z výdajů na nákupy tržního zboží a služeb poskytovaných jako sociální transfery. První skupina těchto výdajů tedy reflektuje kolektivní spotřebu (výdaje na obranu, systém spravedlnosti atd.), která je prospěšná společnosti jako celku. Druhá skupina pak představuje výdaje na individuální spotřebu (zdravotní péče, vzdělání), které směřují k jednotlivým domácnostem. Vládní investice tedy nejsou součástí tohoto indikátoru, avšak vstupují do **celkových vládních výdajů,** které jsou rozebrány níže.

V metodice Eurostatu jde o celkové **výdaje sektoru vládních institucí** v procesu přerozdělování národního důchodu a jmění. Sektor vládních institucí zahrnuje všechny institucionální jednotky, jejichž produkce je určena pro individuální a kolektivní spotřebu a které jsou

Obr. 4: Tvorba hrubého kapitálu v ČR a SR v letech 1993–2012 (v % HDP)



Zdroj: [32], vlastní zpracování

financovány z daní a příspěvků na sociální zabezpečení (ústřední vládní instituce, místní vládní instituce a fondy sociálního zabezpečení). Význam sektoru vládních institucí je vyjádřen podílem celkových příjmů a výdajů vládních institucí na HDP v procentech.

V EU-27 dosáhly v roce 2001 celkové vládní příjmy 44,6 % ve vztahu k HDP, v roce 2012 45,4 %. Celkové **veřejné výdaje EU-27 v roce 2001 činily 46,1 %, v roce 2012 49,3 %** HDP. Celkové vládní příjmy ČR v roce 2001 byly pod průměrem EU a činily 38,3 %, v roce 2012 40,1 %. Celkové **vládní výdaje ČR** (veřejné výdaje) v roce 2001 dosáhly 43,9 % a **v roce 2012 44,5 %.**

Na Slovensku byly tyto ukazatele 38,0 % v roce 2001 a 33,2 % v roce 2012 u celkových vládních příjmů, 44,5 % v roce 2001 a **37,8 % v roce 2012 u celkových vládních výdajů.** V letech 1996–2001 byly veřejné výdaje ve vztahu k HDP na Slovensku ve srovnání s ČR vyšší, v letech 2002–2012 je tento ukazatel v SR oproti ČR podstatně nižší.

V roce 2012 měly nejvyšší úroveň výdajů a příjmů vládních institucí dohromady jako podíl na HDP (převyšující 100 %) Dánsko, Finsko, Francie, Maďarsko, Belgie a Švédsko. Slovensko patřilo mezi sedm států EU-27 s relativně nejnižším kombinovaným poměrem (méně než 80 % HDP) vedle Bulharska, Litvy, Rumunska, Lotyšska a Estonska. [10]

Tab. 3: Podíl konečné vládní spotřeby na HDP ČR a SR v letech 1993–2012

Podíl konečné vládní spotřeby na HDP (v % HDP)	Roky	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Česká republika	20,8	21,1	20,1	19,5	20,3	19,4	20,5	20,3	20,3	21,7
	Slovenská republika	25,6	21,9	21,7	23,9	21,8	22,2	20,1	20,1	20,6	20,3
	Roky	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
	Česká republika	22,7	21,5	21,4	20,7	19,8	19,7	21,5	21,3	20,7	20,7
	Slovenská republika	20,4	19	18,3	18,8	17,1	17,6	20	19,4	17,9	17,6

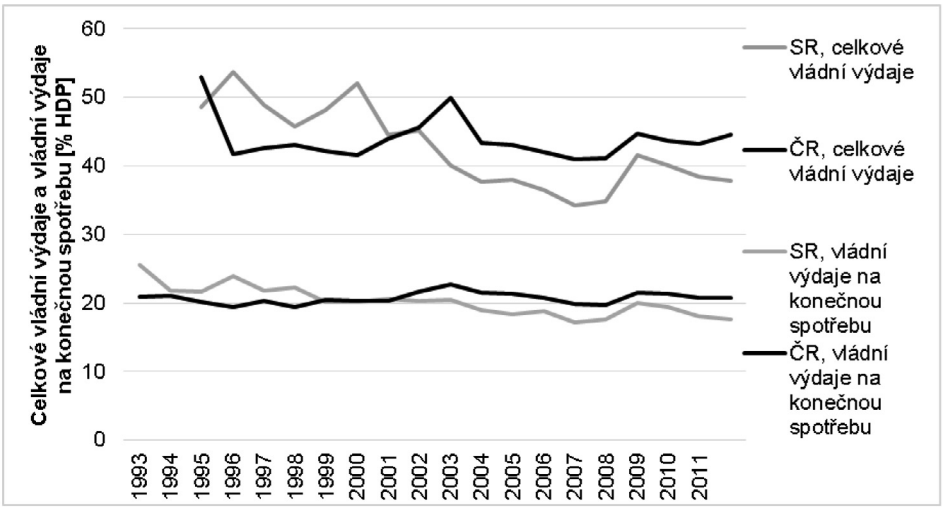
Zdroj: [33], vlastní zpracování

Tab. 4: Podíl celkových veřejných výdajů na HDP ČR a SR v letech 1995–2012

Podíl celkových vládních výdajů na HDP (v % HDP)	Roky	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Česká republika	53	41,7	42,6	43	42,2	41,6	43,9	45,6	50,0
	Slovenská republika	48,6	53,7	48,9	45,8	48,1	52,1	44,5	45,1	40,1
	Roky	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
	Česká republika	43,3	43	42	41	41,1	44,7	43,7	43,2	44,5
	Slovenská republika	37,7	38	36,5	34,2	34,9	41,6	40	38,4	37,8

Zdroj: [12], vlastní zpracování

Obr. 5: Podíl celkových vládních výdajů a vládních výdajů na konečnou spotřebu na HDP ČR a SR v letech 1993–2012



Zdroj: [33], [12], vlastní zpracování

Při srovnávání české a slovenské ekonomiky vystupují tyto faktory v negativním směru. Vyšší podíl výdajů (popř. příjmů) vlády ČR na HDP je doprovázen nižším ekonomickým růstem.

Povaha tohoto faktoru je dána systémem využívání veřejných zdrojů a jeho efektivností, která závisí na úrovni personálního zajištění a řízení veřejné správy, na rozsahu korupce a zadávání veřejných zakázek aj. V případě některých zemí jako je Švédsko, Dánsko aj. vysoký podíl veřejných výdajů na HDP podporuje ekonomický růst, zatímco v méně vyspělých zemích či tranzitivních ekonomikách s neefektivní veřejnou správou a korupcí omezují veřejné výdaje prostor pro soukromý sektor.

Celkové příjmy a výdaje sektoru vládních institucí úzce souvisí s celkovým daňovým zatížením, které je diskutováno níže. Hlavní složkou vládních příjmů jsou daně a příspěvky na sociální pojištění.

4. Faktory ekonomického růstu v relativním mezinárodním a souhrnném vyjádření

4.1 Podnikatelské prostředí

Příčiny rozdílů v tempu růstu ekonomiky ČR a Slovenska je možné vysvětlit i na základě **faktorů charakterizujících institucionální kvalitu** jako je postavení obou zemí v mezinárodním **hodnocení podnikatelského prostředí,** které se odráží i v dalších formách mezinárodního srovnávání.

Světová banka (WB – World Bank) hodnotí podmínky pro podnikání podle 10 různých kritérií (podmínky pro založení podniku, získání stavebního povolení, dodávka elektřiny, zaregistrování nemovitosti, získání úvěru, ochrana investorů, placení daní, přeshraniční obchodování, vymahatelnost plnění smlouvy, řešení úpadku firmy), kde každá složka má při zjišťování souhrnného ukazatele stejnou váhu. Ve zprávě Světové banky z roku 2013 je v rámci 189 hodnocených zemí světa na prvních místech s nejlepšími podmínkami pro podnikání Singapur, Hong-Kong, Nový Zéland, USA a Dánsko. **Slovensko se umístilo na 49. místě, zatímco ČR až na 75. místě.** [30]

Při srovnávání podnikatelského prostředí musíme vzít do úvahy používanou metodiku a přihlédnout k její vypovídací schopnosti i omezením. [20] Při podstatném předstihu Slovenska před ČR v pořadí hodnocení ekonomik podle úrovně podnikatelského prostředí můžeme přes uvedené výhrady tento **souhrnný kvalitativní faktor i jeho složky považovat za významné z hlediska hledání příčin rozdílného tempa ekonomického růstu obou zemí.** Na Slovensku se ve sledovaném období zlepšovala úroveň institucionálního rámce fungování celé ekonomiky odrážející se i v příznivějším mezinárodním hodnocení podnikatelského prostředí, docházelo k rychlejší korekci opatření hospodářské politiky a novelizaci zákonů, které se neosvědčily např. v oblasti podnikání, fiskální politiky, zdanění.

4.2 Celkové daňové zatížení

S hodnocením podnikatelského prostředí úzce souvisí **úroveň daní a celkového daňového zatížení.** Jde především o stanovení daňových sazeb a zajištění daňové spravedlnosti, jejich plošného a rovného působení na jednotlivé ekonomické subjekty náležející do shodné daňové skupiny. V této oblasti jsou **mezi ČR a SR zásadní rozdíly.**

V daňovém systému ČR se postupně snižovala nominální sazba daně z příjmu právnických osob ze 45 % v roce 1993 až na 20 % v roce 2009 ze základu daně, který je snížen o odečitatelné položky dané Zákonem o daních z příjmu. Daň z příjmu fyzických osob v ČR byla v roce 2009 stanovena jednou sazbou, a to ve výši 15 % pro všechny příjmové skupiny. Došlo však k rozšíření daňového základu o sociální a zdravotní pojištění placené zaměstnancem. I přes snížení nominální sazby daně na 15 %, **reálná sazba daně z příjmu fyzických osob dosáhla 20,25 %.**

Na Slovensku byla v roce 2004 zavedena **rovná daň ve výši 19 %,** která platila až do roku 2012. Organizace pro hospodářskou spolupráci a rozvoj (OECD) doporučila Slovensku, podobně jako ČR, zvýšit majetkové daně a daně na ochranu životního prostředí. [17] Kromě daně z nemovitostí, která je příjmem místních rozpočtů, byla na Slovensku od roku 2013 zavedena nová daň z nemovitostí, která je příjmem státního rozpočtu. Tato daň je založena na cenových mapách a měla by odrážet tržní cenu nemovitostí.

Celkové daňové zatížení (včetně příspěvků na sociální a zdravotní pojištění) činilo v ČR v roce 1995 35,5 % ve vztahu k HDP. V dalších letech tato hodnota jen mírně kolísala směrem dolu i nahoru a **v roce 2011 dosáhla 34,4 %. Na Slovensku** byl tento ukazatel ještě v roce 1995 vyšší než v ČR a činil 40,3 %, ale v dalších letech nepřetržitě **klesal až na 28,5 % v roce 2011. Slovensko mělo v uplynulém období v rámci 27 zemí EU jedno z nejnižších daňových zatížení** po Litvě (26 %), Bulharsku (27,2 %), Lotyšsku (27,6 %), a Rumunsku (28,2 %). [9]

4.3 Vnímání korupce

Index vnímání korupce (Corruption Perception Index – CPI), který vydává Transparency International od roku 1995 se zaměřuje pouze na korupci ve veřejném sektoru a seřazuje **země podle stupně vnímání existence korupce** mezi úředníky veřejné správy, politiky, podnikateli, analytiky, obchodními komorami, ale **nevypovídá o rozsahu reálné korupce a nepostihuje firemní korupci.** Mezi 176 zeměmi hodnocenými podle míry vnímání korupce mezinárodní organizací Transparency International za rok 2012 byla ČR na 54. místě, Slovensko na 62. místě. K zemím s nejnižší vnímanou korupcí v daném roce patřilo Dánsko, Finsko, Nový Zéland a Švédsko. [29]

Transparency International vedle indexu CPI, sleduje Globální barometr korupce (průzkum zkušeností a názorů domácností na korupci), Index plátců úplatků (průzkum mezi domácími podnikateli o korupčním jednání zahraničních firem), vydává Zprávy o globální korupci (přehledy o korupci podle jednotlivých sektorů a oblastí) a Systém národní integrity

(studie za jednotlivé země se zaměřením na silné a slabé stránky národních institucí, které mají zajistit kvalitní veřejnou správu).

Rozsah reálné korupce je však v ČR výrazně vyšší, než naznačuje Index vnímání korupce sledovaný Transparency International. Dokladem toho, že jde o vážný problém ohrožující základy fungování státu je to, že se jím zabývala Zpráva Bezpečnostní a informační služby ČR (BIS) za rok 2012. V této zprávě jsou uvedeny příklady rozsáhlé korupce a odčerpávání veřejných finančních zdrojů soukromými subjekty outsourcingem, projekty partnerství veřejného a soukromého sektoru, manipulací s veřejnými zakázkami a zneužíváním evropských dotací. Nefunkčnost veřejné správy je spatřována i v nízké kvalifikační úrovni úředníků.

Nepříznivý stav v oblasti veřejné správy, legislativy, soudnictví, veřejných zakázek, podnikatelského prostředí, daňového systému a rozsáhlá korupce v ČR vede k neefektivnímu vynakládání finančních prostředků, k ztrátám na straně veřejných příjmů (v důsledku rozsáhlých daňových úniků) i veřejných výdajů. Vliv rozdílné úrovně a kvality institucionálního prostředí na ekonomický růst ČR a SR při mezinárodním srovnávání je významný, ale je obtížné ho kvantifikovat.

Závěr

Od vzniku dvou samostatných republik se rozvíjelo Slovensko ve srovnání s ČR podstatně rychlejším tempem. **Za 20 let** od vzniku ČR a SR v roce 1993 do roku 2012 **se zvýšil HDP ČR o 67,9 %, ale HDP Slovenska za stejné období o 128 %,** tj. více jak dvojnásobně (2,28 krát).

Ekonomika SR vykazovala ve sledovaném období 1993–2012 průměrné roční tempo růstu 3,86 %, tedy o více než jeden procentní bod vyšší oproti hodnotě predikované na základě výchozí úrovně HDP na obyvatele. Vykazovaný rozdíl mezi oběma zeměmi, tj. **rychlejší růst Slovenska lze přibližně jen z jedné čtvrtiny (z 26 %) vysvětlit nižší výchozí ekonomickou základnou.**

Rychlejší růst HDP v SR byl založen i na faktorech, které charakterizují institucionální kvalitu, na **nižším celkovém daňovém zatížení, a tedy i nižším stupni přerozdělování (podílu veřejných výdajů na HDP) a příznivějších podmínkách pro podnikání.**

Rozdíly v tempech růstu HDP mezi ČR a Slovenskem jsou z makroekonomického pohledu a v konečném důsledku výrazem různých koncepcí, cílů a účinnosti hospodářské politiky, která se v SR za celé sledované období 1993–2012 jeví z hlediska růstu HDP na obyvatele i z hlediska konvergence k EU jako více pragmatická a úspěšnější.

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Abstract

20 YEARS OF CZECH ECONOMY DEVELOPMENT – COMPARISON WITH SLOVAKIA

Ladislav Hájek, Lukáš Režný

Since the establishment of two independent republics in 1993 Slovakia has developed compared to the Czech Republic significantly faster pace. During the last 20 years the gross domestic product (GDP) was increased only by 67.9% in the Czech Republic, while in the Slovak Republic for the same period by 128%, i.e. more than twice compared with the CR.

Much faster economic growth of Slovakia can be only partly explained by the lower initial level of economic development. The rapid economic development in Slovakia was mainly based on different concepts and enforcement of fiscal policy, on lower overall tax burden and therefore on a lower level of redistribution (lower share of public expenditure in GDP) and more favourable conditions for business. The differences between the Czech and Slovak economies growth rates are the expression of various concepts, objectives and government economic policy efficiency. Slovak economic policy for the whole period 1993–2012 in terms of GDP per capita and in terms of convergence to the European Union (EU) seems to be more pragmatic and successful.

Key Words: *GDP growth, government expenditures, tax burden, business environment.*

JEL Classification: *H2, H3, E6.*

THE ANALYSIS OF THE CREATIVE INDUSTRY LINKED IN CONNECTION WITH THE ECONOMIC DEVELOPMENT

Jitka Kloudová, Ondřej Chwaszcz

Introduction

We consider the ability of creative thinking to be the basic element of the social development. This unique ability influences not just the quantity and quality of goods produced [15]. It also shapes the socio-cultural development of a society. The influence of the creativity on the progress of the society is becoming more and more intensive. The fact is properly analysed among scientific theories by the creative economy [12], [13]. This theory is based on the growth theories and supplements them with a socio-cultural and urban aspect. Among main authors dealing with creativity, we count Jane Jacobs [8], [9], Charles Landry [16], John Howkins [7], Richard Florida [4] etc.

This development has significantly influenced the structure of economy itself [10] and enabled the creation of a new concept of "creative industries" [3]. The formal roots of this concept originated in Great Britain (1997) where the labor government of Tony Blair established the Department of Culture, Media and Sport (DCMS). This was founded to monitor the creative industries in other countries. However, it is necessary to add that there is no unitary definition of creative industries. One reason is the ambiguous definition which tries to capture inputs, products and services [2]. The other is the divergent cultural background of every country.

Despite the presence of these inconsistencies, we can note that creative industries play a significant role in economy of every European country and their importance will be increasing. This is confirmed by the fact that in the years 2000–2005 the average rise in the international trade with creative products was 8.7%. The value of export of the creative goods and services reached almost 425 billion dollars in 2005. This represents the 3.4% of the total number of world trade (UNCTAD). The sales within creative industries were calculated at 654 billion dollars in 2003, it grows twelve times faster than total economy of European Union. In addition the creative industries create 5.6 million of job vacancies in Europe [18].

Many significant scientists have been dealing with the creative industries. Among these we refer to not mentioned authors such John Harley [5] and David Hesmondhalgh [6]. Concerning the analysis of creative industries in the Czech Republic these regional attempts should be mentioned: Rumpel, Slach & Koutsky [17] or Bednar & Grebenicek [1]. There were also attempts to analyze creative industries on the national level Kloudová [12], Jircikova [11]. The goal of this work is to carry out the analysis of creative industries within the individual regions of the Czech Republic. The structure of the analysis is based on the relation between creative industry and the total performance of the economy. This relation is analyzed not just from the static point of view, the included long-term trend secures dynamic perspective on the area researched.

1. The Creation of Hypothesis and Methodological Procedures

The basic presumptions of this study are based on the fact that creative industries are booming rapidly in the developed countries. They are becoming the significant element of regional development and competitiveness. The Czech Republic belongs to the countries of Central

Europe. These countries started the process of political and economic transformation at the turn of 80's and 90's. The previous comparative advantage of cheap labor has been disappearing and there is a need for seeking of new possible ways of development.

Based on this fact the first hypothesis was determined. This assumes more significant development of the creative industry than of total economy. The study expects that this trend is to be caused by closing the gap between Central and Western Europe together with the effort for maintaining of competitiveness. The level of the creative industry boom should correspond to the level in Western countries in last few years.

The other hypothesis is dealing with the relation between the presence of the creative industry and some basic macroeconomic indicators; at this point, the existence of positive correlation linkage is presumed. This fact would confirm the significant function of creative industries within the economies of the developed countries. The nature of the creative industries should be likely to show higher level of creative industries in the regions tied to a huge urban agglomeration.

On the basis of determined hypotheses the methodology was selected. This methodology proceeds from the DCMS structure. On the other hand it is simplified and corresponds to basic classification of economic activities (NACE). The structure is nowadays used by both Czech and European statistic offices. It is documented by this study that this method is applicable within international comparison, too. The areas included in the creative industry are related to both Information and Communication (IaC) as same as Professional, Scientific and Technical activities (PSTa). From the range of NACE these items belong to the group J and M (Tab. 1).

Tab. 1: The selected structure of industry (NACE) classified in the creative industry

J	Information and communication	M	Professional, scientific and technical activities
J58	Publishing activities	M70	Activities of head offices; management consultancy activities
J59	Motion picture, video and television programme production, sound recording and music publishing activities	M71	Architectural and engineering activities; technical testing and analysis
J60	Programming and broadcasting activities	M72	Scientific research and development
J61	Telecommunications	M73	Advertising and market research
J62	Computer programming, consultancy and related activities	M74	Other professional, scientific and technical activities
J63	Information service activities	M75	Veterinary activities

Source: Czech Statistical Office; own

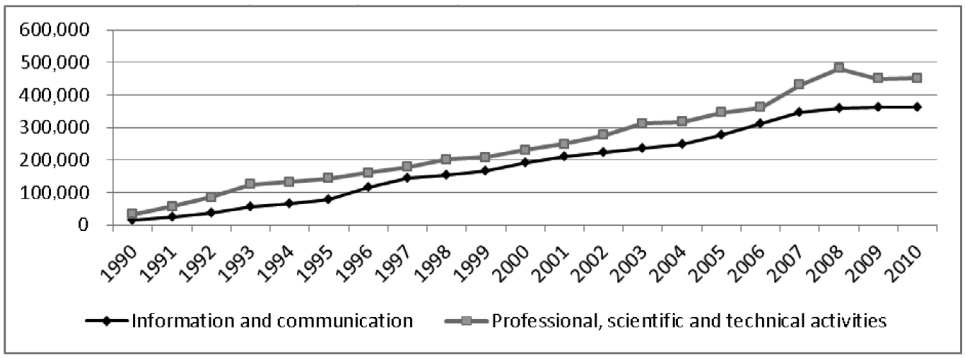
For a verification of the relation between the creative industry and macroeconomic indicators the work creates new Index of Creative Industry (CII) for each region. The structure of this index is based on the relation between the presence of a creative industry in the region and its average value in all regions. The resulting index is analyzed by the application of the correlation analysis together with some macroeconomic indicators. This provides the answer to the other hypothesis of this study.

2. The Development of Creative Industry in the Czech Republic

The basic indicator, which captures the development creative industry production in common prices within the years 1990–2010, confirms the increasing trend of a production. The worldwide financial crisis caused slight decrease in PSTa and at the same time cut the booming trend of IaC in 2009 and 2010. Year-on-year the PSTa decreased by -6.6% in 2008–2009. However, in comparison to total economy performance which decreases by

9.0% the creative industries detected lower downswing. The IaC even raised by 1.6% in the same period. The whole period is captured in the following figure.

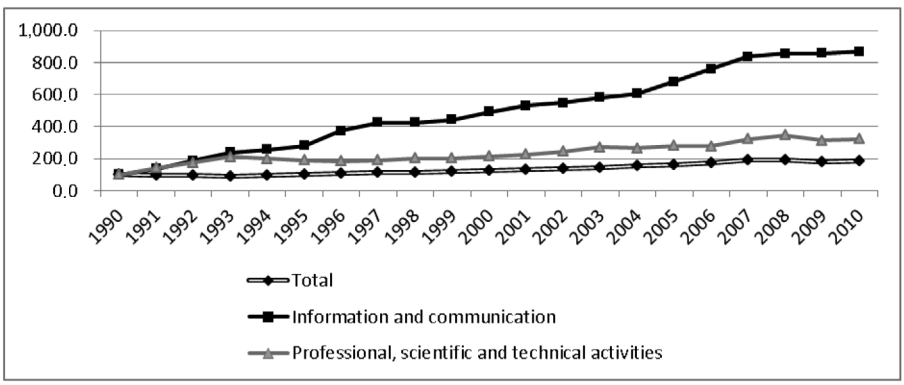
Fig. 1: The production by the area (CZ-NACE) – in mil. CZK, common prices



Source: Czech Statistical Office; own calculations

The next figure is dealing with similar statistic as a previous one. This figure links the production in the observed period to year of 1990, which has the value set at the level of 100. We can notice that the production of IaC area grown more rapidly. The production was eight times higher in 2010 than in 1990. In comparison to the overall economy it is extreme increase. Identically, the PSTa have reached almost double growth than the overall economy growth in the same period. This fact confirms the constantly increasing importance of the creative industries in this period of time. At the same time we need to add that the creative industry was at almost zero level before 1990. The door to the development of the creative industries was open widely with the transformation to the market economy.

Fig. 2: The production – volume indexes (year 1990 = 100) – by the area (CZ-NACE), %, 1990 = 100

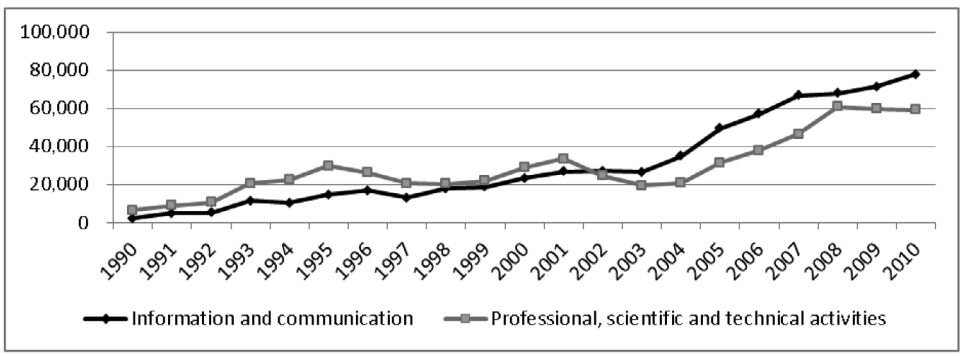


Source: Czech Statistical Office; own calculations

Besides the volume of the production, it is necessary to observe the development of international trade of the creative industries. It was already mentioned that the international trade with the outputs of creative industries reaches higher increase than average indicators of the international trade. The outputs of the creative industries are usually easily tradable so they can support the export of the given area or its economic development. Therefore individual regions should seek an expansion of the creative industries.

The export of goods and service from creative industries keeps an increasing trend in the Czech Republic (Figure 3). However, there was a decreasing trend detected in some years. The more important information at the figure is a fact that the increasing trend was slow in the observed period (1990–2003). The growth in the following years was even more significant. We can assume that the Czech Republic could not compete with its creative industries products and services of the Western countries at beginning of economy transformation. Therefore the export was focused on export of products from other economic areas. Recently, the trend of exporting the products from creative industries has reached high level. This indicates that the Czech Republic has transformed successfully into developed economy.

Fig. 3: The export of goods and services (FOB) – by commodities (CZ-CPA) – mil/CZK, common prices



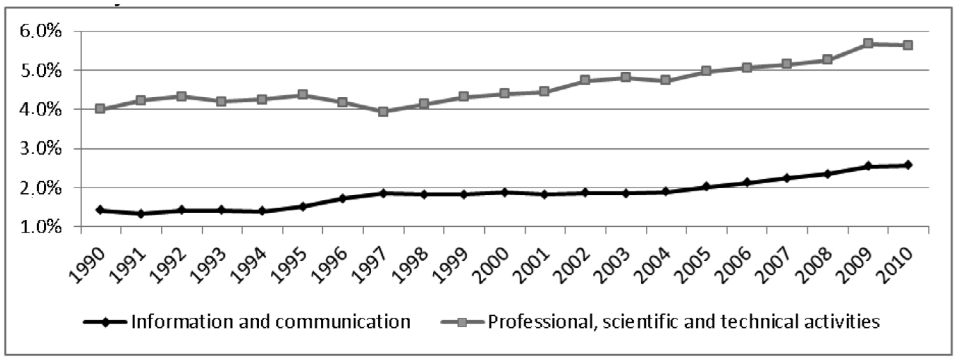
Source: Czech Statistical Office; own calculations

Another significant contribution of the creative industries is the creation of new job vacancies. These demand the higher education and therefore the better remuneration and higher taxation. In comparison to the increase of the level of production there is not such a significant change in the amount of people employed. However, even here the increase occurred. In the observed period the ratio of the people employed within the creative industries was raised by 2.78%. The Figure 4 shows the development of individual sections of creative industry in the Czech Republic. The higher employment rate is detected at PSTa (2010 – 5.63%).

The new job vacancies within the creative industry create the higher salaries stratum which spends its money within the region and supports the economy of the region. The Figure 5 documents this by the average salary of the creative industry, which is compared with the total average salary. The average salary in both sections of the creative industries has been growing faster than the average salary in the whole economy. The salaries did almost not differ before 1990. With the outset of the market economy the labor market was released and the salary derived from the kind of the work.

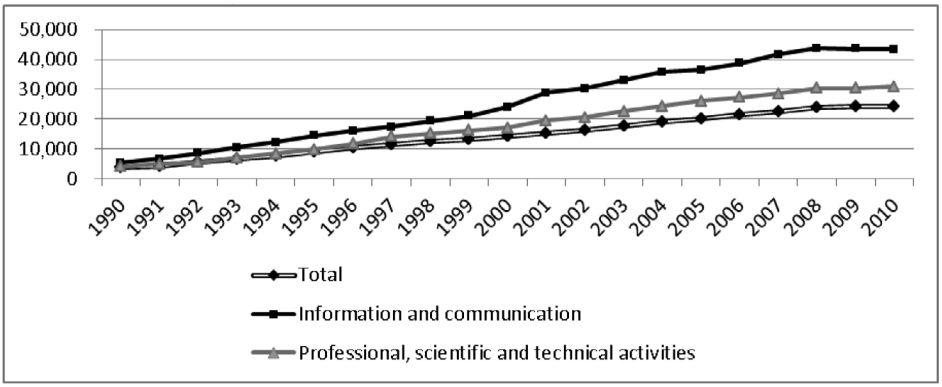
The areas of IaC were exceeding the average salaries in economy by 46%. It became even 86% in 2003. It was less striking in the area of PSTa. Nevertheless, the salaries in this area were higher by 10% in 1990 and by 23% than the total average salary of the economy. The percentage difference between the salaries in 2003 corresponds to the difference in the following years.

Fig. 4: **Employees in the national economy – according to economic area (CZ-NACE) – the figure represent the development of the creative industry employment ratio to all employees in the industry**



Source: Czech Statistical Office; own calculations

Fig. 5: **The average monthly salary in the national economy – by the areas (CZ-NACE). In thousands CZK/employee, common prices**



Source: Czech Statistical Office; own calculations

The complete overview of the creative industry development to the total economy development is presented in the Table 2. At selected indicators the change within the period is indicated (Δ 5 years = 2005/2010; Δ 10 = = 2000/2010; Δ 15 = 1995/2010). The basic indicator related to the production of creative industry confirms the assumption that these specific areas would reach the higher outcomes than the total economy. This fact was confirmed in all observed periods.

The analogous is the export of the creative industries products. The export of the PSTa area did not reach such an increase as a total export in the observed 15 year period. However, it has been acquiring the intensity recently and the average values of export are exceeded.

Tab. 2: The development of creative industry within the time with regard to the average development of the indicators (%)

		Information and communication	Professional, scientific and technical activities	Total
Production – by sector (NACE)	Δ 5 years	**30.5**	**30.9**	22.2
	Δ 10 years	**87.8**	**96.5**	69.4
mil. CZK, current prices	Δ 15 years	**355.6**	**213.7**	161.9
Exports of goods and services	Δ 5 years	**57.2**	**88.2**	28.0
(fob) – according to type (CZ-CPA)	Δ 10 years	**235.1**	**104.6**	86.3
mil.CZK, current prices	Δ 15 years	**433.3**	*98.4*	*249.5*
Imports of goods and services	Δ 5 years	**45.3**	**32.3**	27.4
(cif) – according to type (CZ-CPA)	Δ 10 years	**166.1**	*13.8*	71.6
mil. CZK, current prices	Δ 15 years	**296.7**	*84.0*	210.0
Workers in the national	Δ 5 years	**30.0**	**15.8**	2.0
economy – by sector (NACE)	Δ 10 years	**41.5**	**32.3**	3.4
number of employees	Δ 15 years	**67.2**	**27.1**	-1.5
Wages and salaries – by	Δ 5 years	**48.1**	**36.2**	21.7
industry (NACE)	Δ 10 years	**142.9**	**109.6**	73.1
mil. CZK, current prices	Δ 15 years	**375.0**	**221.9**	152.7
Average monthly salaries in	Δ 5 years	*19.3*	*18.0*	22.0
the national economy – by	Δ 10 years	**81.2**	**80.6**	72.7
sector (NACE)				
thousand CZE per empl., current prices	Δ 15 years	**201.1**	**214.2**	175.4

Source: Czech Statistical Office; own calculations

The creative industries have been creating a huge amount of job vacancies. This trend is confirmed also in the Czech Republic. The ratio of employees within creative industry has been increasing during the time. The ratio has increased by 30% in IaS and by 15.8% n PSTa in the last 5 years. The similar increase was detected also within the salaries paid in the creative industry.

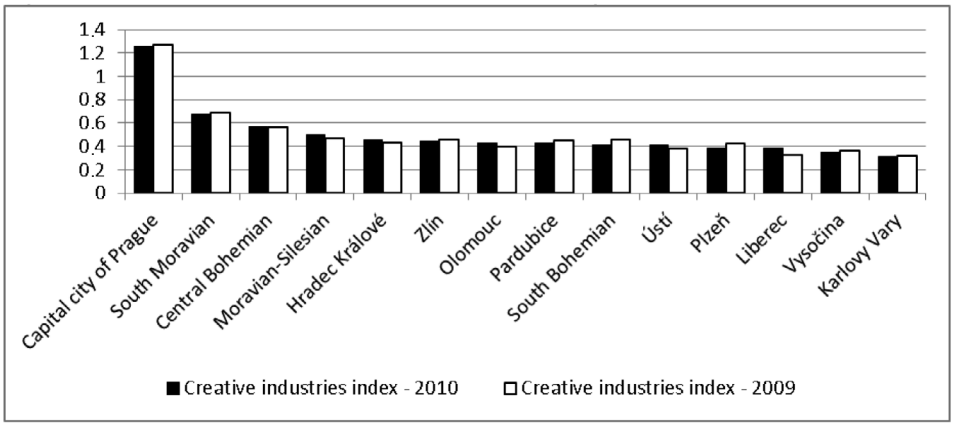
Regarding the average salary there is a significant increase within the long period. In comparison to the national economy the salaries within the creative industries have raised by 25.7% in the IaC and 38.8% in PSTa (Δ 15). The opposite trend has been detected within the last 5 years when the average increase in creative industry salaries was below the growth in the whole economy. This fact can be explained by the global economic crisis. Many posts within the creative industry are very flexible therefore the decline of the demand affects the salary level more quickly. However, speaking in the absolute numbers the level of the salaries within the creative industries is definitely higher than the level of the average salary in the national economy. The average salary was 24,377,- CZK, and it was 43,450 within IaC and 30,849 within PSTa in 2010.

The paper considers not just the national level, but it analyses also the representation of the creative industries within the individual regions of the Czech Republic. The Creative Industries Index was created for this analysis (CII). Its construction is based on the ratio of creative industries on the total production and the ratio of people employed in creative industries to the total manpower.

The CII was determined for each region for the years 2009 and 2010. The highest representation according to CII occurs in capital city of Prague. The second position belongs to the region of South Moravia. The both these regions are tied to the two biggest cities of the Czech Republic. This confirms the assumption that the creative industry is mainly concentrated in the big agglomerations. This is

underlined by the region on the third position which is geographically tightly connected with the capital city of Prague. The other side of the figure belongs to the region of Karlovy Vary which is famous for its recreational potential.

Fig. 6: Creative Industries Index for the Czech Republic regions



Source: Czech Statistical Office; own calculations

The CII serves not just for mapping of the creative industries in the regions but it also contributes to an analyzing of the relation between creative industries and economic level in the regions. The hypothesis was formulated in the introduction; this presumes the positive correlation between the creative industry presence and some macroeconomic indicators. This was confirmed with the use of correlation analysis. The outcomes are captured in the Table 3. Regions with higher level of the CII in most cases reach a higher GDP, more job vacancies and higher average salaries.

The Table 3 sets the values of a correlation coefficient. The closer are the values to 1 the higher is the mutual connection of individual indicators. The CII itself reached the tight connection to in the relation to open job vacancies by the correlation coefficient of 0.51 in 2010. The relation was even more significant in previous year. The correlation analysis of CII and its relation to GDP indicators was fluctuating around 0.95 of correlation coefficient. Identically, the fact is confirmed within individual the sections of the creative industry by the relation to production and to employees in the creative regions.

According to the table 3 creative industries contribute to the development of the economic level of the whole region. The high positive correlation between CII and GDP indicators confirms that. To analyze this relation closely the Figure 7 was created. This figure captures all researched regions. The GDP per capita indicator is captured on the x axis, the CII in 2008 is captured on the axis y. With all regions captured in the figure the linear trend and coefficient of dominance were determined. They confirm the tightness.

It is obvious that one region is beyond from the researched range. The region of capital city of Prague is found in the upper part of the figure. This region detects the significant presence of creative industries and together with higher economic level. Other regions stagnate at first sight.

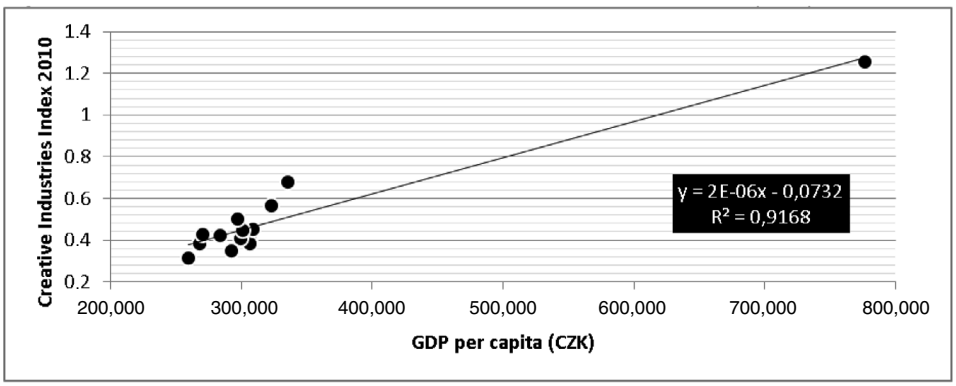
For the record the range was analyzed repeatedly without the capital city of Prague. This means that the region which significantly differs from the rest was removed. The following correlation analysis examined the relation between CII and GDP per capita. The correlation coefficient was 0.77 what is still positive correlation.

Tab. 3: **The relation between creative industry and macroeconomic indicators showed by the correlation coefficient**

	Year	Vacancies	GDP per capita (CZK)	GDP per person empl. (CZK)	Net cash income (CZK)
Businesses by CZ-NACE principal activity					
Information and communication	2010	0.508	0.936	0.941	0.874
	2009	0.794	0.954	0.964	0.902
Professional, scientific and technical activities	2010	0.376	0.860	0.872	0.740
	2009	0.679	0.862	0.876	0.749
The employed in the national economy by CZ-NACE					
Information and communication	2010	0.587	0.969	0.961	0.908
	2009	0.841	0.971	0.975	0.909
Professional, scientific and technical activities	2010	0.506	0.912	0.879	0.849
	2009	0.876	0.958	0.938	0.913
Creative industries					
Creative industries index	2010	0.540	0.957	0.947	0.888
	2009	0.840	0.973	0.973	0.910

Source: Czech Statistical Office; own calculations

Fig. 7: **The relation between Creative industries index and GDP per capita (2010)**



Source: Czech Statistical Office; own calculations

We can conclude on the basis of the analysis that the presence of the creative industries within the region has an important impact on the region. These impacts are reflected by creation of new job vacancies or the increase of the production expressed by GDP. If the regions want to maintain the competitiveness, they should aim the support at the creative industries. This would indirectly support the future development.

Conclusions

The creative industries have become the significant part of the economy of the developed countries. The proportion of in the total production is still increasing and creative industries employ more and more labour. The goal of this paper was to analyse the situation of creative industries in the Czech Republic. For this purpose the work defined the creative

industries by the statistic classification of the economic activities (NACE). This classification is used by Czech Statistical Office and EUROSTAT. Despite the significant simplification the structure has been effective and it confirmed the selected hypothesis.

The first hypothesis presumed the growth in importance of the creative industries in the Czech Republic. The work analyzed the period from the time when the Czech Republic entered the market environment (1990) to year 2010. In comparison to the national economy the significant increase in production and export was confirmed within the creative industries. The proportion of the people employed within the creative industry was increased too in compare to total employment in the economy. These people reaches higher salaries and pays more money directly or indirectly back to state budget.

The direct relation between the presence of the creative industries and economy of the region was confirmed while testing the second hypothesis of this work. The Creative Industries Index (CII) was created to verify this hypothesis. The index enabled to measure the presence of the creative industries within the regions of Czech Republic. The following correlation analysis proved extremely strong positive relation between the presence of creative industries and selected macroeconomic indicators. These indicators are GDP, job vacancies and average income.

On the basis on the outcomes, the contribution of the creative industries to national and regional development is more than significant. The aimed support of these industries should positively influence the development and competitiveness of the region. This statement should be confirmed by analysis within the other developed countries.

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Abstract

THE ANALYSIS OF THE CREATIVE INDUSTRY LINKED IN CONNECTION WITH THE ECONOMIC DEVELOPMENT

Jitka Kloudová, Ondřej Chwaszcz

The paper analyses the development of the creative industries in the Czech Republic during the years 1990–2010. The specification of creative industries is undertaken on the basis of the concept of creative economy and is based on the basic classification of the economic activities (NACE). This classification is used by most of the European statistic offices.

The study is analyses the development of creative industries in relation to the basic economic indicators (production, employment, net income and export). Each analyzed parameter proves a faster development than the overall average indicators. Production of the creative industries, which increased in the period 2005/2010 by 30% compared to 22% of the national average, is used as an example. Such results demonstrate the positive impact of creative industries to the economy. A similar effect has been demonstrated for other analyzed indicators. Employment in the creative industries has risen also very rapidly over the time. Moreover, the incomes in this industry are higher compared to the average. This leads to the stronger demand and in addition, it ensures higher payments to government budgets.

Furthermore, the study analyses the impact of creative industries in every region of the Czech Republic. For this purpose, the Creative Industries Index (CII) was created. Its design is based on the share of creative industries in total production and at the same time it is based on the proportion of employees working in the creative industry in comparison to the total labor force. As a next step, the study uses correlation analysis to establish the link between CII and selected macroeconomic indicators (GDP, vacancies, and incomes). In each case, the positive and high level degree of correlation was found. As a result, this study confirms the significant contribution of creative industries that help to maintain and develop a regional competitiveness.

Key Words: *Creative industries, creative industries index, creative economics, regional development.*

JEL Classification: *E23, O11, R11.*

STRATEGY AND STRATEGIC MANAGEMENT CONCEPTS: ARE THEY RECOGNISED BY MANAGEMENT STUDENTS?

Emerson Wagner Mainardes, João J. Ferreira, Mário L. Raposo

Introduction

When reviewing strategic thinking, we realize how this phenomenon has gone through different phases and semantic contexts. With a millennium distancing the word from its origins, the word strategy has had several meanings but without ever losing its semantic roots. In the beginning, strategy took on a military significance and represented the action of commanding or leading armies in times of war, i.e. a military campaign [30]. It meant a way of prevailing over the adversary, a tool of victory in war and only afterwards was it applied to other contexts and fields of human relationships: political, economics, business, among others, but always retaining in all its uses the semantic root, to define paths [76].

After several phases and meanings, the concept of strategy has evolved into a field of knowledge in management, strategic management, with content, concepts and practical reasoning, ending up by carving out its own role in the academic and business fields [25]. Management uses this old military concept to associate the activities of a general with those of an organization's manager [76]. Since it represents an important tool for business management in a competitive and turbulent marketplace, the main objective of strategy involves preparing the organization to confront the current hostile environment, to this end systematically and objectively deploying the skills, qualifications and internal resources of the enterprise [25]. On the other hand, the concept of strategy still seems to be a very vague concept and subject to various interpretations [14].

An exact definition of strategy may not actually be fundamental, however, within the context of organizational knowledge management, specifically the knowledge that new professionals bring into companies, grasping which type of strategic understanding new managers bring into the organization is clearly of importance [15], [58], [74]. Thus, we may question whether concepts of strategy and strategic management are understood by business managers, especially the younger, the newly graduated in management. Therefore, this research aims to assess the acquired knowledge of university management students relating to strategy and strategic management concepts with the purpose of answering the following question: What is strategy and strategic management to future managers? Are they understood and recognized?

To answer this question, this study seeks to examine management student understanding as to the meaning of these two concepts. As specific objectives, we seek : (i) to build a model explaining the definition of strategy according to the perceptions of students graduating in management, and (ii) to identify which concept of strategic management in the existing literature comes closest to the perceptions of current management students.

To understand the perceptions of individuals about a particular concept, we adopt phenomenography type research practices. The main feature of the research method is its description of a phenomenon as it is experienced, emphasizing the collective significance of the studied phenomena, and should in no way be confused with phenomenological studies. Phenomenology is far more concerned with the individual experience of the people involved than with the phenomena studied [2].

The study is justified due to the sheer importance of the themes of strategy and

strategic management to contemporary organizations [74]. In this sense, the survey sought to contribute towards management knowledge in the organizational environment by clarifying what is the real understanding of management graduates on the themes of strategy and strategic management.

According to Tseng [83] and Obembe [60], knowledge management in an organization begins by identifying the knowledge that individuals bring in from outside the company. In this case, the development of organizational strategy depends on understanding the perceptions of their managers on what strategy and strategic management actually is. The identification of perceptions of future managers on the two concepts, as used in this study, contributes significantly to organizational management practice. This enables the organization's management strategies as organizational knowledge on the field of strategy can hardly be managed should each manager understand the concept differently.

The study findings may also be expected to contribute to Higher Education Institutions (HEI), by identifying what level of understanding their graduating management students attain regarding the subjects under analysis. The research contribution also extends to the academic world by presenting the concepts of strategy and strategic management most present and active in the minds of future managers, findings rarely encountered in the literature. There are few studies relating strategy as a theoretical approach and its practical application in organizations [42], [68]. Thus, this study contributes to research on strategy demonstrating that the field of strategy, comprising as it does of several concepts and approaches, generates confusion among management practitioners. After all, the same phenomenon is approached in several distinctly different ways and individuals working in management would also seem to hold various perspectives, often understanding neither the real meaning of strategy nor its management [41], [62].

Furthermore, this research aims to provide some insights for lecturers bearing in mind that student opinions and knowledge on this matter reflect the efficiency and the effectiveness of the strategy related learning process [31], potentially revealing a need to change the didactics of these classes.

Another reason that led to this study was the method adopted, phenomenography, whose main characteristic is its ability to capture the perceptions of a group of people about a concept. After an exhaustive search of available scientific databases, only one study of a similar nature was found, the Shanahan and Gerber [75] research on the concept of quality in HEIs, which proved the inspiration for the research set out here. Most of the other phenomenography studies found deal with educational teaching methods [5], [13], [19], [36], [63], [82] or, in fewer cases, the behaviour of consumers [88]. In the field of strategy, they both represent an innovation and a new alternative for research.

The paper is structured as follows: firstly, a literature review of the strategy and strategic management concepts from a historical perspective is carried out. Afterwards, the phenomenography research is described and explained. The methodology adopted in the survey is presented in the next section. Subsequently, the collected data are analysed and our model is tested. The article ends up with final considerations and future recommendations.

1. Strategy and Strategic Management: a Historical Perspective

Strategy was created by the Greeks, who endowed the concept with a military connotation. The term derives from the Greek strategos, translated as a general in command of troops or the art of the general or plan to destroy enemies through effective use of resources [18], [76], [78]. This term in itself contained the idea of objectives to be achieved and plans of action to be performed in various scenarios, depending on the enemy's behaviour [73].

According to Mintzberg and Quinn [53], strategy was already considered as an organizational skill at the time of Pericles (450 BC), meaning management skills (administrative, leadership, public speaking, power). However, it was only after World War II that strategy fully entered into the business world, which has since grown significantly and needed guidance, lines and paths to be followed by their entire structures [18]. This growth increased organizational complexity and, together with the accelerated pace of environmental changes,

began requiring enterprises deploy greater capacity to create and manage strategies enabling them to meet the challenges of the market, reaching their objectives in the short, medium and long term [25].

According to Mintzberg [51], it was only in the 1980s that strategies underwent great development within the corporate environment. Phenomena such as corporate restructuring, joint decisions and actions impacting on organizational size, financing and portfolios [87] were driven by the technological advance in means of communication and transport and, since then, an interactive dynamic and integration on a global level have become predominant. Nowadays, thinking strategically has acquired the status of an indispensable factor in leading and managing organizations, whether for profit or otherwise [55]. After all, strategy addresses the link between the inner world of business and its external environment [68].

Considering its importance, talking about strategy opens up a discussion of theoretical approaches, ranging from the more conventional, considering strategy as a business logic, rational and sequential [21], to the most dynamic, that understand this process as associated with cultural and learning factors, politics and power relations [54]. Thus, there are two major problems affecting the understanding of what the concept of strategy really means: confusion between strategy and effectiveness tools and confusion between strategy and strategic planning [27], [56], [67]. The root of the problem seems to be the lack of a full understanding as to what strategy really is.

1.1 Definitions of Strategy

As can be seen, strategy is historically linked to pre-empting different scenarios and action plans to be triggered on encountering them [73]. However, there has never been a single and definite definition of strategy. The term has had several meanings, different in scale and complexity [25], [29], [35], which can mean policies, objectives, tactics, goals, programs, among others, in an attempt to express the concepts necessary for its definition [51]. However, the concept of strategy has been used indiscriminately in the field of management, meaning anything from a precisely formulated course of action, a positioning in a particular environment, through to the entire personality, the soul and existential rationale behind a company's existence. It is a concept often put forward in the academic and business worlds, filled with a great diversity and width, which in some aspects is complementary while divergent in others [68].

According to Fahey [28], there are few words subject to as many abuses in its utilisation in enterprises, as poorly defined in management literature and exposed to such different factors as strategy and hence it is a term that causes widespread discussions, especially among theorists. Mintzberg et al. [54] argue that strategy is the enemy of the deterministic and mechanistic approaches, because they minimize freedom and choice. Strategy is not only one way of dealing with an adversary in a competitive environment or market, as treated by much of the literature and its popular use [53], as it cannot only summarize the ideas, proposals, guidelines, indicative of paths and solutions [68]. Strategy instead has a breadth and scope that encircles the concept of operational efficiency [67] and cannot be confused with its tactics. In other words, strategy is not something static, finished, which renders the concept complex and difficult to grasp [25].

This fact has an explanation. Strategy in organizations, as a field of study, is much newer than its current practice [69], and its knowledge remains under construction. This can be perceived through analysis of the literature review displaying several different definitions of strategy over time (table 1).

Considering the definitions listed in Table 1, along with the hundreds more available, it would appear that the definition of what strategy means is neither closed nor simple to establish a consensus on. We cannot say any particular definition is correct. Each existing definition is correct but contains limitations in its set of assumptions and related dimensions [14].

1.2 Definitions of Strategic Management

According to Bhalla et al. [14], strategic management was born as a hybrid discipline, influenced by both sociology and economics. It may be considered an evolution of theories of organizations. It only began receiving more attention, from both the academic and the business worlds, in the 1950s, with its

Tab. 1: Definitions of strategy in organizational contexts (part 1)

Author(s)	Definitions of Strategy
[10] Barnard (1938)	Strategy is what matters for the effectiveness of the organization, the external point of view, which stresses the relevance of the objectives against the environment, in terms of internal stresses, the balanced communication between members of the organization and a willingness to contribute towards actions and the achievement of common objectives.
[85] von Neumann & Morgenstern (1947)	Strategy is a series of actions undertaken by a company according to a particular situation.
[26] Drucker (1954)	Strategy is analyzing the present situation and changing it whenever necessary. Incorporated within this is finding out what one's resources are or what they should be.
[21] Chandler (1962)	Strategy is the determinant of the basic long-term goals of a firm, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.
[7] Ansoff (1965)	Strategy is a rule for making decisions determined by product/market scope, growth vector, competitive advantage, and synergy.
[49] Mintzberg (1967)	Strategy is the addition of the decisions taken by an organization in all aspects, as much commercial as structural, with the strategy developing in accordance with the learning process of the firm's manager.
[20] Cannon (1968)	Strategies are the directional action decisions which are competitively required to achieve the company's purpose.
[43] Learned, Christensen, Andrews & Guth (1969)	Strategy is the pattern of objectives, purposes, or goals and major policies and plans for achieving these goals, stated in such a way as to define what business the company is in or is to be in and the kind of company it is or is to be.
[59] Newman & Logan (1971)	Strategies are forward-looking plans that anticipate change and initiate action to take advantage of opportunities that are integrated into the concepts or mission of the company.
[71] Schendel & Hatten (1972)	Strategy is the basic goals and objectives of the organization, the major programs of action chosen to reach these goals and objectives, and the major pattern of resource allocation used to relate the organization to its environment.
[84] Uyterhoeven, Ackerman & Rosenblum (1973)	Strategy provides both direction and cohesion to the enterprise and is composed of several steps: strategic profile, strategic forecast, resource audit, strategic alternatives explored, tests for consistency and, finally, strategic choice.
[1] Ackoff (1974)	Strategy is concerned with long-range objectives and ways of pursuing them that affect the system as a whole.
[61] Paine & Naumes (1975)	Strategies are macro-actions or patterns of actions for achieving the objectives of the company.
[45] McCarthy, Minichiello & Curran (1975)	Strategy is an analysis of the environment where the organization is located and the selection of alternatives that will direct the resources and objectives of the organization, taking into consideration the risk and potential profits, and the feasibility that each alternative offers.
[32] Glueck (1976)	Strategy is a unified, comprehensive, and integrated plan designed to assure that the basic objectives of the enterprise are achieved.
[47] Michel (1976)	Strategy is to decide which resources should be acquired and used so they can take advantage of opportunities and minimize factors that threaten the achievement of desired results.
[46] McNichols (1977)	Strategy is embedded into policy-making: it contains a series of decisions that reflect the basic objectives of the organization's business, and how to use the capabilities and internal resources to achieve these objectives.
[78] Steiner &Miner (1977)	Strategy is the formulation of missions, purposes and basic organizational goals, policies and programs to meet them, and the methods needed to ensure that strategies are implemented to achieve organizational objectives.

Tab. 1: Definitions of strategy in organizational contexts (part 2)

Author(s)	Definitions of Strategy
[8] Ansoff (1979)	Strategy is a set of rules for decision making under conditions of partial ignorance. Strategic decisions concern the firm's relationship with its ecosystem.
[50] Mintzberg (1979)	Strategy is a mediating force between the organization and its environment: consistent patterns in streams of organizational decisions to deal with the environment.
[72] Schendel &Hofer (1979)	Strategy provides suggested directions for the organization, which allows the company to achieve its objectives and to respond to opportunities and threats in the external environment.
[18] Bracker (1980)	Strategy has two characteristics: situational or environmental analysis that determines the company's position in the market and the proper use of company resources to achieve its objectives.
[37] Hambrick (1980)	Strategy is the pattern of decisions that guide the organization in its relationship with the environment, affect the processes and internal structures, as well as influencing the performance of organizations.
[65] Porter (1980)	Strategy is the company choice as to key decision variables such as price, promotion, quantity and quality. The company, to have good performance, must be correctly positioned in its industry.
[52] Mintzberg &McHugh (1985)	Strategy is a pattern in a chain of actions or decisions. It disrespects the possibilities for different strategies for several environment conditions.
[66] Porter (1985)	Strategy is a set of offensive or defensive actions to create a defensible position in an industry, to cope successfully with competitive forces and thus get a higher return on investment.
[28] Fahey (1989)	Strategy explains how the company will use its resources and capabilities to build and sustain the competitive advantages that favourably influence customer purchasing decisions.
[39] Henderson (1989)	Strategy is the focused use of imagination and logic to respond to the environment so that as a result it generates competitive advantage for the company.
[9] Ansoff & McDonnell (1990)	Strategy is a set of rules for decision making to guide the behaviour of an organization. There are four distinct types of rules: standards by which the present and future performance of the company is measured (objectives, targets); rules for the development of relationships with the external environment (product strategy and marketing, or business strategy), rules for establishing relations and internal processes in the organization (organizational concept); and rules by which the company shall conduct its activities in the day-to-day (operational policies).
[6] Andrews (1991)	Strategy is the pattern of settlement in a company that determines and reveals its objectives, purposes or goals, produces the principal policies and plans to achieve these targets and ascertains the scale of business that the company should get involved in, the type of economic and human organization and the nature of the economic and non-economic benefits generated for shareholders, employees and communities.
[38] Henderson (1991)	Strategy is the deliberate search for an action plan to develop and adjust the competitive advantage of a company. The differences between the organization and its competitors are the basis of its competitive advantage.
[53] Mintzberg & Quinn (1991)	Strategy is the deliberate search for an action plan to develop and adjust the competitive advantage of a company. The differences between the organization and its competitors are the basis of its competitive advantage.
[69] Rumelt, Schendel & Teece (1994)	Strategy is to define the direction of organizations. This includes issues of primary concern to the manager, or any person who seeks the reasons for success and failure between organizations.
[81] Thompson & Strickland III (1995)	Strategy is a set of competitive changes and business approaches that managers perform to achieve the best performance of the company. It is the managerial plan to enhance the organization's position in the market, boost customer satisfaction and achieve performance targets.

Tab. 1: Definitions of strategy in organizational contexts (part 3)

Author(s)	Definitions of Strategy
[48] Miller & Dess (1996)	Strategy is a set of plans or decisions made in an effort to help organizations achieve their objectives.
[67] Porter (1996)	Strategy means performing different activities to those performed by rivals or performing the same activities differently.
[88] Wright, Kroll & Parnell (1997)	Strategy is the set of plans from top management to achieve results consistent with the organizational mission and objectives.
[54] Mintzberg, Ahlstrand & Lampel (1998)	Strategy is the mediating force between the organization and its surroundings, focusing on decisions and actions that come naturally. Strategy formation is not limited to intentional processes, but can occur as a pattern of actions formalized or otherwise.
[12] Barney (2001)	Strategy is the theory of the firm on how to compete successfully. It also considers performance as a factor influenced by strategy, as it can be considered that to compete successfully means having a satisfactory performance.

Source: own elaboration

development fully underway in the 1960s and 1970s.

According to Porth [68], strategic management emerged as part of strategic planning, which is now regarded as one of its main instruments. It was incorporated into strategic management, which united planning and management in the same process. On the other hand, Stead and Stead [76] stated that strategic management is derived from the concept of enterprise policy. This concept explains the organization as a system in which economic resources are applied effectively with the company's functional activities coordinated around generating profit.

Once founded, strategic management expanded swiftly and produced both theoretical and practical models [22]. A broad range of models emerged out of market analysis in the 1960s, including the BCG Matrix, SWOT Model, the Experience Curve, and Portfolio Analysis, as well as important concepts such as the economic analysis of structure, behaviour and performance, distinctive competences, skills, and the so-called strategic planning systems [29], [54], [77].

Currently, strategic management is one of the most prominent and relevant areas in the management field. It constitutes a set of management actions that enable company managers to keep it aligned with its environment and on the correct path of development, thereby bringing about the achievement of its objectives and its mission [25], [40], [56], [79], [17]. Despite its importance, Boyd et al. demonstrate that strategic management has many attributes of a still immature field of study, with little consensus and low levels of productivity. This result furthermore explains the reason there are several definitions for the same concept.

According to Ansoff and McDonnell [9], strategic management constitutes a systematic approach to the management of changes, comprising: positioning the organization through strategy and planning, real time strategic response through the management of problems, and the systematic management of resistance during strategy implementation. On the other hand, Porth [68] believes that strategic management is definable as a cross-process of formulation, implementation and evaluation of the decisions that enable organizations to define and achieve their mission and ultimately to create value.

Bowman et al. [16] strategic management focuses on issues concerning either the creation and sustainability of competitive advantage or the search for such an advantage. Furthermore, Grant [33] argued that strategic management involves a complex relationship between the organizational focus, the results obtained, and the broad spectrum of external and internal environmental variables of the organization.

According to Dess et al. [25], strategic management in an organization must become a process and a single path guiding actions throughout the organization. It consists of organizational analysis, decisions and actions creating and sustaining competitive advantage.

These authors define four key attributes for strategic management: directed towards the overall organization objectives, includes multiple stakeholders in decision-making, requires incorporating short and long term perspectives and, involves the recognition of trade-offs between effectiveness and efficiency.

Stead and Stead [76], in turn, defined strategic management as an ongoing process involving the efforts of strategic managers to adjust the organization to the environment in which it operates while developing competitive advantages. These competitive advantages enable the company to seize opportunities and minimize environmental threats.

More generally, strategic management is a broad term that includes determining the mission and objective of the organization in the context of its external and internal environments.

2. Phenomenography

Phenomenography is a relatively new approach for scientific research with the first published articles appearing at the beginning of the 1980s [44]. This approach seeks to qualitatively describe the different forms by which people experience, conceptualize, perceive, and understand several aspects of a particular phenomenon. This implies that phenomenography is not concerned only about the phenomena under research, nor, indeed, exclusively with the people experiencing them. On the contrary, it focuses upon the relationship between them, i.e., the ways in which people experience or think about the respective phenomenon [23]. Hence, a phenomenographic study aims to describe the variation in how a determined phenomenon (for example, a concept) is understood, experienced or perceived by a group of people [13].

A phenomenographic method argues that individuals perceive the world in different forms as experience is always only ever partial. At any point, time, and context, people discern and experience different aspects of any phenomenon to different degrees and extents [19]. Thus, different forms of living a phenomenon can be understood in terms of which aspects of the phenomenon are perceived [4]. Therefore, the focus of this type of research is on essential aspects of the collective and variation of experience, more than the wealth of individual experiences, leading to a limited number of qualitatively different categories in the description of the investigated phenomenon [82]. Thus, according to the rules of phenomenography, the different ways of living a phenomenon are not constituted of independent forms, but rather mutually interrelated [63]. These different ways are ordered in terms of conscience inclusivity, within which more inclusive forms also represent more complex forms of experiencing the phenomenon indicated for ever greater amplitude of knowledge on the phenomenon's different aspects. In other words, an increasing number of aspects of the phenomenon are perceived as potentially different [4] articulating internal logical relationships between different forms of living and experiencing such a phenomenon [82].

Traditionally, the object of phenomenography research study has been described as variations in the human sensing and understanding of conceptions [44] or, more recently, conscience or ways of testing a determined phenomenon [87]. The results are analytically represented as a series of meanings (qualitatively different) or even some ways of testing a phenomenon, called "categories" in order to distinguish between empirically interpreted categories and the hypothetical experience they represent, including also the structural relationships that connect these different forms of testing. These relations provide a briefing on the relations between different ways of experiencing a phenomenon [4].

The focus of phenomenography research on the collective experience (and not the individual) is usually misunderstood and deserves clarification. Marton [44] advises on definitions of the diverse forms of understanding reality. According to this author, these perspectives are not conceived by phenomenography as individual perceptions but rather as categories that depict a collective conception of a phenomenon. That is, phenomenography research aims to explore gamma meanings within a group as a group, and not the gamma meanings for each individual within the group [70]. Furthermore, Svensson [80] argues that the varieties of forms by which people test these phenomena are referred to as agreements and susceptible for presentation as description categories for the phenomenon in question.

These categories establish the base for developing a hierarchy of agreements,

themselves forming a model that describes the phenomenon in its totality. This model contains a set of categories hierarchically structuralized around the phenomenon under study [36]. Consequently, the researcher aims at constituting a logical structure relative to different meanings. The categories constituted by researchers for representing the different forms of living a phenomenon are seen as representing a structuralized set – the model. This provides a means of grasping the collective human experience of the holistic phenomena despite the fact the same phenomenon can be perceived in different forms by different people and in different circumstances. Ideally, the results represent all the gamma of possible forms of living a specific phenomenon, in a specific time, for the population collectively represented by the group [4].

In practical terms, phenomenography has proven efficient when deployed to witness decisions on education programs and applied in two distinct forms [4]: (i) to identify a variation in the agreement on one determined concept (involving the identification of the main characteristics of concepts that alumni do or do not obtain to discern their understanding of the phenomenon); and (ii) to project an education program that maximizes alumni opportunities to gain a full understanding of a concept based on a prior evaluation of knowledge on the phenomenon. Correspondingly, we approach phenomenography as a research method that focuses on concepts explaining phenomena as lived by individuals and of value in practically all educational areas [5].

3. Methodology

In accordance with the principles of phenomenography (the collective analysis of individual experiences), proposed by Marton [44], described in the introduction to this study and the methodological decisions made explicit in the work of Shanahan and Gerber [75], this research project adopted the phenomenographic methodology. This is characterized as qualitative, exploratory and cross-sectional [34], with data collection carried out by personal interviews with structured questionnaires. All methodological decisions described in the sequence (universe and sample research, collection and analysis of data) were adapted from the study of Shanahan and Gerber [70]. However studies on the field of education [5], [13], [19], [36], [63], [82] and on consumer behaviour [87] also played their role in the methodological decisions taken over the course of this research project.

To attain our study objectives, we examined students taking degrees in management at public universities in Portugal. Their curricula programs feature strategy and/or strategic management subjects. The choice of Portuguese public universities derives from the fact that they represent about 60% of higher education students in Portugal [64]. All thirteen universities were invited to participate. Of these, five universities expressed interest: University of Beira Interior (UBI), University of Coimbra (UC), University of Évora (UE), University of Minho (UM), and University of Porto (UP). The questionnaires were sent to these universities and then completed in the classroom and returned completed to the researchers.

The choice of this target group derived from their being on the verge of graduation and in a few months will become the youngest managers in the Portuguese market. This means they might be expected to be the management professionals with the most up-to-date knowledge on the issues involving organizational management, including strategy and strategic management. The sample gathered focuses on the students present in classrooms on the days of the application of the research questionnaire and that had been passed approved in these subjects. This type of sample appears as non-probabilistic, intentional, for trial [34]. It should be noted that the results presented here represent only a proportion of management students in Portugal. To achieve a broader representation of Portuguese management students, it would be necessary to apply the same research in other universities.

For the purposes of data collection, we deployed a questionnaire with six open questions, which aimed to identify respondent perceptions as to their own definitions of strategy and strategic management. The final questionnaire was the following:

1. Based on your own experience, what does strategy mean to you?
2. Using your own words, what is your definition of strategy?
3. According to your point of view, give at least three examples of strategies.

4. Quote means of applying your concept of business strategy.
5. What the meaning of strategic management? Give examples.
6. Explain what it means to strategic management. How can you apply this concept in organizations?

Significantly, each subject studied is linked to two questions (definition of strategy, examples of strategies, and definition and examples of strategic management). This is the main feature of the phenomenography method and aims to make the interviewee think more precisely about what his/her real insight is on the phenomenon studied [2], [3], [4]. Data collection was carried out during the period between April and June 2009. After the application of research tools, the same, duly completed, were returned to the researchers who then conducted an initial questionnaire assessment: UBI (42 completed questionnaires with 38 considered valid); UC (29 completed questionnaires with 28 valid); UE (25 questionnaires returned, all valid); UM (of 48 completed questionnaires, 33 proved valid); and UP (22 questionnaires returned, all valid). In sum, 166 questionnaires were completed, and 146 were validated and incorporated into the analytical process. The next step was to transfer the data collected for software analysis.

With all answers in digital format, content analysis was used for data analysis aiming to identify definitions of strategy and strategic management through coding [24], with the aid of the Atlas/ti software [57].This type of analysis searches for regularities and variability based on replications of observations or statements entailing the quantification of qualitative data [24]. In this case, the codes were initially established by the words most common in the definitions of strategy and strategic management, as well as the types of strategy and strategic management cited by the students. With the data entered into the Atlas/Ti software, the codes were also inserted into the system. This grouped interviewee statements on regularities and similarities according to the established coding. This meant we were able to collectively handle and process the interviews thereby resulting in a ranking of codes present in the data collected from the respondents (from the most present to the least present).

4. Results Analysis

The beginning of the questionnaire asked only two personal questions of respondents: age and gender. The age of respondents ranged from 20 to 54 years, with the average age of 22.2, with about 74% of respondents less than 24 years old. This means that the majority of future managers entering the market in the coming months have little or no experience and basically rely on the knowledge acquired at university. This further justifies the importance of this research as it puts forward an understanding of the relationship that students make between the theory learned and the practices they are to undertake thus enabling the higher education institution (HEI) to tailor their degrees to market necessities. With regard to gender, the research involved 81 men and 65 women, which proved to bear no significant relevance to the answers returned.

Considering the questionnaire responses, we need to make one comment before presenting the data analyzed. Thus, in the first two questions, which correspond to the concept of strategy, most respondents gave detailed answers, filling all the spaces for each question. This allowed more detailed analysis on the understanding of the strategy concept held by management students. Concerning the questions dealing with types of strategies (questions 3 and 4) and the concept and types of strategic management (questions 5 and 6), the same respondents were too general and objective in their responses, which did not allow as thorough analysis as that on the strategy concept.

The first two questions dealt with the personal understanding of each respondent on the subject of strategy. None of those interviewed cited strategy outside the field of management. There were no references to military strategies, policies, among others. This demonstrates that the topic discussed currently enters the field of management, at least among these representatives of future organizational managers. According to respondents, strategy holds different connotations (Table 2).

Tab. 2: Definitions of strategy based on the surveyed (part 1)

Definition	Analysis
1. [...] *Strategy is the development of plans, policies and practices to achieve the company objectives* [...] (110 similar responses).	This definition of strategy was the most frequent in the responses collected. One reason is that many authors approach strategy in this sense [6], [9], [20], [21], [32], [43], [46], [53], [59], [61], [71], [78], [81], [84], [85]. It is presented as a more complete definition and involving the organization as a whole. Internalising this view of strategy ensures the manager follows a logical path in strategic business development in planning, establishing guidelines and policies, and encouraging practice able to achieve organizational goals. What this definition lacks is the relationship with the external environment because it reduces strategy to the internal company environment.
2. [...] *Strategy is the way in which the company should behave or act in the market and relate to its external environment* [...] (57citations).	In other words, it is marketplace company policy to compete and survive, based on forward planning. This proved to be the second most common response, also due to several authors citing the environment external to the organization as critical to the company's strategic development [7], [8], [9], [10], [18], [26], [37], [38], [39], [45], [50], [54], [65], [67], [71], [72]. It is indeed a fact that a company is related to its external environment and all organizational strategic actions should consider aspects related to the respective prevailing environment. Thus, it is important to note that most new managers are aware that a company should be focused on the market where it operates.
3. [...] *Strategy is the responsibility of senior company management and the result of their decisions* [...] (33 cases).	According to the respondent answers, the relationship between strategy and top management is not often quoted by authors. The high correlation between management and strategy is referred to by different authors [48], [49], [52], [87]. It should be noted that a common strategy in the studies is that this issue is traditionally handled by the managers running the organization, although most existing concepts are not very explicit about this.
4. [...] *Strategy is to have medium and long term goals. Only a few respondents* [...] (32 replies).	Respondents stated that strategy is linked to corporate objectives for medium and long term company goals; similar to that stated in the literature, where the definitions of strategy seldom mention the same relationship with its medium and long term goals [1], [9], [21]. In this sense, one can see that the classical school and its followers [86] is that which prescribes the need to plan strategically for the medium and long term.
5. [...] *Strategy is a guideline for structuring the company* [...] (30 citations).	Quoted by Ansoff and McDonell [9], Bracker [18], Drucker [26], Fahey [28], and Michel [47], defining strategy as guiding organizational structure shows that the company's resources and capabilities are determined according to organizational strategic options [11], and was not prominent among respondent answers. However, in accordance with the responses already given, we may consider that the specific structure necessary for the company to achieve its objectives is included within the scope of senior management decisions and planning strategies, words attaining greater incidence among respondents.
6. [...] *Strategy is a means of achieving business success* [...] (cited 19 times).	Strategy as the means of achieving organizational success was previously put forward by Barney [11], Porter [66], and Wright et al. [87]. This type of definition relates company success to the effectiveness of its strategy and its implementation (through activities and practices).
7. [...] *Strategy is the vision and mission of the company* [...]. (cited 18 times).	Also derived from the school of planning [54], the company mission and vision are proposed by Newman and Logan [59], Steiner and Miner [78], and Wright et al. [87]. This type of response by new managers expresses a certain difficulty in converting strategy into the organizational reality.
8. [...] S*trategy is an indication of what direction the company should take* [...] (cited by 15 respondents).	This response is a simplification of the others. The path to be taken refers to the medium and long term, decisions and senior management responsibilities, the mission and vision of the organization, leading to planning, policies and practices. This reductionist definition has already been presented by Rumelt et al. [69].

Tab. 2: Definitions of strategy based on the surveyed (part 2)

Definition	Analysis
9. [...] *Strategy depends on the competitive advantages of the company* [...] (15 citations).	The identification of organizational competitive advantages features in the definitions of strategy put forward by Ansoff [7], Cannon [20], Henderson [38], [39], and Newman and Logan [59]. Whereas the company's competitiveness is based on its advantages over competitors, it should be considered that these advantages are what influence the choice of a particular strategy and so the first step in choosing the strategy is to identify the company's competitive advantages, as pointed out by some of the respondents.
10. [...] *Strategy is based on the collection and analysis of company and stakeholder information* [...] (13 citations).	The decision of which strategy to follow depends on the collection and analysis of organizational information (and including its external environment). This analysis is performed by the top management of organizations, that is, in a setting that complements the fact that strategy is linked to the individuals running companies.
11. [...] *Strategy involves the entire company* [...] (5 citations).	Uncommon among the definitions of strategy found in the literature, the involvement of the entire organization in the respective strategy was previously cited by Ackoff [1], Glueck [32], and Mintzberg and Quinn [53]. Though not often referred to by authors who conceptualize the strategy, we see that it increases the chance of success when all members of the company fully participate in the chosen strategy. This fact was pointed out by only 5 respondents.
12. [...] *Strategy is a way to acquire customers* [...] (2 citations).	A subject virtually forgotten by both respondents and the literature, acquiring customers as a result of organizational strategy does merit mention by Fahey [28]. This correspondingly posits that one major objective behind developing organizational strategies is attracting and retaining customers, who generate the revenue necessary for the company to attain its financial results, besides fulfilling its mission and vision. Thus, attracting and retaining customers is very much linked to company marketing departments and often overlooked by other functional areas. Market orientation should align all participants towards the organization's customers.

Source: own elaboration

In summary, these twelve understandings of strategy expressed by managers new to the market amount to a vision of what strategy means to them. In addition to the set of views held on the subject, the term strategy was defined as:

[...] Based on the collection and analysis of information internal and external to the company, in addition to the early identification of competitive organizational advantages, strategy is the set of decisions taken by senior company management (the path to follow, objectives in the medium and long term, the necessary structure, mobilization of the entire organization, the company mission and vision) that leads to the development of internal practices, action plans, policies and guidelines, which aim to improve the organization's relationship with its external environment, geared to market. This results in the acquisition and retention of customers, leading to organizational success [...].

Thus, this ranges from a narrower vision to a broader view. Figure 1 sets out the understanding of strategy according to these managers and how it closely approximates the school of Planning, previously explained and described by Mintzberg et al. [54]. This school approaches the formation of strategy as a formal organisational process termed strategic planning. Among the main authors adopting the principles of this school are Ansoff [7], [8], Schendel and Hatten [71], Ackoff [1], McNichols [46], and Ansoff and McDonell [9]. Considering the answers obtained, respondents perceive that organizational strategy should be formalized by the setting of rules by the organization's senior managers. This would seem to be what they most expect to encounter in real organizations.

Fig. 1: Set of visions on the definition of strategy

Source: own elaboration

Following the questionnaire, interviewees were requested they provide examples of strategies. Porter's [65] generic competitive strategies (focus, differentiation, and cost leadership), and strategies for diversification, internationalization, and vertical integration stood out and were mentioned by most respondents. However, when asked to translate these strategies into real-world examples (at least three), most respondents left this question blank. Others cited:

[...] *To improve the quality of products / services, to plan the location of the business, innovate in products, use resources appropriately, understand and adapt to the market where the company operates, to inform strategies for employees, develop motivation and the involvement of employees, use marketing, improve the company's technologies, enhance the brand of products, focus on customer service, develop action plans to build a good corporate image, increase the radius of company action , explore new markets, invest in employee training, invest in information technology, strategic alliances and cooperation, focus on e-commerce, hire skilled managers, do market research* [...].

Indeed, some difficulty in translating the theoretical approaches learned during their degrees to the business environment was noted in the respondent responses. This fact is probably due to little or no working experience on behalf of students answering the survey, an important indicator both for the institution and its lecturers as well as other higher education entities running degrees in management. Students may be graduating with a good definition of an important concept (strategy) but they are confronting difficulties in applying it to organizations.

The final section of the questionnaire dealt with strategic management, definitions and examples. When concerning the definition of the term, most citations divided up between two

definitions: (1) the organization of policies and action plans to enact and implement the company strategy; and (2) the application and implementation of strategic planning. Both definitions are similar and close to the broad definition of Wright et al. [87] and match organizational reality. Other definitions cited by respondents converge around the definitions mentioned:

[...] *It establishes common goals for all participants in the organization, strategic control, its strategic direction, competitive advantages, the management of internal and external organizational environments, and the management of resources, objectives, and business practices* [...].

A point to note is that many respondents confused strategy with strategic management. There were 37 responses where respondents displayed difficulties in differentiating between the concepts of strategy and strategic management. Thus, it is possible to infer that a percentage of future managers, despite having studied strategy and strategic management, do not differentiate one concept from the other, and this should be a cause for reflection among the lecturers teaching these concepts.

With regard to examples of strategic management activities, it became once again clear the difficulty of interpreting the definition in real situations. The examples were:

[...] *The formalization of the company's strategy, management of company growth and internationalization, considering the needs of the local market, choosing a market to operate, the organization's adaptation to the environment where it is located; internal analysis (resources and capabilities), identification of competitive advantages, price management and product mix, quality management, innovation and human resources, establishing and managing partnerships and cooperation agreements between organizations* [...].

There were a few examples cited by students, many of whom defined strategic management but offered no examples. Again, it is noticeable that students find it difficult to translate their theoretical definitions into organizational reality.

5. Final Considerations

Given that the topics strategy and strategic management are relevant fields for contemporary organizations, it is of great importance for the management of organizational knowledge to identify what future managers actually understand about these issues. In order to reveal the understanding of management students as to the meaning of the concepts of strategy and strategic management – the main objective of this study – it was concluded that there is an understanding of what each means, although it appears that these future managers have some difficulty in translating these concepts into the reality of organizations. This confirms the importance of an effort to systematize the concepts of strategy and strategic management by researchers in this scientific field, as argued for by Parayitam [62]. Only with the convergence of studies in the area around the same concept definition of the phenomenon might help in conveying a better understanding of this important organizational aspect for management practitioners and a significant and essential factor for organizational knowledge management.

Our findings also identify how no concept of strategy prevails in student responses. Instead, what we found was that the understanding of strategy is a mixing of concepts displayed by various authors dealing with this issue. When relating to strategic management, the definition found was very close to that proposed by Wright et al. [87]. We observed how the majority of respondents understand strategy and the establishment of company policies, guidelines, practices and action plans designed to attain a common goal and to mediate the organization's relationship with its external environment. Observing our model (figure 1), respondents described the path taken in establishing strategies begins with the collection and analysis of information on the company and prior identification of the company's competitive advantages, through senior management decisions (on macro-objectives, ways forward, mission and vision, structures, and the mobilization of all employees), which generate the internal company actions able to deliver the chosen strategy. These internal actions are reflected in the external environment where the organization is inserted. The majority of respondents reached this far.

Others returned a more comprehensive vision and saw in the concept of strategy the opportunity to acquire and keep customers, resulting in organizational success.

Our model explains the definition of strategy in the vision of young managers on the cusp of entering the market and represents another of the specific objectives of this research project. There was also confusion over the meaning of strategic management. In several cases, there was a clear mix up in the definitions of strategy and strategic management. Furthermore, this statement does impact on managers involved in organizational knowledge processes given if there is no shared perception of strategic management among managers, there is the need to unify their understanding to ensure decision making is based on the same principles [60].

Despite this finding, it was concluded that the definition of strategic management presented by those students who managed to differentiate the two terms is close to that presented in the literature. Although they are terms that can cause some confusion, most future managers did know the difference between strategy and its management. More could be done to explore the next phase of research, especially concerning the artefact this round generated. Additionally, a before and after comparison of student perceptions on strategy and strategic management would prove of relevance in generating insights into the effects of education.

In terms of limitations, it is important to emphasize that this is a study of a qualitative nature, with a statistically unrepresentative sample. Therefore, while the results contribute to the realities of the universities surveyed, they cannot be generalized. Therefore, the statistical validation of the proposed model is recommendable along with the replication of the research presented here in other HEI, both in Portugal and internationally, and the confirmation of the factors making up the definition of strategy in the vision of the future managers. Concerning the topic of strategic management, further studies may serve to refine the current concept.

Furthermore, management student lecturers engaged in the theme of strategy and strategic management should strive to translate into real-world examples in teaching the concepts inherent to both topics. This relationship between theory and practice can contribute to enhancing the competences of new market managers; after all, we do here demonstrate that there is a need for adjustments in the teaching of strategy related subjects on management degrees. A balance between the current schools of thought on the concept (to thus avoid choosing a single school and following only what it prescribes) and an approach towards the realities of practical managerial and company life represent challenges for both lecturers and researchers in the field.

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Abstract

STRATEGY AND STRATEGIC MANAGEMENT CONCEPTS: ARE THEY RECOGNISED BY MANAGEMENT STUDENTS?

Emerson Wagner Mainardes, João J. Ferreira, Mário L. Raposo

The purpose of this paper is to assess the acquired knowledge of university management students on strategy and strategic management concepts. Phenomenography was used in the analysis and a collective description was conducted. A sample of students taking management degrees at five universities was adopted. Following data analysis, a model explaining our definition of students is presented. This definition was compared with the existing literature. Our findings do not indicate a single, predominant concept but reflect a diverse set of existing concepts. We conclude that students do present difficulties when it comes to explaining their theoretical definition in real situations applied to organizations. The results contribute towards a better understanding of the universities surveyed, but cannot be generalized. Thus, we recommend future studies replicate this research project at other Higher Education Institutions and confirm the factors making up the construction of the definition of strategy from the perspective of future managers. Given that topics relating to strategy and strategic management are highly relevant to organizations today, it is of similar great importance to identifying just what future managers perceive about these issues. Our model explains the definition of strategy in the vision of young managers about to enter the market. A balance between the current schools of thought on strategy and an approach to the reality of enterprises are presented as challenges for both teachers and researchers in this field.

Key Words: *Strategy, management, strategic management, concepts, management students, phenomenography.*

JEL Classification: *A23, L10, M00, M10.*

ROLE OF LEARNING ORGANIZATION IN BUILDING CONSUMER CONFIDENCE

Małgorzata Adamska, Martina Minárová

Introduction

Present century is the century in which the nature of business is changing. Management has to handle new methods. According to Kotler and Armstrong [10], there are two types of businesses: those that change and those that disappear. One of the strategic objectives of every modern organization is to achieve a competitive advantage in the sector in which it operates. Markets, customers, competitors and technology are changing. If a company wants to be successful, it must change, too. Otherwise, its key competences can easily become problems which would lead to a business failure. Applying the concept of a "learning organization" as a method of management and education is the way how to prevent mistakes and create a strategic business advantage. To achieve a desired competitive position is not possible without creating a relationship based on trust. Customer capital plays a key role in building a competitive advantage, within the context of which it is important to build consumer confidence in different areas of the organization.

The main objective of our paper is to emphasize the importance of the concept of a learning organization in the field of building and managing consumer confidence in a life cycle, taking various phases of customer's activity into account. This paper consists of three basic parts. The first part discusses a general concept of intellectual capital and market capital of an organization using the standard method of literature review and critical analysis of the literature sources. The second part describes customer capital which results from various phases of the cycle of customer's activity in the market. The third part presents partial results of the research of project VEGA – The Learning Organization. We identified application of the principles of a learning organization in SMEs in Slovakia which emphasizes the importance of continuous improving satisfaction of existing and future customers.

1. Market Capital of an Organization in the Intellectual Capital Structure

Key elements of intellectual capital have been developed from physical capital through the organizational capital to the key human capital nowadays. Among the criteria monitored in the development of knowledge-based companies are the following [15]:

- economic and institutional system that provides incentives for the efficient use of existing and new knowledge and prosperous business,
- educated and skilled population that can create, share and use knowledge,
- dynamic information infrastructure that can enable effective communication and information processing,
- efficient innovation system of businesses, research centers, universities, consultants and other organizations to enable participation in the growing amount of global knowledge and ability to adapt it to local needs, as well as ability to create new technologies.

The abundance of literature in this particular subject provides many different definitions of the term Intellectual Capital [3], [22], which hasn't been accurately defined for a long time. Recently, experts specializing in different fields have cooperated together which resulted in creation of many different definitions of the Intellectual Capital. The approach to this

particular issue has already been discussed, and is expected to be talked about in the future, from many different points of view arising from the complexity of the intellectual capital of an organization and its presence in all the areas it operates. In the context of marketing activity intellectual capital is essential in creating an image of an organization by implementing activities in areas such as building relationships with customer capital and making a customer aware of a market brand and the producer by effective consumer confidence management. Marketing activities of modern organizations must be fully focused on the customer and must ensure the fulfillment of the expectations of each market segment. This requires a huge intellectual effort associated with proper and effective use of market knowledge, which is the most important resource in the process of building company's leading competitiveness [18].

Amongst the different concepts of intellectual capital (Tab. 1) in the components proposed, there is customer, relationships, or specifically, customer capital, as an element essential in the process of creating the market value of an organization.

Tab. 1: Overview of the components of intellectual capital by various authors

Authors	Intellectual capital context	Suggested components
Kaplan, Norton	Balanced Scorecards	**customers** the internal structure of an enterprise processes: learning and innovation finance
Petrash, Edvinsson, Onge, Armstrong Bukowitz, Williams	Value Platform	**human capital** **customer capital (relationships)** **organizational capital (structural)**
Haanes, Lowendahl	Intangible resources classification	competence **mutual relations**
Brooking	Identifying components of intellectual capital	market assets assets related to the human factor infrastructure assets **market value**
Stewart	Identifying components of intellectual capital	human capital structural capital **capital associated with customers**
Bratnicki, Strużyna	A value tree of an enterprise	**social capital** human capital organizational capital
Fitz-enz	Intellectual capital elements	human capital **processes and culture** Intellectual Property **relationships**

Source: [22]

Intellectual capital has long been present in the practice of management in each area of an organisation, including, amongst others, an effective market capital management due to finding solutions which ensure proper relations for an organisation to operate in a specific, complex market environment.

The factor creating the market capital structure of an organisation, being customer relationships, the relationship with vendors, market competence, other market relations and public relations, is its complex marketing activity.

The structure of the capital market can be divided into three basic groups: Customers,

Competitors and Contractors [1]. All the elements of market capital have an impact on an individual organisation and at the same time on each other. The concept of market capital draws from the Model 5 competitive forces within the market sector by Michael Porter [21]. Alongside the threat of new entry and substitute products, as well as services, being external factors which have an impact on the competitiveness of enterprises, he identified: bargaining power of buyers, bargaining power of suppliers, and rivalry among existing firms.

The analysis of market capital of an organisation, apart from a meticulous and detailed description of its current market position, should be a description of the external environment in which it operates. In particular, it is relevant in the context of creating a strategy for the future impact on the customer capital activity at different stages of its life cycle.

By defining the components of intellectual capital according to OECD studies, we conclude that while financial capital shows the history and results achieved in the past, process and market capital are components based on current operations, capital recovery and development. These components determine how the company is prepared for the future and how the human capital represents skills, professional knowledge and willingness to learn, and at the same time how it allows people to create value in all other components of the intellectual capital. There are also easier ways to divide the intellectual capital [19] and that is division into human capital (human values such as intellect, experience, skills, creativity, procedures, etc.), structural capital (business-owned tools, such as systems, intangible property, processes, databases, values, culture, etc.) and relational capital (external relationships with customers, suppliers, business partners, distribution networks, and regulation of trade).

2. Customer Capital – in the Context of Life Cycle Phases

Market, customer needs, and customer life cycle are the categories that are interdependent. Marketing represents the management process, whose dominant criterion is market. Market represents customer needs and individual customers have their own needs. This management process is very difficult, because it is under pressure of globalization and internationalization [20]. Entrepreneurs have been asking themselves a question: Who is our customer? The information they need is who, out of the customers, is the most profitable for the enterprise. The organization must know the resources required to meet customer requirements and achieve its expectations [14].

The purpose of marketing activities is to gain knowledge and understanding of what the client wants and then provide it while achieving profit for the enterprise [11].

Consumer buying behaviour may be defined as “the environment and decision process affecting individuals and groups when evaluating, acquiring, using or disposing of goods, services or ideas” [22].

The relationship developed with customers is of a great importance to an enterprise in terms of achieving the enterprise’s main goals, such as increased productivity, market share, and a range of influences.

Hallberg, in his publication ‘All Consumers Are Not Created Equal’ formulated the so-called customer’s life cycle with a company, which illustrates what impact on the enterprise’s profit the life cycle phases have in the relationship between a customer and an enterprise. For this purpose, three groups of customers were distinguished accordingly, related to the periods of cooperation – from the start to the end [6], [8]:

- new customers – who benefit from the company’s offer for the first time,
- returning customers – customers who decide to continue shopping after the first contact with the company, and become multiple buyers,
- lost customers – who stopped buying products of the given company.

However, this division does not take into account the group of potential customers, therefore the proposal was made that the result of conducting an effective analysis and of customer capital characteristics, would be the following three main groups of customers in relation to time and lifecycle of customer: past, present and future [7].

Past customers – the first group of customers was of value to an enterprise in the past. The customers exerted an influence on the enterprises’ activity by providing knowledge about their needs and their expectations. The

fact that customers start desisting from the demand activity might mean that their expectations are not met which can result in losing customers. An important reason for that may be a lack of loyalty and trust in the brand, which indicates that a customer goes by the argument of low prices, very often at random. It is therefore worth knowing which factors prompted the customer to leave, which could help in drawing conclusions for the future and in developing an effective customer orientation. Passivity of a customer might also attest to the shift of goods offered by an enterprise towards the sphere of unnoticeable goods.

Current customers constitute the second group. It is a group which represents an active, in demand, current customer database, determining the present activity of an organization. Current customers, despite their stability, still expect the company's interest in their needs. No matter what the company's profile and the industry are, customers require good service and direct contact.

In the case of fast moving goods, which are purchased 'off-the-shelf' and desired by a customer in a variety of distribution channels, the maintenance of relationships with customers depends on the offered product (mix marketing elements – product and its packaging, obtained quality and usability, price and purchasing convenience), but above all by the image created. Customers make specific purchasing choices by accepting an offer and by identifying with the enterprise's image. The main methods of exerting an influence and communicating with current customers are active promotion tools and extensive market research, designed to gather information from the market to help in adjusting the offer to customers' needs.

Future customers are the market participants the companies are interested in because anyone who is not the company's customer is the customer of the competitors. The process of obtaining customers is predominantly carried out by the same means of media (promotion) as it is used in activities associated with maintaining the existing customers. However, it does not only apply to advertising in the media, and the process of customer trust building should begin long before the start of an active customer life cycle.

Changes in the business environment require a more flexible organization which is able to respond promptly to the market situation. People are playing the key role in the continuous adaptation of business. Traditional strategic planning processes are too slow and therefore the competence and responsibility for decision are transmitted to people who must be able to proactively detect potential opportunities in new situations.

Human resources are considered as the key source for business. On the other hand, the literature indicates that human resources are utilized in business only up to forty percent. This paradox is caused by insufficient use of manpower, skills and abilities of workers, their improper integration into the workforce, insufficient use of their knowledge in management of the organization (lack of feedback), and other factors. Within service businesses, where the worker is in direct contact with the customer, his lack of acceptance is considered as a strategic mistake. For businesses it is very important to build trust and customer loyalty. By applying the principles of a learning organization, businesses are directed towards continuous learning, acquisition and sharing of new knowledge that can be used for building confidence in individual stages of the customer life cycle.

3. Learning Organization in SMEs in Slovakia and Building Customer's Confidence

Knowledge Management provides organizations with a lot of changes [5]. According to Alavi and Leidner [2] the most significant changes include changes in communication (acceleration, improving of communication, and ensuring employee participation in communication), labor efficiency (reducing the time of creating the innovation, and increased productivity), finance (increase in turnover and cost reduction), marketing (expansion and improvement of customer service, strong customer orientation, and introduction of a targeted marketing).

Knowledge management is the response to the emergence of new ways of creating wealth based on information and knowledge. Its implementation ensures that the organizations maintain their position in the current turbulent environment. One of the ways to ensure management and sharing of knowledge in the organization is to create a learning organization [13].

The ability of individuals to use the acquired knowledge in their daily work enables flexible and quick response to emerging situations as well as dealing with them right, with regard to the efficiency of the company. What really matters is good communication, which means being perceptive to the messages that other people (e.g. customers) are conveying through their verbal and non-verbal communication cues. This is especially visible in the field of business, where the differences in values and assumptions are projected in the ways people react in many common situations [4].

To create the concept of a learning organization, it is necessary that managers learn from experience. Preferred ways of learning must be recognized and support of some features – such as openness, creativity, systems thinking, helpfulness, etc., is inevitable. Learning organization must have a system, and at the same time procedures and processes that are constantly developing the capabilities of individuals to achieve objectives. Based on comparison and synthesis of research conducted in Slovakia [11], [15] and in Bohemia [17], [23], [24], knowledge management is not an active part of the management of organizations. Also businesses which applied elements of knowledge management have done it unsystematically and often subliminally.

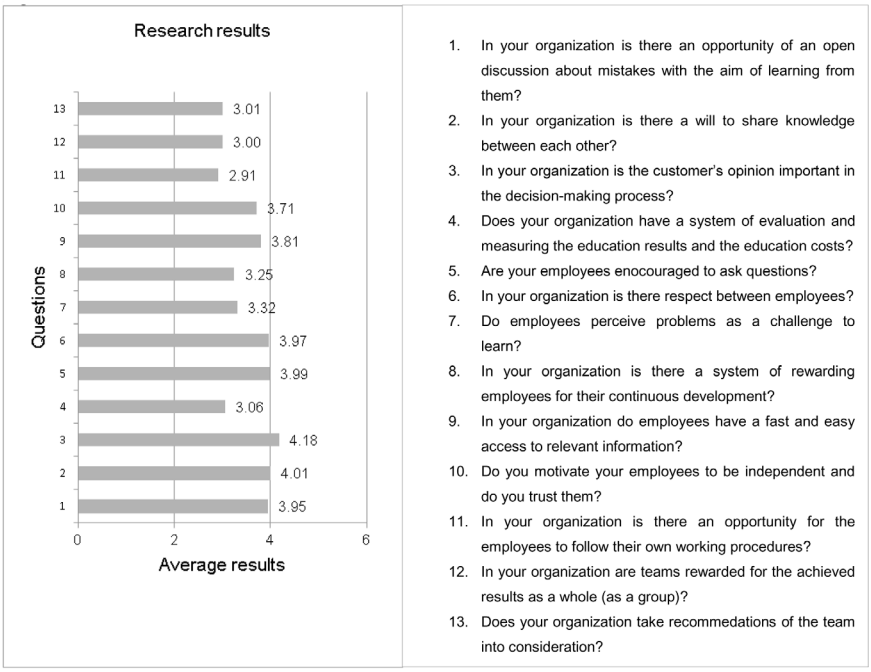
Knowledge management is considered only for education or the use of information technologies when working with information. Barriers to creation and transfer of knowledge are especially afraid of the knowledge abuse, fear of incomprehension of knowledge, ignorance that the given knowledge also needs someone else, and lack of mutual confidence. Similar findings were obtained from the pilot survey, which was conducted as a preliminary activity of the project VEGA at Faculty of Economics, Matej Bel University. The survey was conducted by questionnaire on a sample of 263 respondents. The studied sample of organization we have compiled a random sampling method, and it consisted mainly of small and medium-sized enterprises (85%), non-profit organizations (13%) and professionals (2%) operating in the territory of central Slovakia (industrial enterprises 58% and organizations in services sector 29%). The object of our research was questions about the nature and importance of learning organization, as well as the issue of the conditions and factors influencing its adoption and use. The partial objective was to understand how a learning organization is perceived by managers in Slovak business and importance of this perception in building (creating) costumer confidence of current and potential customers. Prevailing majority of respondents (82%) defined the content and nature of knowledge management correctly, and 78% confirmed the necessity of its use in their organization. Among factors that support successful learning organization implementation, 63% respondents determined the appropriate corporate culture, 31% chose continuing education and learning, and 4% emphasized the condition of creating knowledge-managerial functions (e.g. the Chief Knowledge Officer). These findings establish appropriate underlying assumptions to define the objectives of the research project VEGA 1/0638/08 – Learning Organization. The research was conducted in 2010 at the Faculty of Economics, Matej Bel University in Banska Bystrica. 700 online questionnaires were distributed among chosen small and medium businesses in Slovakia, out of which 580 returned.

For research purposes, we used 547 correctly completed questionnaires. The largest number was represented by organizations operating in the machinery industry (17.55%), then services (14.99%) and finally trade (14.44%). The questions were answered by means of questionnaire, by manager's at all hierarchical levels. The lowest-level managers were represented by the group of 51% of respondents, the managers at central level were represented 34% and finally, 15% were the group of top managers. The aim of the research was to determine to what extent the principles of a learning organization are applied in the selected SMEs. We examined the areas in which enterprises are strong in applying the principles of a learning organization, and, vice versa, where they have weaknesses. Respondents answered by rating scale from 1 to 5 while 1 stood for 'never' (or least accurately) and 5 for always (most precise). Research results confirmed that Slovak companies, even if not learning organizations, broadly apply principles specific to this concept. Within this paper we want to point out the aspect of trust from the point of view of importance for building the principles of a learning organization, as well

as its direct relation to building customer trust. We have based our research on a statement that there is a direct link in between how the company is perceived by the employees and by customers. When managers lose trust of their employees, the employees do not feel good and consequently, this negative energy brings subliminal messages which the employees (mainly when in direct contact with the customer) spread further towards the customers.

Our opinion is that most organizations place the emphasis on the customer and hold the motto "our customer is our king." In this area we achieve the highest value of 4.18 points, fig. 1. We should emphasize that although the consumer is understood as the most important market participant according to the motto, it will not show into everyday business activities. Musová [19] argues that this motto carries signs of a proclamation. An important condition for developing a learning organization is the fact that employees have no problem in passing their experience between each other and respecting each other, which was reflected in a number of analyzed organizations. Value of 3.99 point, convinced us that not only the employees themselves create a learning organization, but in our businesses it is also leadership that encourages company's employees to be asked to expand both its knowledge and skills. Management underestimates rewarding their employees for their growth and continuous improvement, which we managed to confirm (3.25 points). We found out that the staff in the analyzed organizations does not have difficulty obtaining relevant information and participating in the learning process. The weak point is the system of evaluation and measurement of learning outcomes in relation to resources spent (3.06 points). One of the factors when building an organizational culture of a company, is confidence in employees' skills, which greatly influences sharing of the organization's knowledge [16]. The answer to the questions concerning trust in employees' skills was evaluated very positively. Managers lead their employes to independence and trust them in new challenges which they face (3.71).

Fig. 1: Research results



1. In your organization is there an opportunity of an open discussion about mistakes with the aim of learning from them?
2. In your organization is there a will to share knowledge between each other?
3. In your organization is the customer's opinion important in the decision-making process?
4. Does your organization have a system of evaluation and measuring the education results and the education costs?
5. Are your employees enocouraged to ask questions?
6. In your organization is there respect between employees?
7. Do employees perceive problems as a challenge to learn?
8. In your organization is there a system of rewarding employees for their continuous development?
9. In your organization do employees have a fast and easy access to relevant information?
10. Do you motivate your employees to be independent and do you trust them?
11. In your organization is there an opportunity for the employees to follow their own working procedures?
12. In your organization are teams rewarded for the achieved results as a whole (as a group)?
13. Does your organization take recommedations of the team into consideration?

Source: own research

Within this research we searched for a specific way of knowledge exchange, while the following categories were detemined as the options: knowledge exchange on basis of orders of management, principles of trust, working relations, and knowledge exchange on basis of personal and friendly relationships with one's colleagues. As it can be seen in Fig. 2, only in 9% of the analyzed companies there exists knowledge exchange with colleagues, as based on personal and friendly relationships. The fact that knowledge of the company is exchanged and spread (disseminated) on basis of the working relationships (hierarchy), was confirmed by 41% of our respondents. From the point of view of evaluating the corporate culture it was very interesting for us to see the percentage of companies in which knowledge is exchanged on basis of already built confidence between the employees and the management. This option was only chosen by 19% of respondents. The opposite to this is knowledge exchange based on orders from the management.This situation can be noted mainly in companies where the activities are performed with the use of an individual approach, with the absence of team cooperation and creativity, as well as throught preference of the already established working procedures and available knowledge. In our sample we have noted 31% of companies where exchange and dissemination of knowledge is partly based on orders from the management.

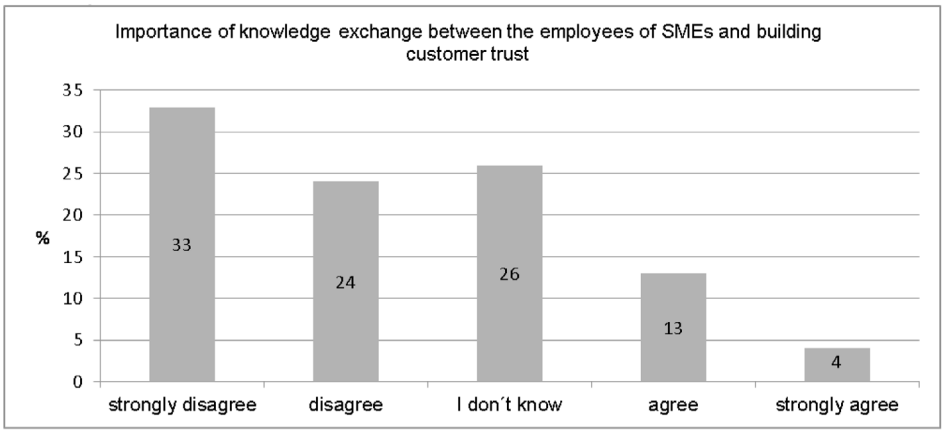
Fig. 2: Way of knowledge exchange in SMEs

Source: own research

When finding out the importance of knowledge exchange between the employees and building customer trust we asked respondents a question how much they agree with a given statement. As it can be seen from Fig. 3, majority of respondents (57%) do not see a direct connection between how the company is perceived by the employees and how it is perceived by the customers. Only 17% (93 respondnents) agreed with the given statement.

On bases of the above stated we can say that the respondents of the analyzed companies do not consider relationship between knowledge exchange and building customer confidence important (Fig. 3). Therefore, it is important to appeal to managers and point out the reasons or building a learning organization in companies, because when there is an open corporate culture and the knowledge exchange is based on trust, customer needs are detected and and understood in

Fig. 3: Importance of knowledge exchange and building customer trust



Source: own research

each phase of the life cycle. Customer capital is understood as organization's knowledge about customer needs, their preferences and qualitative values. Customer capital in important mainly because it helps create a relationship of the organization towards its customers and development of this relationship. On basis of mutual trust the current emloyees become loyal, not past cutomers. Their positive experience is shared with others, which helps the company to address potential customers.

For organization that wants to become a learning organization, it is necessary to realize that this is a complex and lengthy process that requires a lot of effort; and the objective is to continuously increase the satisfaction of existing and future customers [9], [12].

Conclusions

Creation, development, use and evaluation knowledge is crucial for the organization, for ensuring its further development, as well as in terms of gaining and maintaining the competitive advantage. In the last years may be seen increasing importance of intellectual capital and its enforcement as the most important form of capital. Other forms of capital (technology, money, land) are dependent on the knowledge capital. Knowledge management deals with human resource management and therefore is likely to be a long-term and effective business tool.

Modern organizations need to develop awareness of the need for a comprehensive customer capital management of organizations in various stages of the life cycle. The level of confidence that has been developed with customers will determine the predicted dynamics, the future effects of an organization, both economic and social. A well-managed customer capital supports the process of achieving the objectives (strategic and operational) of active organizations, satisfaction of customers, and it also supports the launch of new or modified products due to knowledge of each market segment. So as knowledge could flow through the organization without any problems, employees must trust each other and know that they will also be provided knowledge by their colleagues. This way of knowledge exchange is considered most important when evaluating the corporate culture which is one of the main prerequisites of building a learning organization. Only in such case they will be willing to share the knowledge. It is the employees in learning organizations who create the highest value for the external customers. It is essential that management reward and evaluate employees

who share their knowledge with others. At the same time it is necessary for the management to support the employees in asking questions and thus provide better access to information which is relevant, to permanently increase satisfaction and trust of the existing and future customers.

Intensive marketing activities focuses on achieving a competitive advantage by earned confidence in the brand and the product manufacturer, which will bring the expected results to the organization. Customer capital activity will thus be reflected in the market position of the organization.

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Abstract

ROLE OF LEARNING ORGANIZATION IN BUILDING CONSUMER CONFIDENCE

Małgorzata Adamska, Martina Minárová

The proof of intellectual capital excellence is the current business practice that requires attention and focus on this kind of capital. The intellectual capital of an organization is the sum total of its human capital, structural capital and relational capital. These assets form a source of competitive advantage and distinguish the performance of one organization from the other. Having control on intellectual capital enables effective knowledge sharing, on the one hand and improvement of customer relationship on the other. The increase of knowledge and its relationship with the learning process is a very important for organization. It is widely accepted that organization which invest in the creation of new knowledge and increasing the intellectual capital through research and development activities or tend to do better than those that ride on the coat of knowledge created by others. The results of our research extend the understanding of the role of organizational learning in creating intellectual capital and building sustainable advantages for organization, where different concept of the customer confidence management in various stages of the customer capital life cycle may bring different implications for valuation of intellectual capital. This paper presents and describes customer capital of an organization as an element of market capital in the structure of the intellectual capital of modern organizations. For businesses it is very important to build confidence and customer loyalty. To be able to build on it, they have to gain the confidence of customer. By applying the principles of a learning organization tend businesses to continuous learning, acquisition and sharing of new knowledge that can be used for building confidence in individual stages of the life cycle of the customer.

Key Words: *Customer trust, customer capital, market capital, intellectual capita, learning organization.*

JEL Classification: *M31, M14.*

DIVERSITY MANAGEMENT – PERCEPTIONS AND ATTITUDES BY CZECH MANAGERS

Ludvík Eger, Zuzana Indruchová

Introduction

The purpose of research survey is gaining basic information about the way managers in the Czech Republic perceive the significance of diversity management (DM). The survey is focused on a group of relevant respondents and the way they approach the implementation of diversity management in the field of the development of human resources in organizations in the Czech Republic.

The basis of diversity management concept can be seen in the natural substance of diversity existing in the human society where diversity of people from the point of their age, gender, race, ethnicity, mental and physical abilities, sexual orientation and other characteristics is a natural thing [3], [13], [11].

Diversity management, which originated in the US, came to Europe in the 1990s [13], [22] but in the EU company practice it has been developing and significantly applied only recently.

Hubbard [11, p. 27] defines diversity management as "a process of planning for, organizing, directing, and supporting these collective mixtures in a way that adds measurable difference to organizational performance." The concept of diversity management itself has been developing, for example, in the concept presented in Metcalfe and Woodhams [17], Holvino and Kamp [10], Eger et al. [3], Bleijenbergh et al. [1] or Kirton and Greene [14]. The latter two authors highlight the necessity of studying diversity management also from the point of view of the national specifics and the social context of any given country.

On the one hand, we can currently see the accent being put on more broadly interpreted approaches to diversity management linked with the concept of the organization culture but also linked with the social responsibility etc. On the other hand, we pay attention to the studies that highlight even specific features, for example Süß and Kleiner [22] for Germany, Risberg and Soderberg [19] for Denmark, Klarsfeld [15] for France or Kirton and Greene [14] for the UK.

In the Czech Republic diversity management has gradually become a topical and important issue in the field of the development and use of human resources, namely after the Czech Republic joined the European Union [4], [9].

1. Research

The purpose of the present research study is to describe the state of the factual perception of the diversity management issues in the organizations in the Czech Republic. The study is carried out by interviewing a relevant group of respondents.

1.1 Research Questions and Objectives

The basic research question is formulated as follows: "What is the current state of diversity management in companies in the Czech Republic?" It is obvious that our study can only be a partial output and has its limitations from the point of view of its focus and the set of respondents. Its advantage is that it surely belongs to the first research studies in the Czech Republic focusing on managers and HR specialists.

The research study implemented with the group of managers and HR specialists, especially from the companies situated in Prague has its objective in finding out about the existing state of the perception of the significance of diversity with a set of respondents from the chosen target group. The analysis of the output of the research will bring deeper knowledge of the

monitored issues concerning the target group on an example of the respondents' set and subsequently topics for the field of further education in context of the development of diversity management in organizations in the Czech Republic. We are aware of the limitations resulting from the possibility of only partial research as far as the representativeness of the set is concerned, but the intention is to gain a number of respondents so that the outputs may enrich our knowledge in this field, be it only in a limited way. With regard to the novelty of the topic in the Czech Republic there have been no similar research studies or outputs of quantitative research of managers in the diversity field published as yet.

The specific research questions were formulated as follows:

- What is the existing state of the perception of the significance of diversity management by the group of managers and HR specialists in the organizations operating on the Czech market?
- How is diversity perceived as "a phenomenon of our times" by the group of managers?

1.2 Methodology of the Research Survey

For the planned research the method of interviewing was chosen and the tool was an electronic questionnaire as a way of asking questions and getting answers in writing. Its advantage consists in the possibility of contacting a large number of respondents in a short time.

The questionnaire was drawn up on the basis of research of the issues in the theoretical part.

Its structure and the content of the partial items are drawn up on the basis of foreign research studies. Owing to the fact that the sources of the selected fields are research studies focusing directly on diversity, equal opportunities or gender issues that had been carried out in the US and other countries in the past [7], [8], [11], [16], [18], it was necessary to modify them locally and to keep in the questionnaire only the fields applicable to the Czech environment.

The questionnaire (Diversity Management Survey = DMS) itself has been drawn up in such a way that in the items focusing on measuring the attitudes it uses the so called Likert scale which represents the most reliable techniques of measuring attitudes. The questionnaire consists of the statements with which a five point scale is used, from "Strongly agree" (point 1), through "Neither agree nor disagree", a medium scale point, up to "Strongly disagree" (point 5) representing the opposite end [20].

In our case the statements are structured in the individual sections of the questionnaire (dimensions of diversity management) and they are formulated unambiguously, which means that the size of the questionnaire is not big and any respondent only needs 15–20 minutes to complete it. We consider this important because we know that managers in the Czech Republic are generally not willing to devote much of their time for such types of research even though these may be organized by an independent university.

The questionnaire DMS consisted of the following sections – dimensions of diversity management and their items:

- Managing people (3 items).
- Co-workers – Everyday interaction with colleagues at the same level (3 items).
- Principles of diversity management in personnel processes (3 items).
- Policies and procedures (4 items).

Three or four items measure each section – dimension of diversity management.

The main part of the questionnaire was completed by one more complex item called: "Diversity as a phenomenon of our times", which was specified as follows: "I understand the concept of diversity management. I know the significance of diversity for the company where I work and I consider it important" (1 item). On the whole, there were 14 items.

Furthermore, the questionnaire also contained a specific section called "My own behaviour" (5 items), which focused on gaining information about the real behaviour of managers and HR specialists in the company practice.

The questionnaire was piloted on a sample of ten respondents – line managers – and its purpose was to verify whether the questions in the questionnaire were formulated properly, whether the respondents understand them and are willing to answer them. The stimuli from managers led to a partial alteration of some formulations as well as to the extension of the input information and to further specification of the time frame for the questionnaire completion.

1.3 Data Collection

The respondents were sent an e-mail containing an active link to the questionnaire. Apart from the link to the questionnaire the respondents could also find in the above e-mail the information about the topic and length of the questionnaire as well as the reward for the respondents, consisting in the possibility of getting familiarised with the questionnaire results.

The respondents

Especially young workers in managerial positions or in the positions of a HR specialist with at least part time work responsibilities in the field of human resources management were the target group for the questionnaire survey. A non-random selection of respondents was chosen by means of the so called "snowball" technique and gradually 250 respondents were contacted from a number of companies operating in the Czech Republic, mainly from the Prague region (mostly international joint venture companies) and these were invited to participate in the research, either by means of e-mail or a social network (Facebook, LinkedIn).

The return on the questionnaire answers was 39%, the total of 98 respondents answered within two weeks. The average age of a respondent is 32 (the lowest age is 21, the highest 53, the most frequent age is 28; 29 years of age is the median). Women account for 60% respondents. Most respondents are full time workers (93%).

2. Research Questions, Hypotheses and Partial Results

For quantitative research the following partial research questions and hypotheses were formulated, and they are related to the desired target, i.e. the description of the perception of the significance – importance of diversity management in the workplace with a group of managers and other HR specialists. The significance of diversity management is constructed here on the basis of a summary (an average of the answers) that originated from the questionnaire outputs – 4 sections and its items + additional aggregate items.

To test the below hypotheses a t-test for two independent selections was used and the processing was implemented by means of MS Excel. We aimed at looking for differences in the perception of diversity management with the monitored group of respondents from the point of their achieved level of education, the position in the organization, the size of the organization and the length of their work experience. For each individual area a question is asked and a hypothesis is set.

The decision whether there is a significant difference between the perception of diversity management with a group of the respondents according to the chosen viewpoint was taken on the basis of a t-test. Statistical tests were carried out at the 0.05 level of significance.

Question No. 1:

Does the level of achieved education of the respondents affect their perception of diversity management in the workplace?

Hypothesis No. 1:

H_0: *There is no difference in the perception of the significance of diversity management with the group of respondents with a lower and higher level of education.*

Partial result

- The set of respondents can be divided into the respondents with university education (4 graduates from Higher vocational schools are also included), where n = 78, and the respondents with secondary school education, where n = 20.
- The calculated value of the t-test is 0.939 and the level of significance is 1.984. Because the calculated value is lower than the critical value we have to accept the null hypothesis. There is no statistically significant difference in the perception of diversity management on the basis of the applied aggregate data concerning the monitored groups of respondents according to their education (university, secondary).

Notice: there is problem with sample size; one sample is less than 30 participants [20]. Next results present two samples with similar size.

Question No 2:

Does the position of the respondents in the organization affect their perception of diversity management in the workplace?

Hypothesis No. 2:

H_0: *There is no difference in the perception of the significance of diversity management depending on the position of the respondents in the organisations, i.e. managers or specialists.*

Partial result

- It is possible to divide the set of the respondents into two groups, i.e. the managers and managing directors = the first group that manages other employees (n = 47) and the specialists whose responsibilities, at least partially, are the issues of the development of human resources in an organization, i.e. n = 51.
- The calculated value of the t-test is 0.040 and the level of significance is 1.984. Because the calculated value is lower than the critical value we have to accept the null hypothesis. There is no statistically significant difference in the perception of diversity management on the basis of the applied aggregate data concerning the monitored groups of respondents – managers and respondents – specialists.

Question No 3:
Does the size of organization influence the perception of diversity management in the workplace by the interviewed respondents?
Hypothesis No. 3
H_0: *With the monitored group of respondents there is no difference in the perception of the significance of diversity management in the workplace depending on the size of the organization in which they work.*
Partial result

- Because experience with diversity management are especially in large enterprises the sample can be divided to a category of small and medium sized enterprises, i.e. up to 500 employees (55%) and to a category of large enterprises – corporations, i.e. here 501 and more employees (45% respondents). According to the definition of the US.
- The calculated value of the t-test is 0.202 and the level of significance is 1.984. Because the calculated value is lower than the critical value we have to accept the null hypothesis. There is no statistically significant difference in the perception of diversity management on the basis of the applied aggregate data concerning the monitored groups of respondents depending on the size of organization.

Question No 4:
Does the work experience expressed in the number of years of the respondents affect the perception of diversity management in the workplace by the interviewed respondents?
Hypothesis No. 4
H_0: *With the monitored group of respondents there is no difference in the perception of the significance of diversity management in the workplace depending on the length of their work experience.*
Partial result

- The set of respondents can be divided into two groups; the first group includes workers with a short length of work experience of less than one year and 1–4 years of work experience, 43 respondents in total. The second group includes workers with the length of work experience of 5 and more years, i.e. 55 respondents.
- The calculated value of the t-test is 0.294 and the level of significance is 1.984. Because the calculated value is lower than the critical value we have to accept the null hypothesis. There is no statistically significant difference in the perception of diversity management on the basis of the applied aggregate data concerning the monitored groups of respondents depending on the length of their work experience.

2.1 Partial Conclusion Concerning the Research Survey

We worked with a set of 98 respondents whom we divided according to their positions in organizations, their level of education, the size of the organization in which they work and also according to the length of their work experience.

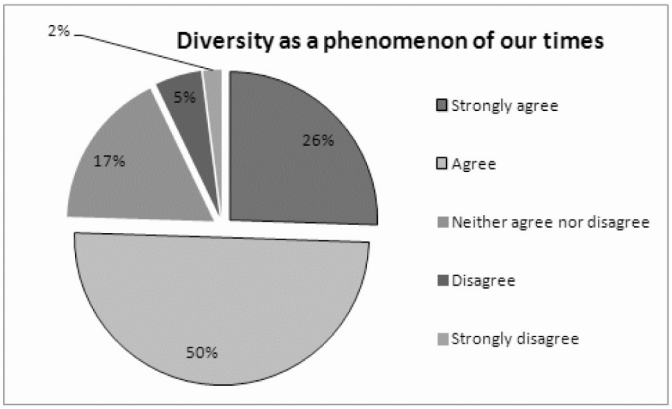
With the monitored set of respondents we did not manage to prove any statistical significance of the difference in the perception of the significance of diversity management in the workplace depending on the above variables.

We have to highlight here that the sample is not representative and the results cannot be over generalised. Nevertheless, this reference survey, within the above mentioned monitored categories typical of the interviewed sample of respondents, represents a certain type of description of the perception of diversity management in the workplaces in the Czech Republic and this description corresponds with the general opinion that in the Czech Republic diversity management is still rather a new topic.

For that matter, the above state is illustrated even by a more detailed analysis of the special

item "Diversity as a phenomenon of our times" which, in the questionnaire, is further specified by the statement: "I understand the concept of diversity management. I know the significance of diversity for the company where I work and I consider it important".

Fig. 1: Responses concerning the item Diversity as a phenomenon of our times



Source: own

A partial analysis of the answer Strongly agree showed that out of 25 answers – 14 respondents were from the category large enterprises (over 501 employees) and the analysis of the item Agree showed that out of 49 answers – 20 respondents were from large enterprises – companies.

3. The Assessment of the Research Tool and the Possibilities of Further Research

As we have already stated, the present research study "The perceptions and attitudes of diversity in the workplace by managers in the Czech Republic" surely belongs to the first implemented research studies in the Czech Republic, where the issues of diversity management, both at academic and company level, belong to relatively new topics, see also Eger et al. [3].

Despite the limitations of the research resulting from the extent of the sample and the focus on the Prague region, it is possible to state some other interesting data which might be continued in any further research and which even today bring some important information about the perception of diversity management in the Czech Republic by company managers and HR specialists who, within their responsibilities, at least partly focus on managing human resources in organizations.

Here we would just like to remind that the questionnaire originated on the basis of inspiration from the research tools and outputs from the research studies presented abroad and before administering the questionnaire the tool was piloted in the Czech environment.

Completing the questionnaire enabled us to assess its basic qualities as a research tool. The validity may be adequately derived from the application of the given research tools. On the basis of piloting the questionnaire and its assessment by two experts we may say we consider the tool valid.

The reliability of the questionnaire was statistically assessed using Crombach's coefficient alpha for the individual parts of the questionnaire. Let us state the area, the number of items and the calculated result: Managing people (3 items), Crombach α = 0.845, Co-workers (3 items), Crombach α = 0.632, Principles of diversity management in personal processes (3 items), Crombach α = 0.693, Policies and procedures (4 items), Crombach α = 0.772.

Additionally even the following area was included in our research but we removed it from

the complex output: My own behaviour (5 items), Crombach α = 0.608. This area was inspired by tools from the publication by Hubbard [11].

And, on the contrary, the item "diversity as a phenomenon of our times" was added to the above main items and is specified as follows: "I understand the concept of diversity management. I know the significance of diversity for the company where I work, and I consider it important" (1 item). This item belongs to the four specified areas as far as the content is concerned.

From the calculated Crombach α for the individual areas of the questionnaire it is obvious that two areas were given very good assessment. As far as possible further research is concerned we recommend considering the items in the area Co-workers and in the additional item My own behaviour. Here an opportunity for improving the applied research tool can be seen.

An additional view of the implemented research survey can be presented by calculating the correlations between the areas of the questionnaire and the gained aggregate index, with the interim name "significance of diversity management", fed from the above four sections of the questionnaire and the additional item.

Tab. 1: Pearson's coefficient of correlation, the individual sections – dimensions of DM

	Managing people	Co-workers	Principles of DM	Policies and procedures	Diversity as a phenomenon of our times
Managing people	1				
Co-workers	0.40	1			
Principles of DM	0.27	0.47	1		
Policies and procedures	0.51	0.61	0.61	1	
Diversity as a phenomenon of our times	0.70	0.71	0.74	0.92	1
Mean	1.87	1.52	1.93	2.10	1.89
Standard deviation	0.91	0.53	0.78	0.82	0.58

Source: own

Table 1 summarizes our results and reports the correlation matrix along with sections' – dimensions' means and standard deviations.

We can state that in our research survey a high level of correlation between the sections Politics and procedures and the overall index was achieved. The four sections – dimensions of DM correlated significantly with the overall index = Diversity as a phenomenon of our times (14 items).

On the other hand, the additional section My own behaviour, fed from 5 items aimed at the assessment of the respondents' own behaviour in this field does not show a significant relationship to the overall index (significance of diversity management). This is certainly an important result even though it was only achieved with a limited set of respondents with an intentional selection by means of the snow-ball technique. It, in a way, illustrates the fact that the sample of respondents (managers and HR specialists with at least partial responsibilities in the HR management) is already aware of the concept of diversity management but their own behaviour still contradicts with this awareness of diversity management at a practical level (table 2).

We consider the above findings an interesting topic to be further used for personnel management and for adult education [2], [21]. To be an effective diversity manager, at a behavioural level, "you must be able to interact with others who are different from yourself". [11, p. 100]. An important finding of this survey is: there is contradiction and conflict between level of knowledge of DM and own behaviour of managers and HR specialists.

It is, however, necessary to support this phenomenon by further conclusions from practice; the best way to do it is further research.

Tab. 2: Pearson's coefficient of correlation, My own behaviour and overall index of DM

	Managing people	Co-workers	Principles of DM	Policies and procedures	Diversity as a phenomenon of our times
My own behaviour	0.05	0.14	0.04	0.15	0.14

Source: own

3.1 Research Limitations

The validity of the research tool can be derived from its application as it was used in foreign research studies and from the expert assessment of the tool; the reliability of the applied tool can be supported by the Crombach α coefficient. What can be perceived as a limitation of the research is the small size of the group of the respondents from the capital of the Czech Republic, as this city is considered an important area of business and there are a number of joint venture companies. Therefore the results cannot be over generalized.

Conclusion

The research study implemented on a limited but relevant set of respondents did not prove any differences in the perception of diversity from the point of view of their achieved level of education, the position in the organization and the length of their work. On the whole, the index of the perception of diversity can be considered positive and it shows that the group of the relevant respondents is already familiar with the issue of diversity management. (Aggregately, the output was expressed as an average of the overall index for all the respondents by the value of 1.89 with a standard deviation 0.58).

The output from the present research study corresponds with a similar study carried out by Egerová et al [6] in which the above authors compared even the opinions of managers from the Czech Republic and the Slovak Republic (for Slovakia see also [12]).

Our desk research and quantitative research from the year 2012, aimed at the countries of the Visegrad Four [4], proves it necessary to pay attention even to the national and regional specifics when implementing diversity management in organizations, a fact also highlighted by Kirton and Greene [14] and other authors. On the other hand, it is also necessary to perceive common tendencies in the European Union that are typical of the field of diversity management, which are perceived, for example, by Wynne [23] as concentration on the following five groups: older workers, ethnic minorities representatives, representatives of some specific religions, women, and disabled workers.

A discovered contradiction between the perception of the significance of diversity management in an organization and the assessment of the behaviour of the monitored group by the respondents themselves may come as a sort of surprise. It may be necessary to focus on this issue in any further research but also in the process of implementing diversity management in practical operations of the Czech companies.

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Abstract

DIVERSITY MANAGEMENT – PERCEPTIONS AND ATTITUDES BY CZECH MANAGERS

Ludvík Eger, Zuzana Indruchová

Diversity management has become very important and relevant in the field of the human resource development namely after the Czech Republic joined the European Union. Diversity management is based on the strategy of an organization and it is also connected with corporate culture and corporate social responsibility.

The research focused on looking for the differences in the perception of diversity management of the monitored group of respondents from the point of view of their achieved level of education, the position in the organization, the organization size and the length of their work experience.

The respondents were young workers in managerial positions or in the positions of a HR specialist with at least part time work responsibilities in the field of human resources management.

The implemented t-tests did not prove any statistical significance in any of the monitored differences and it can be stated that with the monitored group there is no difference in the perception of diversity from the point of view of the level of their education, their positions in the organization, the organization size and the length of their work experience.

The complementary research by means of the Pearson's Correlation proved a positive relationship between the individual sections of the questionnaire and the overall perception of the significance of diversity management by the respondents and even a high level of correlation of the overall index with the section Policies and procedures. On the contrary, only weak values of correlation were achieved within the additional section focused at the respondents' own behaviour in their workplace in relation to the overall index of the perception of diversity management.

Key Words: *Human capital, managers, organizations, diversity management, Czech Republic.*

JEL Classification: *M12, M53.*

EFFECTIVENESS OF USING E-LEARNING FOR BUSINESS DISCIPLINES: THE CASE OF INTRODUCTORY MANAGEMENT COURSE

Hana Mohelská, Marcela Sokolová

Introduction

Systematic training of employees is a constantly repeated cycle that reflects both the specific requirements of training and development strategies, as well as the objectives of general organizational strategy. The main source of the training and development process efficiency is its systematic feature in relation to employees and to owners and customers. Systematic training consists of four basic stages [2]:

- identification of needs,
- planning and budgeting,
- implementation,
- evaluation of the process effectiveness and its projection to the next round; so it is a closed process based on continuous improvement.

Although it's a cycle of successive stages, each of them occurs in the system as a somewhat separate sub-process, which is independent of the other activities accelerated by organisational and institutional prerequisites for the development of employees. It means not only the existence of a group of employees and organisational units that participate in the provision of professional and organisational aspects of education, training programs and training facilities, but also creating conditions for continuous development that places less emphasis on formal training and emphasising human responsibility for self-education and self-development. Another source of acceleration is also the fact that in the process management system of training and development, the individual phases are successive, overlap and influence each other. Parts of the cycle are therefore both separate and complementary processes, which together provide a synergistic effect [2].

Education and development of employees in the traditional sense focus on the formation of working abilities of a person and that part of their personality, through which they create values in order to improve the work performance of individuals, to fulfil their individual goals within their working career and improve the performance of an organization as a whole. It serves as a permanent provision of skills that are needed in the organization for the performance of existing or future work.

Education is an organized institutionalized way of learning. Training should be systematic and it is limited – it has a beginning and an end. [14]

Learning is a more complex concept than education. It is a process of change that involves new knowledge and behaviour. Unlike education, learning takes place spontaneously. [14], [20]

Armstrong [2], [1] says that corporate training core goals are especially to increase the performance of permanent staff and development of skills, to be able to perform new tasks by the newly recruited staff as soon as possible and at minimal cost. He sees corporate education as an investment in people, which should return to the company. With the onset of the economic crisis in late 2008, many companies in the Czech Republic decided to cut down on expenses for employees – whether they were labour costs, in which reduction led to redundancies or to reduce spending on the training of employees.

The purpose of education is to promote competitiveness and a greater flexibility of workers in a rapidly changing environment. Companies that have an established system of education, have more educated employees who are more productive and a better understanding

of their work, and they are also able to adapt quickly to changes and new technology, which gives them a significant competitive advantage. [14], [20]

Results of the survey of the Czech Statistical Office (CSO) titled Further Training of Employees in Enterprises in the Czech Republic in 2010 showed, that even during a financial crisis, about three-quarters of companies were trying to find ways of not restricting their employees in their continuing education and training. Mostly businesses with over 500 employees invested in the training [13], [17]

In the Czech Republic as well as in the European Union there are programs encouraging companies to educate employees. For example one of them is "Educate yourself for growth". 850 million Czech crowns is available for this program from the European Social Fund and the Czech state budget, intended for companies hiring new employees or current employees teaching the new employees. In the case of obtaining a grant, a company is reimbursed for the course as well as for the wage of the employee. With these programs, in times of crisis the companies may educate their key employees as well as others in a limited way. The issue of the program is the high administrative burden, which means high costs for preparing the grant application in smaller companies without the sufficient knowledge of staff in the human resources department, if there is any. [4]

However, despite this support, in smaller and medium-sized companies spending on staff training is reducing. The economic crisis is taking longer than expected and companies can no longer afford staff training as before. There had to be a reduction of education, and now training mainly involve workers who are needed for a company. The world is constantly evolving and changing, more new technology is coming on the market, including the field of education. One possibility is the introduction of e-learning in corporate training.

Kopecky [16] defines e-learning in a broader sense as the application of new multimedia technologies and Internet in education to improve its quality by enhancing the access to resources, services, information exchange and co-operation, in the narrower sense e-learning is seen especially as education, which is supported by modern technologies and is implemented through computer networks – especially Internet and Intranet. E-learning cannot replace all forms of learning, but it can significantly streamline the education system. The original reason for organizations to implement e-learning was mainly to reduce costs, but today it is clear that e-learning has many other advantages, such as time independence and individual learning, in the case of well-developed courses it also ensures high level of transmitted knowledge, standardized knowledge (everyone can get the same information, it is possibly to customize courses), student assessment with the same rules, the possibility in a short time to educate a large number of people, and many others.

The introduction part presents certain solutions for the implementation of the case study, the fundamental part of this paper is dedicated to the case study that addresses the issue of the effectiveness of e-learning compared to traditional teaching. A pedagogical experiment was chosen as the main research method to compare the effectiveness. Based on the results, the conclusions are further discussed and the research directions are proposed.

1. E-learning and Its Effectiveness

In connection with the rapid progress in information technology over the past two decades, online education dramatically increases and e-learning thus affected many areas, including management training. There are many e-learning programs and e-learning incorporated to the conventional teaching methods. This trend was inevitable, since the popularity of online communication and social networking has been a phenomenon in recent years.

In addition, Schweizer [27] says that e-learning is replacing face-to-face classroom instruction in a growing number of businesses, but what is the prospect for the continued proliferation of e-learning in business? On the one hand, the quality of instruction, the costeffectiveness of new technology, a supportive e-learning educational culture, an expansion of the Internet, an increase in online courses, shorter business cycles, mergers, and increasing competition encourage business use of e-learning. On the other hand, employee reticence in using learning technologies, insufficient corporate investment, a lack of business-

relevant university courses, narrow bandwidth, and the Internet access issues are constricting the business use of these technologies.

Nevertheless, the beneficial effects of learners interacting in online programmes have been widely reported [7]. Indeed, online discussion is argued to promote student-centred learning. It is therefore reasonable to suggest that the benefits of online discussion should translate into improved student performance. The current study examined the frequency of online interaction of 122 undergraduates and compared this with their grades at the end of the year. The findings revealed that greater online interaction did not lead to a significantly higher performance for students achieving passing grades; however, students who failed in their courses tended to interact less frequently [7].

Furthermore, Ladyshewsky [18] explains: "The use of information technology in higher education has increased significantly over the years. There is a paucity of controlled research which examines differences in electronic learning (EL) and face to face (F2F) learning. This study examined student (n = 1401) performance (final grade) in nine units offered in both F2F and EL mode over the course of two years. The effect of age and gender was also considered. Students, on average, did better in the EL mode although at the individual unit level there were minimal if any significant differences. Age and gender did not appear to moderate performance in any way except for those students under 33 who did better, on average, in the EL mode."

Several studies have been also conducted in relation to dropouts from on-campus and distance education courses [19]. However, no clear definition of dropout from academic courses was provided. Consequently, this study proposes a clear and precise definition of dropout from academic courses in the context of e-learning courses. Additionally, it is documented in literature [19] that students attending e-learning courses dropout at substantially higher rates than their counterparts in on-campus courses. Little attention has been given to the key factors associated with such substantial difference. This study explores two main constructs: (1) academic locus of control; and, (2) students' satisfaction with e-learning. Results show that students' satisfaction with e-learning is a key indicator in students' decision to dropout from e-learning courses. Moreover, dropout students (non-completers) reported to have significantly lower satisfaction with e-learning than students who successfully completed (completers or persistent students) the same e-learning courses. Additionally, results of this study show that the academic locus of control appears to have no impact on students' decision to drop from e-learning courses [19].

Of course, there is also a significant group of opponents who argue that the evidence for e-learning is inconclusive [26].

The results of most studies suggest that there is no statistically significant difference in the results of students studying in the form of e-learning and traditional way of learning. [1], [5], [11], [15], [21], [32], [33]. The comments across the thematic areas (information technology, management, marketing, languages, etc.) uneven, but comprehensive overview of the e-learning research concluded that the results of students studying in the form of e-learning or traditional learning are not significantly different, there is no statistically significant difference [24].

This conclusion is a base for further construction and presentation of the case study which shall test the hypothesis H: Students achieve a comparable level of proficiency in ICT of the supported learning in comparison with face-to-face manner in basic management skills.

2. Use Case – A Comparison of the Effectiveness of E-learning and Traditional Teaching (Pedagogical Experiment Results)

As stated in the previous chapter, companies try to keep corporate training in hard and soft skills; education in management should be part of education in every organization. Selection of an appropriate form of education should be based on the BI system and should combine the two basic breakdowns of the educational process: regulated – unregulated and working – non-working, thus we can get six possible forms of education [2]:

1. Regulated training of work performance in a workplace (the so-called informal education).
2. Regulated training outside of work performance in a workplace (the so-called formal education).

3. Regulated training off the site of the employer (the so-called institutionalized education).
4. Unregulated training of work performance in a workplace (the so-called informal education).
5. Unregulated training outside of work performance in a workplace (the so-called interpersonal education).
6. Unregulated training off the site of the employer (the so-called lifelong self-education).

E-learning (m-learning) [12], [23], [25], [21] can be used for all six possible forms of education. The following section is therefore devoted to comparison of the effectiveness of e-learning and traditional teaching in the acquisition of basic management skills. This pedagogical experiment was carried out under the GACR 406/09/0669 project called "Evaluation of the benefits of modern technology in the process of formation and development of competencies of university students", which inter alia aim was to evaluate the effectiveness of e-learning.

2.1 The Object of the Pedagogical Experiment

The research objective was to verify whether the appropriate use of e-learning leads to a comparable performance of students in the area of cognitive learning.

The object of the research can be characterized as follows:

1. Educational process in course of the Principles of Management.
2. University students (Faculty of Informatics and Management, University of Hradec Kralove) participating in the course of the Principles of Management.

The research subject is students' performance achieved in the experimental group in the cognitive area and its comparison with the performance of students achieved by traditional full-time education in course of the Principles of Management.

At first glance it may seem that students and employees are two groups which are difficult to compare. For the purposes of our experiment, i.e. verifying comparability of the effectiveness of e-learning and traditional teaching, the difference is irrelevant. Corporate education also involve various employees (differences in age, education, experience, etc.) [10]. The main hypothesis is:

H: *Students reach higher level of knowledge in the ICT-supported instruction in comparison to the face-to-face way.*

2.2 The Research Methodology and Organization

The research used the following methods [9]:

- experiment – the main method,
- educational tests – the hypothesis verification,
- interview (to a limited extent),
- observation (to a limited extent),
- statistical methods of processing the results of the research.

A suitable method for comparing the effectiveness of two different systems of teaching is a pedagogical experiment.

One of the important conditions in the organization of the experiment is that the experimental and control group are the most equal. The experimental group is a group of subjects, in which the experimental change was applied, in our case it is a group of students in which they use e-learning for education. The control group is a group of subjects, in which there is no experimental change, in our case the students who use traditional methods of education (full-time education).

The experimental method uses a special term to describe the experimental change – the independent variable. In our educational research the independent variable is the use of e-learning. The dependent variable in the experiment was the performance of students – memory, understanding and application of new knowledge.

The research used an experimental plan using pre-test and post-test.

When evaluating the effectiveness of education, didactic tests are used that will play an important role here. Entrance test (pre-test) will verify that the initial knowledge is same in both groups. Output test No. 1 (post-test1) will measure, whether the experimental change – e-learning – influenced students' knowledge compared to traditional teaching. Output test No. 2 (post-test2) will test the permanence of knowledge. All educational tests that have

been used in the research, were designated for the measurement of educational process outcomes in cognitive learning. Creation of the tasks in didactic test was based on clearly defined objectives and curriculum analysis.

Individual tasks were defined based on the taxonomy of educational objectives of Tollingerova [33] – the first three categories were used:

1. Tasks requiring a commemorative reproduction of knowledge.
2. Tasks requiring simple mental skills with knowledge.
3. Tasks requiring complex mental skills with knowledge.

Number of tasks in the thematic units was set in proportion to the number of hours that are devoted to the interpretation of individual topics.

The pre-test contained 8 tasks, the post-test contained 12. To determine the reliability of tests they are not high numbers, but the reliability value of the pre-test reached 0.6008; the post-test reliability value was 0.672. Test reliability was set by the Kuder-Richardson formula.

2.3 Organization of the Study

In the case of "traditional" teaching the students had the opportunity to attend lectures and seminars. While attendance at lectures was not mandatory, attendance at seminars was recorded and was one of the conditions for gaining credit. The lectures presented successively different thematic units. Verbal presentation of topics was supplemented with PowerPoint presentations. Within seminars the students had to solve various sub-tasks and case studies, and had to prepare a seminar paper (SWOT analysis of the selected product, company, service, etc.) To obtain the credit they also had to write a mid-term test (minimum 7 points out of 14).

The "experimental" teaching used the so-called e-subject of the POM1 within the virtual study environment of OLIVA. The basis of the virtual study environment consists of LMS (Learning Management System), WebCT, in which each e-subjects are operated. Students included in the control group did not have access to the e-subject of the POM1 during the semester or prior to the test. For students of the experimental group there was no scheduled lecture or seminar, instead that they had study supports available of the e-subject of the POM1. All communication with a teacher took place only in the WebCT environment. Students had to solve sub-tasks and case studies independently, the selected tasks were mandatory, so the students had to develop and submit them to the teacher. The course completion was linked to the development and delivery of 8 mandatory sub-tasks and passing the final test.

2.4 Selection of the Research Sample

In usual school practice, totally random selection for experimental research is impossible.

Available selection was used to select the research sample, so of course it is not possible to generalize the results and state that this applies in every area, with any participant, etc.

The research sample consisted of university students (University of Hradec Kralove, Faculty of Informatics and Management), who participated in the Principles of Management course in the academic year 2009/10 and 2010/2011.

The experimental and control group was created with random selection. The number of participants in the experiment is shown in the following table (Table 1). In some cases, the number is lower in the post-test than in the pre-test, because not all participants completed the course.

Tab. 1: The number of participants in educational experiment

	Pre-test		Post-test	
	E	C	E	C
Year 1	35	37	32	34
Year 2	44	39	44	39
Total	79	76	76	73

Source: custom processing. Legend: The experimental group – E, the Control group – C.

2.5 Analysis of the Research Results

Input knowledge test – pre-test – was created in order to determine the input level of knowledge before the experimental exposure. Due to the fact that the course Principles of Management course is not attached to another course, the test included questions concerning

the substance of the Principles of Management. The pre-test was necessary to verify that the input knowledge of students is equal, otherwise it wouldn't have much point to implement the pedagogical experiment.

At the end of the experiment the participants passed the test of output knowledge – post-test – it was created in order to determine the output level of knowledge after experimental exposure. After three months, the post-test was repeated to confirm the permanence of knowledge. Using the statistical program of NCSS2007, by Student t-test and non-parametric Mann-Whitney's test (due to not completely clear normal distribution) analysis of variance at the significance level of 0.05 was conducted for checking the statistical equivalence of the sample in indicators of the pre-test, post-test1 and post-test2 results. The results are shown in the following two tables and charts (Tables 2 and 3, Fig. 1 and 2).

The objective of this test was to verify the following hypothesis:

"There is no statistically significant difference in test scores in experimental and control groups."

Tab. 2: Results overview – year 1

	Norm	t	Z	H_0
Pre-test C	N	-1.2858	-1.3474	It is accepted
Pre-test E	N			
Post-test C	N	-0.2314	-0.1078	It is accepted
Post-test E	NZ			
Post-test2 C	NZ	-0.2576	0.0974	It is accepted
Post-test2 E	NZ			

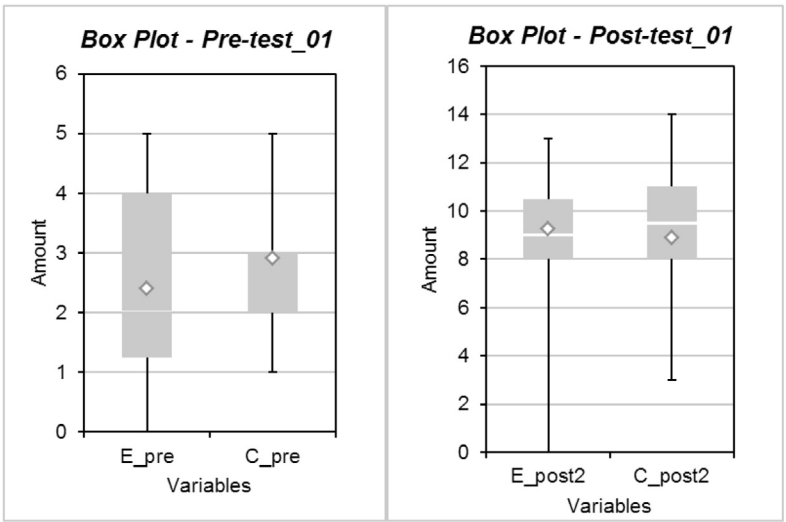
Source: custom processing. Legend: The experimental group – E, the Control group – C, Norm (test of normality): N (normal distribution), NZ (cannot be rejected), Z (rejected), t (t-test) and Z (Z-test)

Tab. 3: Results overview – year 2

	Norm	t	Z	H_0
Pre-test C	N	0.6438	-0.4969	It is accepted
Pre-test E	N			
Post-test C	NZ	0.2722	-0.2303	It is accepted
Post-test E	N			
Post-test2 C	N	0.0640	0.0328	It is accepted
Post-test2 E	N			

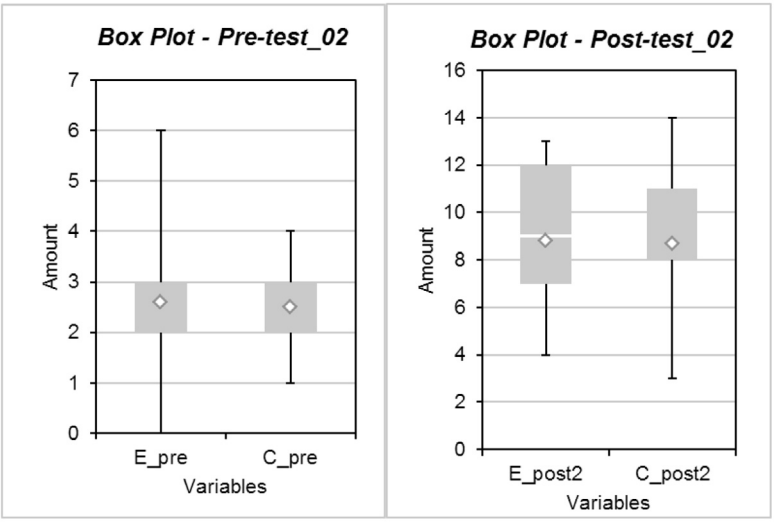
Source: custom processing. Legend: The experimental group – E, the Control group – C, Norm (test of normality): N (normal distribution), NZ (cannot be rejected), Z (rejected), t (t-test) and Z (Z-test)

Fig. 1: Performance of students in the pre-test and post-test1 – year 1



Source: custom processing

Fig. 2: Performance of students in the pre-test and post-test1 – year 2



Source: custom processing. Legend: The first chart shows the pre-test (experimental versus control group), the second chart shows the post-test (experimental versus control group).

Table critical value of the test criteria is Tcrit = 1.9866.

All calculated values of the test criteria Tcalcul were lower than the critical value.

(..... $= T_{vypoč} \leq T_{krit} = 1{,}9866$).

The null hypothesis is therefore accepted, in post-test1 and post-test2 there was no statistically significant difference between the performance of students enrolled in the control and experimental groups.

The validity of the null hypothesis is confirmed by the non-parametric Mann- Whitney's test.

This result concludes that **the main hypothesis** *Students reach higher level of knowledge in the ICT-supported instruction in comparison to the face-to-face way* **was rejected**.

The hypothesis of "The students in the experimental group will achieve a comparable performance in cognitive learning at the end of the experimental teaching as the students taught by traditional full-time teaching" is true.

3. Summary of the Results

One of the most important aspects of e-learning introduction into the company training system is its efficiency. Exploitation of e-learning is not possible in all cases – it must be considered carefully if the given task is to be trained by e-learning.

Based on the conducted experiment, we can state that training in basic managerial skills with the help of e-learning is same efficient as traditional education methods. These findings are important when deciding about the implementation of this tool in company training. Similar educational experiment was conducted in other areas such as database systems or professional English and Šimonová [30], [31], [31] confirms these results.

However, all competencies are not obtainable when using this method – when implementing e-learning, it is important to assess all these cases individually.

From these results it is clear that education through E-learning is comparable to that of traditional teaching. It does not replace all forms of learning, but it can significantly streamline the education system. The original reason for organizations to implement e-learning was mainly cost reduction, but today it is clear that e-learning has many other benefits. Implementation of e-learning has many positive facts such as [8], [9], [22]:

- time independence and individual study,
- possible reduction of costs compared to traditional education,
- in the case of well-made courses, it ensures a high level of transmitted knowledge,
- standardized knowledge (everyone receives the same information),
- assessment of students according to the same rules,
- possibility to educate large number of people in a brief moment,
- courses can be made in an interesting and entertaining way that will appeal to more students, etc.

On the other hand, it is obviously necessary to mention the possible negatives and barriers to the introduction of this form of learning, such as [22]:

- not appropriate for anybody (requires computer literacy),
- impersonal education,
- problems with the motivation of participants,
- knowledge is served in one way, which may be unsuitable for some people,
- it is necessary to have the necessary technical equipment (ICT technology) and others.

4. Research Limitations and Areas for Further Research

Based on the experiment, we can conclude that training in basic management skills through e-learning in the context of the studied sample is as equally effective as traditional training. This finding is important when deciding on the implementation of this tool in corporate education in this area.

At first glance it may seem that students and employees are two groups which are difficult to compare. For the purposes of our experiment, i.e. verifying comparability of the effectiveness of e-learning and traditional teaching, the difference is irrelevant. Corporate education also involve various employees (differences in age, education, experience, etc.)

In any case it can not be generally stated that e-learning is always and under all circumstances the same or equally effective as traditional teaching. It is very specific and it is always necessary to consider the circumstances completely individually. What we want to teach is important, what skills and knowledge the participants shall obtain, who the participants are, etc.

The issue certainly has potential for further exploration; there are many areas for further researches. One of the directions is a deeper examination of the same facts (comparing the effectiveness of e-learning and traditional training) under different conditions, such as in corporate training and further analyze the factors that are critical when considering the introduction of e-learning. Another area is the use of ICT technologies even further, such as the use of social media.

Conclusion

Classic school education in lifelong learning terminology is referred to as formal education, which can be characterized by longer duration and higher requirements for participants involvement. Informal education is different. Organized and institutionalized educational activities are used the form of courses, training courses, private lessons, workshops or seminars. In 2011, in the Czech Republic nearly a third (32%) of people between 18 and 69 years participated in at least one such activity. [6]

Employers usually support formal and informal learning, participation of an employer may take the form of direct financing or releasing employees within their working hours. Within the information system it is possible to monitor and gather information on education processes and then use them for not only assessing the effectiveness of education, but also to identify the needs of further training, selection of the form of education and to plan the whole process. [3]

The decision-making process regarding the implementation of e-learning into corporate education system is a very complex procedure that is divided into several separate decision issues, which are very important, when in fact a breach of one of these conditions may result in a negative opinion towards to introduction of e-learning.

Before incorporating e-learning in the process of education it is necessary to consider in particular these aspects [28], [29]:

- content of the course – the appropriateness of education of the given matter through e-learning (efficiency);
- assumptions of the educational institution – ICT facilities, staffing;
- assumptions of students – ICT literacy, access to ICT;
- **and finally, the ECONOMIC ASPECTS.**

Such information can also be obtained on the processes of learning and use them to assess the effectiveness of education as well as to identify the needs for further training, selecting the forms of education and to plan the whole process of education. In the process of training we obtain a lot of data and reports, mostly in e-learning. With the help of Business Intelligence tools the process of education can be even more efficient. It is possible to analyze, measure, assess and evaluate the performance of the trained participants and operationally modify the training materials according the current needs. As a consequence, we can observe and analyze the interaction of the trainees with the e-learning environment. They can also help with the training content assessment and its efficiency in the educational process.

The future of corporate training can be expected in the technology-supported network systems, in the case of those educational programs for which there is high social demand. However, among the indisputable advantages they are also some drawbacks, which must not be neglected in both the creators of e-learning products and consumers.

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Abstract

EFFECTIVENESS OF USING E-LEARNING FOR BUSINESS DISCIPLINES: THE CASE OF INTRODUCTORY MANAGEMENT COURSE

Hana Mohelská, Marcela Sokolová

Education and development of employees in the traditional sense focus on the formation of working abilities of a person and that part of their personality, through which they create values in order to improve the work performance of individuals, to fulfil their individual goals within their working career and improve the performance of an organization as a whole. The purpose of education is to promote competitiveness and a greater flexibility of workers in a rapidly changing environment. Organizations must therefore use all available methods of education appropriately combined, and to set the whole process of education to be not only effective, but also financially acceptable. The economic crisis is taking longer than expected and companies can no longer afford staff training as before. One possibility is the introduction of e-learning in corporate training.

The paper describes the various forms of education and based on the results of custom research (experiment) it compares the effectiveness of e-learning and traditional learning.

Based on the conducted experiment, we can state that training in basic managerial skills with the help of e-learning is same efficient as traditional education methods.

On the basis of the facts it certainly cannot be clearly stated that each organization (educational institution, business) shall introduce e-learning into the education system of their employees. It is necessary to access each organization individually. There are mentioned criteria and tools that can help you decide. There are also other possible research directions discussed.

Key Words: *E-learning, corporate education, experiment.*

JEL Classification: *I21, I25, L20.*

AN ECONOMETRIC APPROACH TO FACTORS AFFECTING CROP INSURANCE IN ROMANIA

Simona Laura Dragos, Codruta Mare

Issues Related to Agriculture Development

The structure of the national economies throughout the world has undergone important changes in the 20th and 21st centuries. These changes have been carefully monitored and analyzed, especially in relation to the continuous population growth that needs more and more natural resources. While there is already no need to assess the weight of agriculture in the developed economies, recent studies have emphasized a decreasing trend of agriculture also for the developing and third world economies [21], [29]. For example, the first paper cited shows that the weight of the agricultural sector in the total economy based on the value added has more than halved in a period of 10 years, from 15.9 in 1998, to 6.4 in 2007. The descending trend for Romania has continued later on. A more dramatic drop is to be found on the other side of the World, in countries like India [29], with a continuously increasing population that needs food.

There are a lot of factors affecting the evolution and development of the agricultural sector. Among them, the most important resides in the economic theories of efficiency and utility. Thus, every investor, regardless of the area of activity, takes decisions in order to maximize profit and utility. For the economic agents involved in agriculture, this process is harder than for those in other sectors, as risks are higher. Among the main causes to be found in the recent literature, we mention: lack of financial assistance [37], volatility of incomes in agriculture [29] due both to high price volatility and to natural disasters [28] that lead to a low level of welfare [2] and other types of causes related to the market, technical or political risks [28], [25], [35] and so on. The best way to overcome all these threats and improve rural welfare is through agricultural insurance.

An excellent review of the main problems, solutions and politics regarding crop insurance is made by Makki [19]. He approaches the possible causes of the nonexistence of market-based private insurance in agriculture and of the original proposals to reform crop insurance. The proposed theoretical background prefigures the factors that have to be considered in order to explain the small farmer's decision to insure. The economic mechanism of the farmer's reactions to price insurance, gross revenue insurance, crop insurance, price plus crop insurance and portfolio insurance are examined by Turvey [33].

Boyd et al. [5] examine the main principles underlying crop insurance. They suggest some possible solutions to the challenges for crop insurance development in the emerging economies (especially China), based on the experience of some developed agricultures (USA and Canada). Enjolras et al. [13] undertake a representative survey of French farms regarding the identification of incentives for the crop insurance decision. They find that the decision to buy insurance is positively related to the past amount of claims. Insurance appears too expensive for smaller farms so they are subscribed mainly by larger farms, but capital structure or return on investment do not significantly determine the insurance decision. In our study we demonstrate that some factors like the proximity to a city, the size of a village, the level and the profile of the farmers' training can be significant in an emerging economy (Romania), even though they are not significant in a developed economy (France).

Some studies analyze particular features regarding specific calamities (see [23] for hail insurance). The effectiveness of some policies for insurance support is evaluated comparatively: on one hand there is an area insurance plan and on the other hand there is an Income

Equalization Deposit (IED) scheme for small farmers. The academic literature is also concerned with analyzing the limited success of some innovative methods like Index-based Agricultural Insurance [4].

Agriculture in Romania has developed in the past 20 years starting from the publicly owned farms typical of the communist period. This type of farms had no need for risk management practices, as everything was supported by the state. The period of collective farms was obviously followed by the privatization process [36]. During this period, the land was divided among citizens, who started to operate in a subsistence agricultural sector. The expansion of the subsistence agricultural sector was also sustained by other post-communist evolutions. One, in particular, is very well emphasized by Mare [21] – due to lack of labour market flexibility and of labour market education, along with the evanescence of the great industrial state-owned companies, people went either in long term unemployment, or to work in agriculture. Consequently, more than 66% of the rural population has become engaged in agricultural activities [10]. The same study reveals that only around 150,000 of them are actually officially employed in agriculture. Preoccupations with the study of the agricultural environment in Romania and methods to improve it are not new. As Ştefănescu [31] points out, proposals of measures to improve the life of peasantry, in particular, and the agricultural sectors, in general, date back to the 19th century. They have evolved over time, according to the characteristics of the periods under discussion. Nowadays, the main subjects of interest relate to ecological issues [11] and means of sustaining the development of the agricultural sector. Our subject of study – issues related to the development of the agricultural sector insurance – belongs to the second group of research.

The studies of Gomez-Limon et al. [17], Hardaker et al [18] and Toledo, Engler [32] estimated the farmer's risk preferences. If the risk of loss is perceived as too great to assume, a possible farmer's decision is to use an agricultural insurance scheme to mitigate the impact of unpreventable risks [16].

The second part of the study presents some specific aspects related to crop insurance in Romania. Because of the specificity of each agricultural market, the policies for implementing the insurance crop systems have to be personalized for every economy. Romania has an emerging economy and agriculture, being an ex-communist society, still predominantly traditionalist. For the Central and Eastern European Countries, Njegomir and Stojic [24] believe that the solution for improving the competitiveness of local insurance markets and for providing more affordable insurance coverage is the inflow of foreign capital. The governmental decisions must be in accordance with the significant factors that influence the buying decision of an insurance policy. We assume that unlike countries with advanced agriculture sectors, where the decision to purchase insurance is positively related to the past amount of claims, in Romania (as well as in the other emerging agricultures) the decisive role is still played by several socio-cultural, economic or geographical factors like: the size of the village, the proximity to the city, the level and profile of education, the agricultural area owned by the farmer, the type of agricultural crop. As a consequence, the key objective of this study is to examine (using econometric tools) which of these factors are relevant and to recommend adequate policies for supporting the development of crop insurance.

As it will be seen, the majority of the results are the ones expected. For example, the level of education significantly determines the choice of buying an agricultural insurance. Moreover, the high level of traditionalism in countries like Romania also has an important impact upon the decision. Additionally, interesting results were obtained when studying the influence of the crop type.

1. Crop Insurance in Romania

Romania has a large area of arable land (around 8.2 million ha according to the agricultural census 2010–2011) and great potential concerning crop insurance. In the period 2005–2007 only a percentage of 15–18% of the total arable surface was insured. In the crop year 2007–2008 the percentage rose to 43%, which represents 3.5 million ha insured. This increase is explained through the Governmental subsidies granted on insurance subscription. In 2009 the insured arable surface dropped again to 2.8 million ha due to abrogation of subsidies [1]. Another characteristic of the Romanian

crop insurance market is that over 90% of the the insured are large farm owners who have over 100 ha to administer. Among the causes which led to this situation are: land fragmentation, lack of financial resources, lack of information from insurance companies and lack of trust in the insurance sector.

The agricultural sector is characterized by high risk and uncertainty. In Romania, due to strong weather variations, production and yields fluctuate a lot. As a consequence, price volatility is also extremely high. Usually, in years with good yields and production, prices decrease, while in years with low levels of crops, prices increase [3]. There are two main types of crop insurance available to farmers, namely: the single risk insurance and the combined (multi-risk) insurance. The first category covers only one peril and is appropriate for small farmers, while the second one combines more risks and is sold in packages.

In Romania the insurers do not insure the disaster risks, whose regulation was enforced in 2002, when Law no. 381/2002 regarding the granting of compensations for natural calamities was issued. Natural calamities represent the quantitative and qualitative crop losses because of damaging natural phenomena on large areas. The early warning system proposed by Furdu, Tomozei and Pandele [14] could represent a further step in the management of natural disasters. (By law, natural phenomena and diseases are considered to be the following: excessive drought, floods coming from overflowing rivers or broken bridges, heavy rains, excessively low temperatures below the biological resistance limit of the plant, heavy snow falls causing losses in the vegetal and livestock sectors, rapid melting of the snow causing floods, rivers overflowing, hurricanes.) In the case of loss caused by calamities stipulated in the mentioned law, the agricultural producer is indemnified by the state, but only if the producer has insured the “standard” risks (insurable risks).

Natural calamities which have stricken Romania in the recent years have determined the insurance companies to believe that the coverage degree concerning agricultural insurance will significantly increase [22]. But farmers do not perceive the risk, believing that disasters will not affect them. If they lose their crops, they expect to be indemnified by the government.

In order to improve the system and to stimulate farmers to insure against risks, the state attempted to encourage agricultural producers to insure by subsidizing the premium, and not by paying all the losses. In 2010, by the Governmental Decision no. 756/2010 regarding the state subsidy in agriculture for the insurance premiums, the subsidy was set at 50% or 70%, in accordance with the insured risks. Nevertheless, only somewhere between 20–25% of the Romanian cultivated area is covered by insurance. Crop insurance has a higher penetration ratio within associations and among those farmers that exploit larger land areas. Considering the subsidies that the state provides for legal entities concerning the insurance premium, a possible solution for the farmers who practise a subsistence agriculture (on small areas of 1–2 ha) to benefit from these could be association.

Agricultural insurance had a development far stronger than the market average, rising by over 77% in the first half of 2011, compared to the value of subscriptions in the same period of 2010. The nine insurance companies that reported subscriptions for agricultural insurances cumulated gross written premiums whose value reached 10 million euro (around 1% of the market), over 4 million euro more than the total at the end of June 2010. For the first nine months of the year 2012, on the Romanian agricultural insurance market the gross written premiums (GWP) subscribed reached 14 million Euro, a 33% increase since the same period of the year 2011.

Among the determining factors that influence insurance coverage, [8] mention geographical localization of sowed fields, structure of the crops and technical costs required by each crop type in the process of production. The insurance is available for the current agricultural year, with the possibility of periodical updates. The sum insured for crops is the value declared by the insured and accepted by the insurer, depending on the production technical costs. The insurance premium depends on the crop’s sensitivity to the insured risk factors, the frequency of the risk factors, the localization of the crop, the amount insured – which, according to the type of insurance policy, might cover the technological expenses or the value of production.

Based on the statistics for the last 50 years, the insurance premiums ratio for crops in the

European community was established at 6–7% of the insured value. In Romania, the standard premium ratio (from the catalogue) is 3–3.5% of the insured value, lower than the European level. Because of the discriminating competition on the Romanian insurance market, the ratio quotation applied is around 1.7–1.8%, being unsustainable if we refer to the acquisition and administration costs of the insurer. This leads to a situation where substantial losses are registered for the insurance companies which subscribe agricultural insurance contracts because of the loss ratio of above 70%.

The lack of financial resources and the lack of information and education are some of the main reasons for which agricultural insurance is not fully employed as a risk management instrument in Romania. Studies have shown that, in order to have a rapid expansion of the agricultural insurance market, governmental intervention is needed [15], especially in the former communist countries [9] or in other emerging countries like Indonesia [27]. Clipici [7] considers that for the farmers in emerging countries the use of agricultural insurance represents the transition from subsistence farming to sustainable farming.

The paper analyzes, thus, the agricultural insurance market in Romania, bearing in mind all the above mentioned aspects. Overcoming losses due to natural disasters through insurance has an immediate stabilising effect on the rural households' incomes. Thus, agricultural insurance increases the welfare of the rural areas, leading to higher efficiency and utility.

2. Data

Data was collected in the period April – October 2011, in the North-West Region of Romania. The sample includes 18 villages from the six counties that make up the region (Satu Mare, Maramures, Salaj, Bihor, Cluj and Bistrita Nasaud). After eliminating farmers with missing answers for at least one variable, the final sample consists of 308 farmers. For them, answers were available for all variables taken into account in the regression. The definition of the variables and some descriptive statistics are presented in Tab. 1.

Tab. 1: Explanations of the variables and some descriptive statistics (part 1)

	Explanations	Mean or proportion	St. dev.
Endogenous variables			
Insurance (multiple)	0 – if the farmer does not have an insurance 1 – if the farmer has partial (single risk) insurance 2 – if the farmer has a full-type (combined) insurance	78.9% 12.0% 9.1%	
Insurance (binary)	0 – if the farmer does not have an insurance 1 – if the farmer has an insurance	78.9% 21.1%	
Exogenous variables			
Inhabitants	Numerical attribute. Number of inhabitants in each village.	737	707
Distance city	Numerical attribute. Distance, in km, from the most significant city (over 10000 inhabitants)	25.7	13.1
Age	Numerical attribute	49.4	11.9
Education	0 – primary or secondary school 1 – high-school or professional school 2 – university degree	36.7% 53.6% 9.7%	
Agricultural studies	0 – if not 1 – if yes (including agricultural economics)	86.7% 13.3%	
Economic studies	0 – if not 1 – if yes (including agricultural economics)	77.9% 22.1%	
Area	The total area detained by the farmer (ha)	4.89	1.79

Tab. 1: Explanations of the variables and some descriptive statistics (part 2)

	Explanations	Mean or proportion	St. dev.
Vegetables	Dummy variable. Indicates the main type of agricultural crop (covering most of the area or having the highest weight in the farmer's income)	22.4%	
Vine		17.8%	
Field crops		40.0%	
Pomiculture		19.8%	

Source: own

3. Methodology and Results

Starting from the idea that quantitative economic forecasting is more reliable than the qualitative type [20], we have based our research on the first type of methods. While reviewing the most recent literature, both in Economics and Agricultural studies, quantitative methods prevail [6], [26], [30], [34]. The first research cited in this paragraph uses the quantitative approach in order to construct a simulation model intended to evaluate new operating policies in a corn flour production plant. The last study combines quantitative methods and economic theory [34] in order to estimate economic efficiency. Constructing a simulation model based on production and reproduction in a dairy herd, the authors succeeded in quantifying the economic value of productive and functional traits. The other studies employ a more complex approach to the quantitative methods of analysis. We have observed that most of the researches conducted in this area use methods and techniques belonging to time series and qualitative variables econometrics, especially logistic models. Ramirez-Valverde et al. [26] make a theoretical incursion in the problems of non-stationarity and spurious regression in time series logistic models using binary variables. Ramirez-Valverde has previously studied logistic regression. Together with Sifuentes-Amaya [29], they have also analyzed the problems derived from specifying incorrect logistic models. Some recent empirical studies evaluate, through discrete regression tools, the behaviour of the farm market versus super-markets [12] or factors which affect the crop insurances in emerging markets [33].

We employ two types of econometric models in order to explain two types of decisions: a) the choice of the insurance type; and b) the option of buying an insurance policy.

a) To model the choice of the insurance type, the Ordered Logit model was employed, which, in its general form, can be written as:

$$\text{Prob}\ (y_i = j \mid x, b, c) = F(c_{j+1} - x_i b) - F(c_j - x_i b) \tag{1}$$

$$\text{Prob}\ (y_i = j \mid x, b, c) = \frac{\exp(c_{j+1} - x_i b)}{1 + \exp(c_{j+1} - x_i b)} - \frac{\exp(c_j - x_i b)}{1 + \exp(c_j - x_i b)} \tag{2}$$

$i = \overline{1, N}$ index of each farmer,

$y_i = 0$ if the farmer does not have an insurance policy,

$y_i = 1$ if the farmer has a partial-type (single risk) insurance policy,

$y_i = 2$ if the farmer has a full-type (combined) insurance policy,

x_i the vector of the exogenous variables,

b the coefficients' vector,

c_j, $j = \overline{0,3}$ cutoffs,

$c_0 = -\infty$, $c_j \leq c_{j+1}$, $c_3 = +\infty$ conditions that ensure that the probability sum for each interval equals 1.

b) The Binary Logit model was used to explain the decision to buy an insurance policy:

$$\begin{cases} \text{Prob}\ (y_i = 1) = F(x_i b) = \dfrac{\exp(x_i b)}{1 + \exp(x_i b)} \\ \text{Prob}\ (y_i = 0) = 1 - F(x_i b) = \dfrac{1}{1 + \exp(x_i b)} \end{cases} \quad (3)$$

$i = \overline{1, N}$ index of each farmer,

$y_i = 1$ if the farmer has an insurance policy (partial or full type),

$y_i = 0$ if not,

x_i the vector of the exogenous variables,

b the coefficients' vector.

Tab. 2: Estimation of Ordered Logit model and Binary Logit model

	Ordered Logit model		Binary Logit model	
	coefficient	std. err.	coefficient	marginal eff. dy/dx
Radical inhabitants	** 0.0281	0.0119	** 0.0301	0.0041
Distance city	** -0.0314	0.0126	*** -0.0345	-0.0047
Age	** -0.0280	0.0129	** -0.0278	-0.0038
Education	** 0.5937	0.2813	** 0.6032	0.0828
Cultivated area	* 0.1382	0.0809	0.1357	0.0186
Agricultural studies	0.3291	0.4608	0.4486	# 0.0686
Economic studies	** 0.7628	0.3781	** 0.8526	# 0.1364
Vegetables (dummy)	*** 1.2880	0.4801	***1.3404	# 0.2304
Vine (dummy)	0.0583	0.5661	0.1136	# 0.0159
Field crops (dummy)	0.4569	0.4628	0.5303	# 0.0756
Pomiculture (dummy – reference)	0.0000	-	0.0000	-
Constant	-	-	** -2.1125	-
	Log likelihood = -134.00673 LR chi2(10) = 49.43 Prob > chi2 = 0.0000 Pseudo R2 = 0.1557		Log likelihood = -178.57244 LR chi2(10) = 49.16 Prob > chi2 = 0.0000 Pseudo R2 = 0.1210	

dy/dx is for discrete change of dummy variable from 0 to 1
**, **, * significant at 1%, 5% and 10% level

Source: own calculations

The majority of the results are as expected (Tab. 2). For the number of inhabitants, we opted for a transformation of the initial variable. The positive sign of the coefficient is to be explained by the fact that, in general, smaller communities are more traditionalist, people preferring the ancestral behaviour of helping one another in the case of natural disasters. The same traditionalism causes the sign of the *Distance* city and *Age variables*. On the other hand, the size of the cultivated area, even though having the expected sign, is not very significant.

The level of education is a determinant factor, this being a problem in the Romanian villages. The majority of the persons that choose to attend university courses usually remain in towns. The weight of university graduates in the active population in 2009 was of only 4.0% in the rural area (in comparison with 25.4% in the urban area). At the opposite pole, the percentage of the inhabitants having a primary or secondary school diploma in rural areas was 39.5%, while in the urban areas it was only 8%. This is probably the most important factor that determines the functioning of the crop insurance market much below its potential. In what regards the type of courses attended, surprisingly, the ones related to agriculture do not significantly influence the decision of insurance. On the other hand, studies that involve the economic aspect are decisive as they familiarize the subject with the mechanisms and the regulations related to the insurance market.

Very interesting are the results related to the main crop type. Farmers that grow vegetables are much more interested in insuring the crops than the others (regardless of the dummy variable taken as reference). Among the other types of cultures analyzed there are no statistically significant differences, regardless of the dummy variable considered as reference. In the case of vegetables, investments in greenhouses and solaria are necessary in order to extend their cultivation in the cold season. Some natural calamities can lead to the destruction of these investments together with the culture. This brings along a significantly higher risk and, in consequence, the increase of the probability to opt for a suitable insurance product.

Conclusions

The goal of the present research was to find possible factors that affect the decision of buying an agricultural insurance policy in Romania. As it could be seen in the first parts of the paper, the development of this risk management tool in agriculture is low in Romania. The literature reviewed suggests that this level is the same in other developing countries. Consequently, the results of the present research could be used not only in the case of Romania, for decisions regarding the development of the agricultural insurance sector, but also in other countries with similar features. Moreover, the presented methodology can be applied, as long as data exists, on different samples to extract their specificities.

The results of the regression models have shown that age is an important factor – the older the farmer, the lower the probability to make an insurance policy in agriculture. This is somehow expected for countries like Romania. The persons employed in agriculture are, in general, old. They work in this field either because they are retired and they do it as a hobby, or because this is the only way in which they can provide incomes for their families. Such persons are more traditionalist and more averse to new information, to things they are not used to. They lack the openness towards lifelong learning. Such a result shows the need for educational programmes supported by authorities or private entities to inform about the benefits of modern risk management procedures in agriculture that could help increase the utility of the activity.

At present, in Romania, the traditional agricultural insurance programmes are prevalent. These have proved to be inefficient for small farmers because of the high administrative costs (a very significant variable in our study was the vicinity to an important town). The proximity to a town is strongly correlated with the closeness to an insurance company agency. The more isolated the village, the higher the administrative expenses. In order to reduce these expenses, some alternative insurance programmes like Index Based Agricultural Insurance appeared and it would be interesting to develop them in the future. Additionally, the longer the distance from the farm to the nearest important city, again, the

lower the probability of agricultural risk management through such tools. Beside the costs issue, this result also emphasizes the fact that information is usually disseminated in large cities and emphasises the difficulties of being informed for persons that live far away from the urban areas.

Another highly relevant variable in our estimation is the number of inhabitants of the village. In small villages, generally more traditional, institutionalized insurance is avoided, mutual aid in the case of calamities being preferred by producers. In such cases, a more adequate approach, much more appropriate to the natural behaviour of these farmers, is an Area Insurance Plan, which means that farmers are insured as a group.

The study also shows that educated people are more open towards insurance tools. What is interesting is that a background in agriculture studies, although expected to be a major factor of influence, has very little impact upon the decision. Economic studies are found to have much more influence because they better emphasize the advantages of using insurance as a protection tool against risks in any field, including agriculture.

Our study also provides information about how the type of crop affects the subscription of an insurance policy. It seems that in Romania only farmers that grow vegetables have understood the importance of protection against natural disasters. However, farmers must be made aware of the fact that protection is needed for all types of crops, because of the low probability of forecasting the risks associated with natural phenomena. A rainy year can cause, for example, important losses for farmers working in the vinery field. The State should sustain promotion and information measures for crop insurance systems.

The improper development of the agricultural insurance sector goes hand in hand with a propensity for risk retention for the farmers. Such studies that identify the factors affecting crop insurance can be used by insurance companies for outlining a consumer profile, for this insurance line of business, more adapted to consumer needs. The study can also be used by decisional entities in order to better assess issues and policies related to the sector. The approach should assist the development of the kind of policies that may increase the efficiency of the economic mechanisms in agriculture, especially through information and education. However, the poor development of the market due to some factors such as the education level, the type of studies and age can hardly be compensated for by innovative policies. These features can be solved only over time by an adequate socio-economic evolution, including education.

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Abstract

AN ECONOMETRIC APPROACH TO FACTORS AFFECTING CROP INSURANCE IN ROMANIA

Simona Laura Dragos, Codruta Mare

Crop insurance is a very well implemented mechanism in the economic and agricultural sectors of the developed countries. In the developing countries there are yet in practice traditional local systems of helping the other in the case of natural disasters. The transition to an organized system, based on buying insurance policies, is a very slow process and is, for the moment, used and accepted only by big land owners. The study based on a sample of 308 small farmers in Romania analyzes the factors influencing the decision of buying an insurance policy: age, education, size of the village, the proximity to a city, the type of culture, etc. The sampling method aimed at ensuring representativity on several levels: regional – villages from different counties; education – different levels of education for farmers and different fields of study; type of village – villages of different sizes and situated at various distances from towns; type of crop – farmers that mainly deal with vegetables, pomiculture, vine and field crops. Through two econometric models, Ordered Logit and Binary Logit, both the decision of buying an insurance policy and the type of insurance chosen (partial or full) are assessed. Results show a higher propensity towards using the insurance system in the case of younger farmers who have had access to tertiary education (especially in the field of economics and business), who live in big villages near important cities and who cultivate vegetables. Even though the study is regional, the emphasized mechanisms are universally valid and can be used by policymakers from developing economies.

Key Words: *Crop insurance, ordered logit, binary logit, Romania.*

JEL Classification: *C25, Q12, G22.*

WAVELET ANALYSIS OF STOCK RETURN ENERGY DECOMPOSITION AND RETURN COMOVEMENT – A CASE OF SOME CENTRAL EUROPEAN AND DEVELOPED EUROPEAN STOCK MARKETS

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Introduction

Stock market integration, stock market comovement and return spillovers between developed and developing stock markets, particularly CEE markets, are of great importance for international investors making financial decisions. Increased comovement of stock markets returns may diminish the advantage of internationally diversified investment portfolios [30].

The most common method of measuring stock market comovement is linear correlation, expressed by Pearson's correlation coefficient, a symmetric, linear dependence metric [30] suitable for measuring dependence on multivariate normal distributions [11]. However correlations may be nonlinear or time-varying ([10[, [52]), and dependence between two stock markets as the market rises may be different than the dependence as the market falls [34]. A more accurate understanding of stock market interdependencies may be achieved by applying econometric methods. In the literature the following methods are often used to measure the level of stock market comovement: correlation coefficients (e.g. [28], [31]), Vector Autoregressive (VAR) models ([20], [33]), cointegration analysis ([19], [36]), GARCH models ([1], [5], [10], [50]) and regime switching models ([13], [45]). A novel but promising approach is a wavelet analysis of stock market comovement.

Candelon et al [2] argue that comovement analysis should consider the distinction between short- and long-term investors. From a portfolio diversification point of view, short-term investors are more interested in the comovement of stock returns at higher frequencies (short term movements), and long-term investors focus more on the lower frequency comovements. As such, one must resort to frequency domain analysis to obtain insights into comovement at the frequency level ([29], [35], [43], [48]). In such a context, with both the time horizon of economic decisions and the strength and direction of economic relationships between variables that may differ according to the time scale of the analysis, wavelet analysis may prove to be a useful analytical tool [41].

Economic and financial phenomena may exhibit different characteristics on different time scales, and thus wavelet analysis tools enable us to investigate the multiscale features of these phenomena. As wavelets are localized in both time and scale, unlike Fourier analyses and spectral analyses, they thus provide a convenient and efficient way of representing complex variables or signals [42]. Moreover, because of its translation and scale properties, nonstationarity in the data is not a problem when using wavelets and prefiltering is not needed [41]. Wavelet analysis is suitable for detecting seasonal and cyclical patterns, structural breaks, trend analyses, fractal structures and multiresolution analyses [8]. Wavelets in finance are primarily used as a signal decomposition tool (e.g. [32], [16], [14], [17], [18], [51]), or a tool to detect

interdependence between variables ([23], [24], [25], [26], [27]).

Lee [29] developed a new testing technique based on the discrete wavelet transform, in order to study the relationships between U.S. and Korean stock market returns in the period 1995 to 2000, examining two stock indices in each market, namely the Dow Jones Industrial Average (DJIA) and the NASDAQ for the United States and the Korean Composite Stock Price Index (KOSPI) and the Korean Security Dealers Automated Quotations (KOSDAQ) for South Korea. By examining the relationships between high-frequency fluctuations in stock returns, obtained from the reconstruction of the data by wavelet details, [29] finds evidence of return spillover effects from the U.S. stock markets to Korean counterparts, but not vice versa.

In a similar way, [12] focuses on return spillovers in stock markets at different time scales using wavelet analysis. She considers eight stock indices that comprise the G7 countries, Emerging Asia, Western Europe, Eastern Europe and the Middle East, the Emerging Far East, Latin America, North America, and the Pacific region for the period 1990 to 2002. The author's estimation results show evidence of stock market return spillovers from the G7 countries to Western Europe, Eastern Europe and the Middle East, Emerging Asia, Europe, Latin America, and North America. However, return spillovers of these regions to the G7 countries are weaker at different time scales. Similarly, return spillovers from North America to Latin America, Emerging Asia, the Emerging Far East, and the Pacific region, and from both Western Europe and Latin America to North America are found. [48] investigate seven international stock markets – Ireland, the United Kingdom, Portugal, the United States, Brazil, Japan and Hong Kong – and their comovement and spillover effects, using a testing method suggested by [29]. They find evidence of intra-European comovement, namely between the stock markets of Ireland, the UK and Portugal. Further, they find comovement between the U.S. and Brazilian markets and similar intra-Asian comovement, namely between the stock markets of Japan and Hong Kong.

We will use maximal overlap discrete wavelet transform (MODWT) to analyse multiscale stock market return volatility dynamics and return comovement between CEE and developed European stock markets. To our knowledge, this is the first study to apply this methodology to CEE stock markets. The more recent empirical literature on the interdependence of CEE stock markets to developed stock markets predominantly apply correlation analysis ([21], [47]), Granger causality tests ([22], [36]), cointegration analysis ([36], [49]) and GARCH modelling ([3], [44].

The structure of the paper is as follows. Econometric methodology is described in the first chapter. Maximal overlap discrete wavelet transform (MODWT) is explained and some practical issues for MODWT analysis are addressed. In the second chapter, we present the data, describe in detail our empirical study of return comovement and energy decomposition, and interpret the results. Main implications of the empirical analysis are revisited in the conclusion.

1. Econometric Methodology

To study the comovement of the CEE stock markets (Slovenia, the Czech Republic and Hungary) with developed European stock markets (Austria, France, Germany and United Kingdom), we apply methodology of [29]. Interdependence between stock markets exists in two forms [53] – comovement, which measures the contemporaneous relationship between volatilities, and spillover, which indicates the lead-lag relationship. Stock market return spillover analysis is based on the idea that if news (a shock) in one stock market (reflected in its return) in time $t - 1$ affects the returns of another stock market in time t, there are return spillovers, and the returns of the first market explain the returns of the second market. However, if there is a high degree of stock market comovement, then in the observed time period (e.g. one day, one week, etc.), stock returns synchronously move in the same direction.

We focus on return comovement analysis by estimating the following model (by ordinary least squares):

$$r_{D_A,t}(\tau_j) = a + b r_{D_A,t}(\tau_j) + \varepsilon_A \quad (1)$$

where:

$r_{D_A,t}(\tau_j)$ = from MODWT wavelet details reconstructed returns of the stock index A at scale τ_j,

$r_{D_A,t}(\tau_j)$ = from MODWT wavelet details reconstructed returns of the stock index B at scale τ_j,
α = a regression constant,
b = a regression parameter,
ε_A = error of the regression model.

The proposed model is estimated in the following steps. First we transform the indices' return series by MODWT. We obtain wavelet and scaling coefficients, which we use to study the energy decomposition of the return series at different time scales (j). This inspection allows us to determine which time scales capture the most volatility of the indices' return series. In the next step we use only those scales that capture the greatest share of energy to reconstruct the original return time series from the wavelet details. In this way we obtain reconstructed returns of the indices on a scale-by-scale basis. For pairs of reconstructed return time series we then estimate the ordinary least squares model proposed by equation (1).

1.1 Description of the Maximal Overlap Discrete Wavelet Transform (MODWT)

The MODWT is a linear filtering operation that transforms a series into coefficients related to variations over a set of scales. It is similar to the discrete wavelet transform (DWT), but it gives up the orthogonality property of the DWT to gain other features that render MODWT more suitable for our analysis of stock market return comovement [39], as: i) the ability to handle any sample size, regardless of whether the series is dyadic (i.e. of size 2^{J_0}, where J_0 is any positive integer); ii) increased resolution at coarser scales as the MODWT oversamples the data; iii) translation-invariance, which ensures that MODWT crystal coefficients do not change if the time series is shifted in a "circular" fashion; iv) the MODWT produces a more asymptotically efficient wavelet variance estimator than the DWT.

1.1.1 MODWT Wavelet Coefficients and Scaling Coefficients

Wavelets are small waves, whereas by contrast, sinus and cosinus are large waves. A wavelet, by definition, is any function that is square-integrable and integrates to zero. The wavelet transform is a mechanism that allows us to quantify how averages of a time series over particular scales change from one interval of time to the next [40]. These changes are quantified in wavelet coefficients, which form the bulk of any discrete wavelet transform [38].

Let $\boldsymbol{X}$ be an N-dimensional vector whose elements represent the real-valued time series $\{X_t : t = 0,..., N-1\}$ (we use the same notation as [40]). For any positive integer, J_0, the level J_0 MODWT of X is a transform consisting of the $J_0 + 1$ vectors $\tilde{W}_1,..., \tilde{W}_{J_0}$ and $\tilde{V}_{J_0}$, all of which have dimension N. The vector $\tilde{\boldsymbol{W}}_j$ contains the MODWT wavelet coefficients associated with changes on scale $\tau_j = 2^{j-1}$ for $(j = 1,..., J_0)$, while $\tilde{\boldsymbol{V}}_{J_0}$ contains MODWT scaling coefficients associated with averages on scale $\lambda_{J_0} = 2^{J_0}$. Based on definition of MODWT coefficients, we can write [40]:

$$\tilde{\boldsymbol{W}}_J = \tilde{\Lambda}_j \boldsymbol{X} \tag{2a}$$

and

$$\tilde{\boldsymbol{V}}_{J_0} = \tilde{\Gamma}_{j_0} \boldsymbol{X} \tag{2b}$$

where $\tilde{\Lambda}_j$ and $\tilde{\Gamma}_{j_0}$ are $N \times N$ matrices of containing the values of the wavelet and scaling filters. Vectors are denoted by bold fonts.

By definition, the elements of $\tilde{\boldsymbol{W}}_J$ and $\tilde{\boldsymbol{V}}_{J_0}$ are outputs obtained by filtering $\boldsymbol{X}$, namely:

$$\tilde{W}_{j,t} = \sum_{l=0}^{L_j - 1} \tilde{h}_{j,l} X_{t-l \bmod N} \tag{3a}$$

and

$$\tilde{V}_{j,t} = \sum_{l=0}^{L_j - 1} \tilde{g}_{j,l} X_{t-l \bmod N} \tag{3b}$$

for $t = 0,..., N-1$, where $\tilde{h}_{j,l}$ and $\tilde{g}_{j,l}$ are jth level MODWT wavelet and scaling filters, defined in terms of the jth-level equivalent wavelet and scaling filters for a discrete wavelet transform (DWT) (for details see [40]).

The MODWT treats the series as if it were periodic, whereby the unobserved samples of the real-valued time series $X_{-1}, X_{-2},..., N_{-N}$ are assigned the observed values at $X_{N-1}, X_{N-2},..., X_0$. The MODWT coefficients are thus given by circularly filetering:

$$\widetilde{W}_{j,t} = \sum_{l=0}^{N-1} \widetilde{h}^{\circ}_{j,l} X_{t-l \bmod N} \quad (4a)$$

and

$$\widetilde{V}_{j,t} = \sum_{l=0}^{N-1} \widetilde{g}^{\circ}_{j,l} X_{t-l \bmod N} \quad (4b)$$

for $t = 0,..., N-1$; $\tilde{h}^{\circ}_{j,l}$ and $\tilde{g}^{\circ}_{j,l}$ are periodization of $\tilde{h}_{j,l}$ and $\tilde{g}_{j,l}$ to circular filters of length N.

This periodic extension of the time series is known as analyzing $\{X_t\}$ using "circular boundary conditions" ([6], [40]). There are $L_j - 1$ wavelet and scaling coefficients that are influenced by the extension ("the boundary coefficients"). Since L_j increases with j, the number of boundary coefficients increases with scale. Excluding boundary coefficients in the wavelet variance, wavelet correlation and covariance provides unbiased estimates [6].

1.1.2 MODWT Energy and Additivity Decomposition

One of the important uses of the MODWT is to decompose the sample variance of a time series on a scale-by-scale basis. Since the MODWT is energy conserving, the following equation holds [39]:

$$\|X\|^2 = \sum_{j=1}^{J_0} \left\|\widetilde{\boldsymbol{W}}_j\right\|^2 + \left\|\widetilde{\boldsymbol{V}}_{J_0}\right\|^2 \quad (5)$$

and a scale-dependent analysis of variance from the wavelet and scaling coefficients can be derived as [6]

$$\hat{\upsilon}^2_X = \|X\|^2 - \overline{X}^2 = \frac{1}{N}\sum_{j=1}^{J_0} \left\|\widetilde{\boldsymbol{W}}_j\right\|^2 + \frac{1}{N}\left\|\widetilde{\boldsymbol{V}}_{J_0}\right\|^2 - \overline{X}^2 \quad (6)$$

Wavelet variance is defined for stationary and nonstationary processes with stationary backward differences. Considering only the non-boundary wavelet coefficient, obtained by filtering stationary series with MODWT, the wavelet variance $\upsilon^2_X(\tau_j)$ is defined as the expected value of $\tilde{W}^2_{j,t}$. In this case, $\upsilon^2_X(\tau_j)$ represents the contribution to the (possibly infinite) variance of $\{X_t\}$ at the scale $\tau_j = 2^{j-1}$ and can be estimated by the unbiased estimator [40]:

$$\hat{\upsilon}^2_X(\tau_j) = \frac{1}{M_j}\sum_{t=L_j-1}^{N-1} \widetilde{W}^2_{j,t} \quad (7)$$

Where $M_j \equiv N - L_j - 1 > 0$ is the number of non-boundary coefficients at the jth level.

It is possible to prove that the asymptotic distribution of $\upsilon^2_X(\tau_j)$ is Gaussian, a result that allows the formulation of confidence intervals for the estimate ([37], [46]).

Another useful characteristic of MODWT is additive decomposition. The time series X can be recovered from its MODWT via [40]:

$$\boldsymbol{X} = \sum_{j=1}^{J_0} \widetilde{\Lambda}^T_j \widetilde{\boldsymbol{W}}_j + \Gamma^T_{J_0} \widetilde{\boldsymbol{V}}_{J_0} = \sum_{j=1}^{J_0} \widetilde{D}_j + \widetilde{S}_{J_0} \quad (8)$$

which defines a MODWT-based multiresolution analysis (MRA) of X in terms of the jth level MODWT details $\tilde{D}_j = \tilde{\Lambda}^T_j \tilde{W}_j$, which capture local fluctuations over the whole period of a time series at each scale, and the J_0-th level of MODWT smooth $\tilde{S}_{J_0} = \Gamma^T_{J_0} \tilde{V}_{J_0}$, which provides a "smooth" or overall "trend" of the original signal. Adding $\tilde{D}_j$ to $\tilde{S}_{J_0}$, for $J = 1,2,..., J_0$, gives an increasingly accurate approximation of the original signal.

1.2 MODWT Parameters

Some practical issues, besides the handling of appropriate boundary conditions, should be addressed before the start of MODWT analysis:

- Choice of wavelet filter. MODWT is less dependent on the wavelet filter choice than is discrete wavelet transform [40], but different wavelet filter properties may still result in different wavelet analysis results. A reasonable choice of the filter must consider the specific analysis goal we want to achieve (such as isolation of transient events in a time series, analysis of variance, multiresolution analysis, etc.) and the properties we need in a filter to achieve that goal [40]. Choosing a wavelet filter of the shortest width $(L = 2,4,6)$ can sometimes introduce undesirable artefacts into the resulting analyses. Alternatively, while wavelet filters with a large L can be a better match to the characteristic features in a time series, their use can result in more coefficients being influenced by boundary conditions and an increase in computational burden. [40] suggest a strategy of using the smallest L that gives reasonable results. The Daubechies class of wavelets possesses appealing regularity characteristics and

produces transforms that are effectively localized differences of adjacent weighted averages. The least asymmetric (LA) subclass, known as symmlets, has approximate linear phase and exhibits near symmetry about the filter midpoint. This linear phase property means that events and sinusoidal components in the wavelet and scaling coefficients at all levels can be aligned with the original time series. For the MODWT, this alignment is achieved by circularly shifting the coefficients by an amount dictated by the phase delay properties of the basic filter [6]. LA filters are available in even widths L. A wider filter is smoother in appearance and reduces the possible appearance of artefacts in a multiresolution analysis due to the filter shape. It also results in stronger uncorrelation between wavelet coefficients across scales for certain time series, which is useful for deriving confidence bounds from certain wavelet-based estimates [7]. Taking all these considerations into account, LA(8) filter is an appropriate choice [40], as it yields coefficients that are approximately uncorrelated between scales while having a filter width short enough such that the impact of boundary conditions is tolerable [6].

- Choice of level J_0. The appropriate choice depends primarily on the time series at hand [40]. For complete decomposition of a series of length $N = 2^J$ (J is any positive integer number) using the DWT, the maximum number of levels in the decomposition is J. The MODWT can accommodate any sample size N and, in theory, any J_0. In practice, the largest level is commonly selected such that $J_0 \leq log_2(N)$ in order to preclude decomposition at scales longer than the total length of the time series. The selection of J_0 determines the number of octave bands and thus the number of scales of resolution in the decomposition [6].

2. Empirical Results

2.1 Description of the Data

Data on stock indices return are calculated as differences of logarithmic daily closing value of indices (i.e. $ln(P_t) - ln(P_{t-1})$, where P_t is the index value in time t). The following indices are considered: LJSEX (Slovenia), PX (Czech Republic), BUX (Hungary), ATX (Austria), CAC40 (France), DAX (Germany) and FTSE100 (Great Britain). The first day of observation is 1 April 1997, the last day is 12 May 2010. Days of no trading on any of the observed stock markets were left out. Total number of observations amounts to 3,060 days. Data sources from the LJSEX, PX and BUX indices are their respective stock exchanges; data sources for the ATX, CAC40, DAX and FTSE100 indices is Yahoo Finance.

Table 1 presents some descriptive statistics of the data. We observe a higher spread between maximum and minimum daily returns

Tab. 1: Descriptive statistics for stock index return time series

	Min	Max	Mean	Std. deviation	Skewness	Kurtosis	Jarque-Bera statistics
LJSEX	-0.1285	0.0768	0.0003521	0.01062	-0.87	20.19	38,073.93***
PX	-0.1990	0.2114	0.0002595	0.01667	-0.29	24.62	59,654.93***
BUX	-0.1803	0.2202	0.0004859	0.02021	-0.30	15.90	21,260.91***
ATX	-0.1637	0.1304	0.0002515	0.01558	-0.40	14.91	18,153.48***
CAC40	-0.0947	0.1059	0.0001206	0.01628	0.09	7.83	2,982.52***
DAX	-0.0850	0.1080	0.0002071	0.01756	-0.06	6.58	1,635.47***
FTSE100	-0.0927	0.1079	0.0000774	0.01361	0.09	9.30	5,069.61***

Source: Own calculations

Note: Jarque-Bera statistics:*** indicates that the null hypothesis (of normal distribution) is rejected at the 1% significance, ** indicates that the null hypothesis is rejected at the 5% significance and * indicates that the null hypothesis is rejected at 10% significance

in the PX and BUX indices than in other indices. Standard deviations of daily returns are smallest for the LJSEX index. The Jarque-Bera test rejects the hypothesis of normally distributed observed time series, all indices are asymmetrically (left) distributed around the sample mean, and kurtosis is greater than with normally distributed time series.

2.2 Tests of Time Series Stationarity

To test stationarity of stock index return time series, Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests are applied. Test results are presented in Table 2.

Tab. 2: Results of time series tests of stationarity

	KPPS test (a constant + trend)	KPSS test (a constant)	PP test (a constant + trend)	PP test (a constant)	ADF test (a constant + trend)	ADF test (a constant)
LJSEX	0.249*** (11)	0.591** (12)	-44.099*** (0)	-43.795*** (3)	-37.229*** (L=1)	-37.128*** (L=1)
PX	0.158* (10)	0.170 (10)	-55.022*** (10)	-55.029*** (10)	-16.676*** (L=8)	- 16.676*** (L=8)
BUX	0.065 (6)	0.065 (6)	-54.295*** (6)	-54.304*** (6)	-54.301*** (L=0)	- 54.310*** (L=0)
ATX	0.186** (12)	0.191 (13)	-53.586*** (15)	-53.594*** (15)	- 40.604** (L=1)	- 40.608*** (L=1)
CAC40	0.110 (15)	0.250 (15)	-57.840*** (14)	-57.787*** (14)	- 36.142*** (L=2)	- 36.108*** (L=2)
DAX	0.099 (1)	0.105 (1)	-57.805*** (3)	-57.812*** (3)	- 57.692*** (L=0)	- 57.698*** (L=0)
FTSE100	0.089 (9)	0.101 (9)	-58.284*** (7)	-58.287*** (7)	-29.112*** (L=3)	- 29.111*** (L=3)

Source: Own calculations

Notes: KPSS and PP tests are performed for two models: for the model with a constant, and for the model with a constant plus trend. The Bartlet Kernel estimation method is used with Newey-West automatic bandwidth selection. Optimal bandwidth is indicated in parenthesis under statistics. For the ADF test, two models are applied: autoregression (AR), and trend stationary model; number of lags to be included (L) for the ADF test was selected by SIC criteria (30 was a maximum lag). Exceeded critical values for rejection of the null hypothesis are marked by *** (1% significance level), ** (5% significance level) and * (10% significance level).

The null hypothesis of the KPSS test, indicating that the time series is stationary, for a model with a constant plus trend, can be rejected at the 5% significance level for the return series of LJSEX and ATX. Since trend is not significantly different from zero, we give advantage to KPSS model results with no trend. For that model we cannot reject the null hypothesis of stationary process for any stock index return series, expect for LJSEX, at the 1% significance level. The null hypothesis of PP and ADF tests is rejected for all stock indices. On the basis of the stationarity tests, we conclude that all index return time series are stationary.

2.3 Empirical Results of the Energy Decomposition and Return Comovement between Stock Markets

2.3.1 Energy Decomposition Results

MODWT transformations of the indices return series are performed by using a Daubechies least asymmetric filter with a wavelet filter length of 8 (LA8). This is a common wavelet filter used in other empirical studies on financial market interdependencies ([15], Ranta 2010). The maximum number of levels in the decomposition is 6 $(J_0 = 6)$ to achieve an optimal level balance between sample size and the length of the filter.

Scale 1 measures the dynamics of returns over 2 to 4 days, scale 2 over 4 to 8 days, scale 3 over 8 to 16 days, scale 4 over 16 to 32 days, scale 5 over 32 to 64 days and scale 6 over 64 to 128 days. To obtain unbiased estimates, only non-boundary wavelet coefficients must be considered. There are 2,619 MODWT wavelet coefficients not affected by boundary condition.

Table 3 shows that 38 percent of LJSEX return variability is captured by scale 1 (2 to 4 day dynamics). Scale 2 captures 29.6 percent of all LJSEX return variability. It is evident that most energy, for all indices, is captured by scales 1 and 2. This finding is in accordance with other studies. [12] finds that the first and second scale of all indices investigated explain at least 60 percent of return variability; in the U.S. equity market the scales explain 75 percent. [29] finds that these two scales capture around 70 percent of energy for Korean stock market indices and around 80 percent for U.S. stock market indices. It follows that, from the point of view of stock markets return comovement analysis, the most interesting are the first two scales.

Tab. 3: A scale-based energy decomposition of stock indices returns (in % of the index return energy)

	W_1	W_2	W_3	W_4	W_5	W_6	V_6	Total
LJSEX	38.0	29.6	18.2	6.1	3.2	2.0	2.9	100
PX	50.8	26.2	12.2	5.2	2.6	1.5	1.5	100
BUX	47.5	26.7	13.5	5.9	2.8	2.1	1.5	100
ATX	49.5	28.2	12.3	5.2	2.3	1.0	1.5	100
CAC40	51.4	28.0	11.9	4.7	2.0	0.9	1.1	100
DAX	52.4	26.1	11.4	5.3	2.3	1.1	1.4	100
FTSE100	52.2	28.6	11.1	4.6	2.0	0.8	0.7	100

Source: Own calculations

Note: $W_j (j = 1,...,6)$ are MODWT wavelet coefficients at scale j, and V_6 are MODWT scaling coefficients.

2.3.2 Stock Market Comovement Analysis Results

To estimate regression model (1), we reconstruct the returns series using the first and second high-frequency wavelet details, D_1 and D_2, and then apply OLS to obtain parameter estimates of regression (1).

As wavelet energy decomposition indicates that most of the energy is captured by the first two scales, we estimate model (1) by using reconstructed indices returns for these two scales in the following manner:

- we estimate model (1) on the returns series reconstructed from $D_1 (r_D(\tau_1))$;
- we estimate model (1) on the summed returns series of reconstructed returns at scales 1 and 2 $(r_D(\tau_1) + r_D(\tau_2))$;
- for comparison purposes, we also estimate model (1) on raw (non-MODWT transformed) indices return series.

The strength of comovement is measured by R^2 and the significance of the regression parameter b ([29], [48]).

Estimation results for the Slovenian stock market (LJSEX) are presented in Table 4. Parameter estimates of the regression models are highly significant, as indicated by t-statistics, which shows that there exists comovement between LJSEX returns and returns of other investigated indices at the daily returns level, at the scale 1 level, and for the case of the summated first two scales. The adjusted R^2 reveals that the volatility of LJSEX raw returns is best explained by the volatility of PX and ATX returns. It follows that Slovenian stock market comoves more with stock markets of Austria and the Czech Republic and less with other observed stock markets.

Tab. 4: Results of the estimation of the regression model (1), LJSEX is dependent variable (part 1)

PX→LJSEX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0003* (1.74)	0.2002*** (17.46)	0.1040
$r_D(\tau_1)$	-0.0000 (-0.0000)	0.1596*** (16.29)	0.0917
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.31)	0.1396*** (27.22)	0.2203
BUX→LJSEX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0004* (1.79)	0.1301*** (12.60)	0.0568
$r_D(\tau_1)$	0.0000 (0.00)	0.0909*** (9.98)	0.0363
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.37)	0.0903*** (13.32)	0.0631
ATX→LJSEX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0004 (1.82)	0.2195*** (17.34)	0.1027
$r_D(\tau_1)$	0.0000 (0.0000)	0.132*** (11.79)	0.0500
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (2.81)	0.2268*** (32.28)	0.2845
CAC40→LJSEX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0004* (1.95)	0.1417*** (11.58)	0.0484
$r_D(\tau_1)$	0.0000 (0.0000)	0.0734*** (7.10)	0.0185
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.06)	0.1423*** (13.86)	0.0680
DAX→LJSEX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0004* (1.92)	0.1257*** (11.12)	0.0448
$r_D(\tau_1)$	0.0000 (0.00)	0.0701*** (7.45)	0.0204
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.48)	0.0911*** (9.06)	0.0301

Tab. 4: Results of the estimation of the regression model (1), LJSEX is dependent variable (part 2)

FTSE100→LJSEX			
	A constant	Parameter b	R^2adj
Raw returns	0.0004** (2.02)	0.1655*** (11.45)	0.0474
$r_D(\tau_1)$	-0.0000 (-0.00)	0.0929*** (7.65)	0.0215
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.25)	0.1651*** (12.12)	0.0528

Source: Own calculations

Notes: PX→LJSEX indicates that LJSEX is a response variable and PX is the explanatory variable. Other arrows are explained by analogy. In the parenthesis, under estimated regression parameters, values of t-statistics are given, with critical values: 1.645 at the 10% significance level (rejection of the null hypothesis at this level is indicated by *), 1.961 at the 5% significance level (indicated by **), and 2.578 at the significance 1% (indicated by ***).

On scale 1, the LJSEX return's comovement with other stock markets is reduced. As with the raw return data, LJSEX return volatility is best explained by PX return volatility. Volatility in CAC40 and FTSE100 returns explains only about 2 percent of LJSEX return volatility. Taking summated returns of scales 1 and 2, which correspond to a time span of 2 to 8 days, more LJSEX return volatility can be explained by volatility in foreign stock indices, especially PX and ATX indices. Two to eight day PX return dynamics can explain about 22 percent of LJSEX return dynamics over this time horizon, whereas ATX returns explain approximately 28 percent.

The finding that raw returns and summed scales 1 and 2 returns are more connected than scale 1 returns was also obtained by [29] and [48]. [29], who studies return spillovers between U.S. and Korean stock markets using lagged returns of the explanatory variable finds significant return spillovers from the U.S. to the Korean stock market. Significance of parameter estimates and R^2 for raw return and summed scales 1 and 2 return series were slightly higher than for scale 1 series. [48] find strong co-movements only between pairs of Irish, UK and Portuguese stock market returns. The UK and Irish stock markets were most connected, as R^2 for the raw return series reached 0.32, for scale 1 returns 0.22, and for summed scale 1 and scale 2 returns 0.25.

Parameter estimates of the regression models for the Czech stock market are also highly significant (Table 5). Higher adjusted R^2 reveals that the Czech stock market returns comove more synchronously with the Hungarian and developed stock market returns, as is the case for Slovenia. PX return volatility is best explained by ATX and BUX return volatility. Interestingly, both Czech and Slovenian stock markets seem to comove with the Austrian stock market to a greater extent than with other developed stock markets. This finding could be explained by historical ties, strong economic ties, investments of Austrian enterprises in these two countries, and equity connection between the observed stock markets. Namely, the stock exchanges in Ljubljana, Prague, Vienna and Budapest are owned by a common holding company.

Tab. 5: Results of the estimation of the regression model (1), PX is dependent variable (part 1)

LJSEX→PX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0000 (0.13)	0.5214*** (17.46)	0.1040
$r_D(\tau_1)$	0.0000 (0.00)	0.5768*** (16.29)	0.0917
$r_D(\tau_1) + r_D(\tau_2)$	0.0000** (2.09)	1.5806*** (27.22)	0.2203
BUX→PX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0001 (0.49)	0.4991*** (35.31)	0.3225
$r_D(\tau_1)$	0.0000 (0.00)	0.4945*** (33.49)	0.2997
$r_D(\tau_1) + r_D(\tau_2)$	0.0000 (1.04)	0.6191*** (30.58)	0.2630
ATX→PX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0001 (0.53)	0.6675*** (38.87)	0.3658
$r_D(\tau_1)$	0.0000 (0.00)	0.6522*** (36.76)	0.3402
$r_D(\tau_1) + r_D(\tau_2)$	0.0000 (1.20)	1.0046*** (50.49)	0.4933
CAC40→PX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0003 (0.91)	0.5456*** (31.72)	0.2774
$r_D(\tau_1)$	0.0000 (0.00)	0.5219*** (30.68)	0.2643
$r_D(\tau_1) + r_D(\tau_2)$	0.0000 (1.21)	0.766*** (23.56)	0.1747
DAX→PX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0002 (0.81)	0.4564*** (27.84)	0.2282
$r_D(\tau_1)$	0.0000 (0.00)	0.4159*** (25.71)	0.2014
$r_D(\tau_1) + r_D(\tau_2)$	0.0000 (1.57)	0.5704*** (17.56)	0.1051

Tab. 5: Results of the estimation of the regression model (1), PX is dependent variable (part 2)

FTSE100→PX			
	A constant	**Parameter b**	**R^2adj**
Raw returns	0.0003 (1.12)	0.6541*** (32.39)	0.2859
$r_D(\tau_1)$	-0.0000 (-0.00)	0.6222*** (31.22)	0.271
$r_D(\tau_1) + r_D(\tau_2)$	0.0000 (0.74)	1.1472*** (27.69)	0.2263

Source: Own calculations.

Notes: LJSEX→PX indicates that PX is a response variable and LJSEX is the explanatory variable. Other arrows are explained by analogy. Critical values of the two-sided t-statistics for rejection of the null hypothesis (i.e. regression parameter is equal 0) at 2,617 degrees of freedom are: 1.645 at the 10% significance level (indicated by *), 1.961 at the 5% significance level (indicated by **), and 2.578 at the significance 1% (indicated by ***).

As in the case of LJSEX, reconstructed scale 1 returns of PX exhibit smaller interdependence with foreign stock markets than do raw return series. PX 2 to 8 day return dynamics (i.e. scale 1 plus scale 2) also exhibit less comovement with foreign stock market returns, with exception of the Slovenian and Austrian stock market, than raw return series.

All parameter estimates of regression model (1) for BUX are significant (Table 6). At the aggregated (raw) return series, BUX volatility is best explained by PX volatility, followed by FTSE100 and DAX return volatility. Similar to PX, diversification benefits at the 2 to 8 day investment horizon seem to be greater than at the scale 1 horizon or at the daily horizon.

Tab. 6: Results of the estimation of the regression model (1), BUX is the dependent variable (part 1)

LJSEX→BUX			
	A constant	**Parameter b**	**R^2adj**
Raw returns	0.0001 (0.14)	0.4391*** (12.60)	0.0568
$r_D(\tau_1)$	0.0000 (0.00)	0.4032*** (9.98)	0.0363
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (5.25)	0.7026*** (13.32)	0.0631
PX→BUX			
	A constant	**Parameter b**	**R^2adj**
Raw returns	0.0000 (0.20)	0.6466*** (35.31)	0.3225
$r_D(\tau_1)$	0.0000 (0.00)	0.6066*** (33.49)	0.2997
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (4.88)	0.4253*** (30.58)	0.263

Tab. 6: Results of the estimation of the regression model (1), BUX is the dependent variable (part 2)

ATX→BUX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0001 (0.38)	0.6294*** (29.63)	0.2509
$r_D(\tau_1)$	0.0000 (0.00)	0.5565*** (25.75)	0.2018
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (4.83)	0.4811*** (22.72)	0.1644
CAC40→BUX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0002 (0.72)	0.5802*** (28.93)	0.2421
$r_D(\tau_1)$	0.0000 (0.00)	0.5173*** (26.53)	0.2116
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.78)	0.5863*** (21.43)	0.1489
DAX→BUX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0002 (0.65)	0.5507*** (30.07)	0.2565
$r_D(\tau_1)$	-0.0000 (-0.00)	0.4956*** (28.24)	0.2333
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.70)	0.5034*** (18.85)	0.1192
FTSE100→BUX			
	A constant	**Parameter b**	**R²adj**
Raw returns	0.0003 (0.91)	0.704*** (30.00)	0.2556
$r_D(\tau_1)$	-0.0000 (-0.00)	0.623*** (27.31)	0.2214
$r_D(\tau_1) + r_D(\tau_2)$	0.0000*** (3.40)	0.8861*** (25.32)	0.1965

Source: Own calculations

Notes: LJSEX→BUX indicates that BUX is a response variable and LJSEX is the explanatory variable. Other arrows are explained by analogy.

As in the Czech case, the Hungarian stock market return volatility is more synchronized with developed European stock market volatility than the Slovenian stock market. Similar conclusions were also reported by studies of [21] and [22]. This finding can be attributed to the fact that the Czech and Hungarian stock markets have attracted many foreign investors [3], while the Slovenian stock market has struggled to do so. Further, the liquidity of shares listed on the Ljubljana stock exchange is significantly smaller than on the Prague and Budapest stock exchanges. According to [4], Ljubljana stock exchange equity turnover in 2010 was €0.7 billion, that of the Prague stock exchange €30.5 billion and that of the Budapest stock exchange €39.9 billion. As argued by [9], stock market liquidity

can significantly explain stock market comovement. However, the authors investigate the comovement of daily return series and did not investigate return comovement at particular time scales. As noted by [53], the financial market consists of a variety of agents with different time horizons, and therefore it is postulated that market linkage could differ across time scales. Our findings confirm this – the strength of comovement between stock markets is scale dependent.

Comovement analysis should consider the distinction between short- and long-term investors [2]. The findings of the survey then have important implications for foreign financial investors who already hold international portfolios that exactly replicate those of non-Czech or non-Hungarian stock markets; international investing in the Czech or Hungarian stock markets with investment horizons corresponding to scale 2 (4 to 8 days) brings greater international diversification benefits than shorter (2 to 4 day horizon) international trading diversification strategies. When moving from raw (daily) to scale 1 (2 to 4 day) and scale 1 plus scale 2 (2 to 8 day) return dynamics, the comovement between stock markets reduces, but the advantages of international diversification grow. The Slovenian stock market differs from the Czech and Hungarian markets also in this respect, as when the scale is increased the benefits of diversification are reduced.

Conclusion

The studies of the interdependence of CEE stock markets with more developed European stock markets has so far predominantly applied correlation analysis, Granger causality tests, cointegration analysis and GARCH modelling. In this study we applied a novel approach of maximal overlap discrete wavelet transform to analyse multiscale stock market return volatility dynamics and return comovement between CEE (Slovenia, the Czech Republic and Hungary) and developed European stock markets (Austria, France, Germany and the UK). Two MODWT features are used for this purpose: MODWT energy decomposition, and additivity decomposition. The results of MODWT energy decomposition show that the first two scales of indices return series capture from 68 percent to 81 percent of the return series variability. We then applied methodology of [29] to study stock market comovement and found that the Czech and Hungarian stock markets comove more closely between themselves and the developed European markets than does the Slovenian stock market. The degree of comovement between the Austrian stock market and the Czech and Slovenian stock markets is higher than for other observed developed stock markets, probably due to historical reasons and strong economic ties. The unique finding of the study is that when moving from raw (daily) to scale 1 (2 to 4 day) and scale 1 plus scale 2 (2 to 8 day) return dynamics, the comovement between stock markets reduces, but the advantages of international diversification increase.

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Abstract

WAVELET ANALYSIS OF STOCK RETURN ENERGY DECOMPOSITION AND RETURN COMOVEMENT – A CASE OF SOME CENTRAL EUROPEAN AND DEVELOPED EUROPEAN STOCK MARKETS

Silvo Dajčman, Alenka Kavkler

In this article we investigate comovement of the three Central and Eastern European (CEE) stock markets (Slovenia, the Czech Republic and Hungary) with certain developed European stock markets (Austria, France, Germany and the United Kingdom) through the novel approach of maximal overlap discrete wavelet transform (MODWT). We use two features of MODWT to explore energy decomposition of stock market returns at different time scales and to apply methodology of [29] to study comovement between investigated stock markets. We show that most of the energy (variability) of stock market return series is captured by scale 1 (which correspond to 2–4 days return dynamics) and scale 2 (which correspond to 4–8 days return dynamics) MODWT coefficients. MODWT details are used to show that comovement between stock markets is scale-dependent and declines from raw (daily) return series to first- and second-scale reconstructed return series. The findings of the survey then have important implications for foreign financial investors who already hold international portfolios that exactly replicate those of non-Czech or non-Hungarian stock markets: international investing in the Czech or Hungarian stock markets with investment horizons corresponding to scale 2 (4 to 8 days) brings greater international diversification benefits than shorter (2 to 4 day horizon) international trading diversification strategies. The Slovenian stock market differs from the Czech and Hungarian markets also in this respect, as when the scale is increased the benefits of diversification are reduced. We also find that the volatility of Slovenian stock index returns is less synchronized with other observed stock return series. Interestingly, the Czech and Slovenian stock markets seem to comove with the Austrian stock market to a greater extent than with other developed stock markets.

Key Words: *Central and Eastern Europe, stock market returns, comovement, wavelets.*

JEL Classification: *F21, F36, G11, G15.*

VYUŽÍVANIE PLATOBNÝCH KARIET A EFEKTÍVNOSŤ BÁNK

Kristína Kočišová

Úvod

Sledovanie výkonnosti a efektívnosti bánk aj celého bankového sektora je predmetom neustáleho záujmu nie len zo strany dohliadajúcich orgánov, ale aj zo strany klientov bánk. Väčšina štúdií zaoberajúca sa problematikou efektívnosti a výkonnosti sleduje hlavne dopady finančnej liberalizácie na výkonnosť a efektívnosť bánk (napr. [7]). Jedným z aspektov finančnej liberalizácie je aj otváranie sa bankových sektorov a zvyšovanie dostupnosti finančných prostriedkov, napríklad prijímaním a zavádzaním nových technológií. V posledných rokoch zaznamenal bankový sektor v technologickej oblasti veľký rozvoj, čo sa prejavilo napríklad významným nárastom miery využívania platobných kariet klientmi bánk.

Platobné karty predstavujú moderný nástroj bezhotovostného platobného styku, ktorý je využívaný najmä na úhradu spotrebných výdavkov a na výber hotovosti. Väčšina operácií s platobnými kartami sa realizuje najmä cez neustále rastúcu sieť bankomatov a terminálov. V literatúre sa môžeme stretnúť s dvoma rozdielnymi názormi na rastúci počet bankomatov a terminálov. Prager [16] vo svojej práci prezentuje názor, že rastúci počet bankomatov má pozitívny vplyv na činnosť banky a výsledky jej hospodárenia. Rast siete prináša pre banky pozitívum, a to vo forme tzv. „sieťového efektu" a „efektu úspor z rozsahu". „Sieťový efekt" hovorí, že počet klientov využívajúcich služby bankomatov a terminálov rastie s veľkosťou siete vlastnenou bankou. Každý nový bankomat a terminál ktorý banka ponúka zvyšuje jej aktivitu a láka nových klientov. „Efekt úspor z rozsahu" znamená, že náklady banky na transakciu realizovanú cez sieť bankomatov a terminálov klesajú s rastúcim počtom transakcií. To potvrdzujú vo svojej štúdii aj Salonder a Shepard [18], ktorí tvrdia, že rastúci počet bankomatov prináša úsporu v podobe klesajúcich nákladov. Na strane druhej rastúca sieť bankomatov a terminálov prináša aj určité negatíva. Ich využívanie klientmi redukuje úroveň rozdielnosti produktov ponúkaných bankami, čo klientom umožňuje vymieňať banky bez vzniku vysokých nákladov. Matutes a Padilla [14] nazývajú vo svojej práci tento efekt „substitučným efektom".

V konečnom dôsledku teda to, či banka dosiahne benefit z rozširujúcej sa siete bankomatov a terminálov závisí na tom, ktorý efekt prevládne. V prípade prevládnutia pozitívnych efektov môže banka ponúknuť výhodnejšie produkty, získať viac vkladov a potenciálne zvýšiť zisk. Naopak, ak prevládne negatívny efekt, môže sa to prejaviť v strate vkladateľov ale aj zisku.

Dynamický vývoj na trhu v posledných rokoch vedie k neustálemu rastu konkurencie medzi finančnými inštitúciami. Pre manažment bánk je preto veľmi dôležité poznať odpoveď na otázku ako správne využiť investície do informačných technológií a tak získať konkurenčnú výhodu a prilákať viac zákazníkov. Napríklad Beccalli [3] vo svojej štúdii skúmal či investície do informačných technológií vplývajú na výkonnosť banky. Na vzorke 737 Európskych bánk v období od 1993–2000 bol zistený veľmi malý vzťah medzi investíciami do informačných technológií a výkonnosťou banky meranou prostredníctvom štandardných pomerových ukazovateľov (ROA, ROE), ale ja prostredníctvom parametrických metód (nákladová a produkčná efektívnosť).

Rozvoj využívania platobných kariet prináša bankám nové zdroje zisku, ale zároveň vyžaduje vyššie výdavky spojené so zabezpečením investícií do rýchlo sa rozvíjajúcej oblasti informačných technológií. Platobné karty na jednej strane prinášajú klientom možnosť rýchleho vzdialeného prístupu k ich peniazom, na druhej strane nesú so sebou značné riziká.

Tieto rozpory medzi kladmi a zápormi spojenými s využívaním platobných kariet majú nemalý vplyv na rozhodovanie banky o prijímaní a implementovaní nových technológií vo všetkých krajinách. Nové technológie môžu banke pomôcť získať si konkurenčnú výhodu na domácom ale aj zahraničnom trhu, a tak jej môžu umožniť vykonávať svoje činnosti efektívnejšie.

Keď sieť bankomatov a terminálov považujeme za vstup, ktorý banka využíva pri produkovaní svojich výstupov, potom sa ich prítomnosť prejaví aj v úrovni dosahovanej efektívnosti. Cieľom tohto príspevku je analyzovať, či rozvoj využívania platobných kariet mal pozitívny vplyv na efektívnosť bankových sektorov krajín Európskej únie (EÚ). Úlohou je definovať vstupnú a výstupnú štruktúru bankových sektorov tak, aby bolo možné posúdiť efekt vplyvu využívania platobných kariet na efektívnosť bankového sektora meranú metódou Data Envelopment Analysis (DEA). Výpočtom miery efektívnosti bude možné určiť, ktoré bankové sektory boli pozitívne ovplyvnené rozvojom využívania platobných kariet. Analyzovaním ex post efektov rozvoja využívania platobných kariet na efektívnosť bankových sektorov sa snažíme zistiť, či banka môže realizovať nejaké pozitívne benefity rozvojom informačných technológií v oblasti platobných kariet.

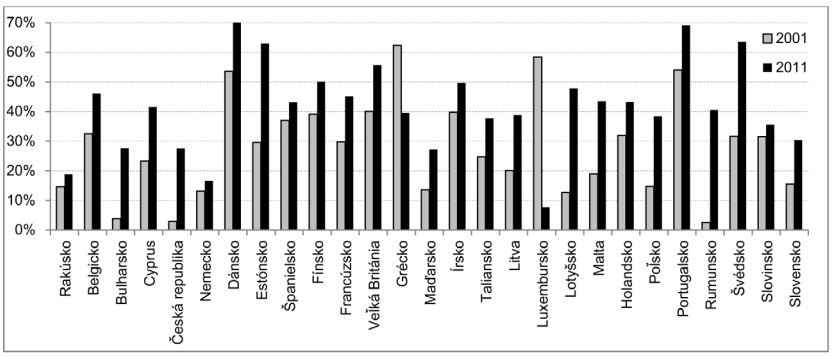
Tento článok sa zaoberá analýzou vzťahu medzi rastúcim významom využívania platobných kariet a efektívnosťou meranou metódou DEA. Využitím DEA bola sledovaná a meraná úroveň dosahovanej efektívnosti v dvadsiatich siedmych bankových sektoroch krajín Európskej únie v roku 2001 a 2011. Príspevok je rozdelený do troch častí. V prvej časti popisujeme súčasný stav v oblasti využívania platobných kariet. Druhá časť definuje metódy merania efektívnosti so zameraním sa na DEA modely. Tretia časť je venovaná praktickej aplikácii DEA modelov pri hodnotení efektívnosti bankových sektorov EÚ a zhodnoteniu výsledkov analýzy.

1. Využívanie platobných kariet v krajinách EÚ

Platobné karty sú samostatným nástrojom, prostriedkom vzdialeného prístupu k účtu klienta, používaným dnes v rámci moderného elektronického bankovníctva. Zároveň sú platobným nástrojom, ktorý vznikol pomerne dlhú dobu pred vznikom prvých foriem elektronického bankovníctva. V súčasnej dobe predstavujú platobné karty v celosvetovom meradle jeden z najčastejšie používaných platobných prostriedkov. [17]

Platobné karty zaznamenali v posledných rokoch veľmi dynamický rozvoj, podstatne sa zvýšil počet držiteľov kariet, ale aj počet miest, kde možno kartami platiť, resp. vyberať hotovosť. Používanie platobných kariet v mnohých krajinách vytlačilo predtým často využívaný šek. K dynamickému rozvoju využívania platobných kariet dochádza v posledných rokoch vo všetkých členských štátoch EÚ (Obr. 1). K najdynamickejšiemu rozvoju dochádza napríklad v Bulharsku, kde podielu operácií s platobnými kartami na celkovom objeme bezhotovostných operácií vzrástol z 3,883 % na 27,578 %; Českej republike (nárast z 2,891 % na 27,48 %) a Rumunsku (nárast z 2,56 % na 40,465 %).

Obr. 1: Podiel operácií s platobnými kartami na celkovom objeme bezhotovostných platieb v krajinách EÚ (%)



Zdroj: vlastné spracovanie na základe Statistical Data Warehouse

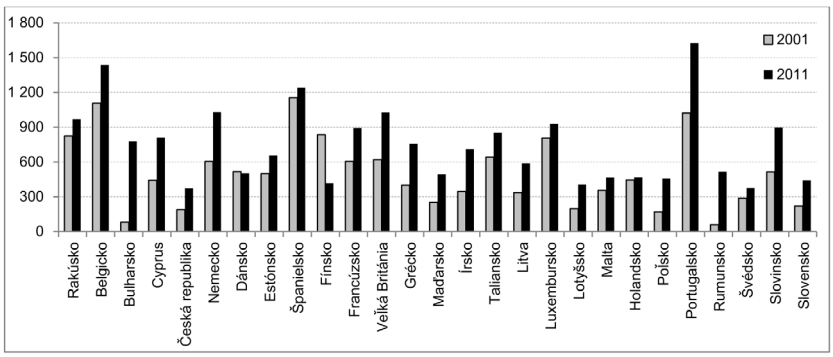
Platobná karta je plastiková karta zodpovedajúca medzinárodným normám (ISO 3554), ktorá oprávňuje držiteľa karty na vykonávanie peňažných transakcií, v súlade s dohodnutými podmienkami medzi držiteľom karty a jej emitentom. Platobná karta musí obsahovať povinné náležitosti ako napr. označenie vydavateľa karty, meno držiteľa platobnej karty, číslo karty, platnosť karty a formu záznamu dát (dáta vo forme tlačených alfanumerických znakov aj vo forme elektronického záznamu). [8]

Platobné karty ponúkajú držiteľom rôzne možnosti využitia. Medzi základné formy využitia platobných kariet patria:

- Výber hotovosti z bankomatu (ATM, Automatic Teller Machine) – platobné karty môžu byť držiteľom karty využívané na výber hotovosti z bankomatu prostredníctvom zadania tzv. PIN kódu (Personal Identification Number). V súčasnosti sa každá transakcia realizovaná prostredníctvo bankomatu autorizuje on-line u emitenta platobnej karty alebo v autorizačnom centre. V závislosti od možnosti využitia bankomatu rozlišujeme jednoúčelové bankomaty a viacúčelové bankomaty. Jednoúčelové bankomaty umožňujú iba výber hotovosti. Prostredníctvom viacúčelových bankomatov môže držiteľ platobnej karty okrem výberu hotovosti realizovať aj iné úkony ako napr. tlač výpisu z účtu, dobytie mobilného telefónu, vloženie hotovosti na účet a pod. [8]

Výber hotovosti sa vo vyspelých krajinách stal veľmi obľúbeným a často využívaným spôsobom využitia platobnej karty. K dynamickému nárastu významu bankomatových transakcií i rastu počtu bankomatov dochádza skoro vo všetkých krajinách EÚ (Obr. 2). K najväčšiemu rozvoju platobného styku realizovaného cez bankomaty dochádza v rozvíjajúcich sa krajinách, Bulharsku a Rumunsku, kde počet bankomatov pripadajúci na 1 mil. obyvateľov narástol približne o 800 %. Najmenší nárast, dokonca pokles počtu ATM môžeme sledovať vo vysoko rozvinutých krajinách, Dánsku a Fínsku (v Dánsku pokles o 2,69 %; vo Fínsku pokles o 50,18 % ATM na milión obyvateľov). Na Slovensku počet ATM v sledovanom období vzrástol z hodnoty 219,72 na 442,02 ATM na 1 mil. obyvateľov, ide teda o nárast približne o 100 %.

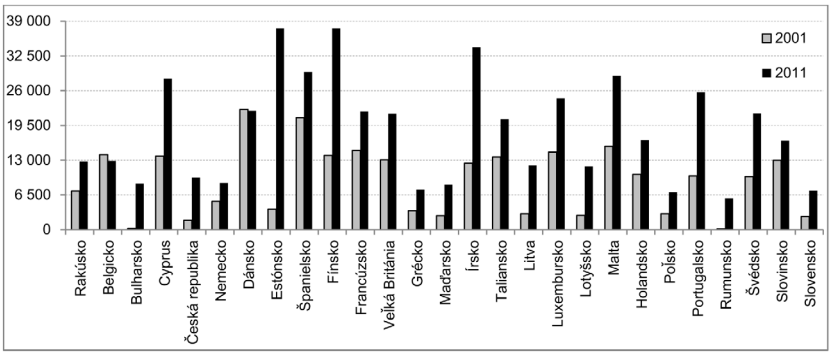
Obr. 2: Počet ATM bankomatov pripadajúci na 1 mil. obyvateľov v krajinách EÚ



Zdroj: vlastné spracovanie na základe Statistical Data Warehouse

- Bezhotovostné platenie – priame bezhotovostné platenie môže byť vykonávané platobnými kartami vo vybraných obchodoch, reštauráciách, letiskách, benzínových pumpách a ďalších miestach, ktoré sú vybavené tzv. platobným terminálom (EFTPOS terminál). Platobný terminál umožňuje automatickú autorizáciu platby. Platba prebieha analogicky ako pri výbere hotovosti z bankomatu, nemusí však byť vždy spojená so zadaním PIN kódu (Jedná sa o operácie s tzv. bezkontaktnými platobnými kartami, ktoré držiteľovi umožňujú realizovať platbu za nákup v hodnote do 20,- EUR jednoduchým priložením k terminálu bez zadania PIN kódu).

Obr. 3: Počet EFTPOS terminálov pripadajúci na 1 mil. obyvateľov v krajinách EÚ



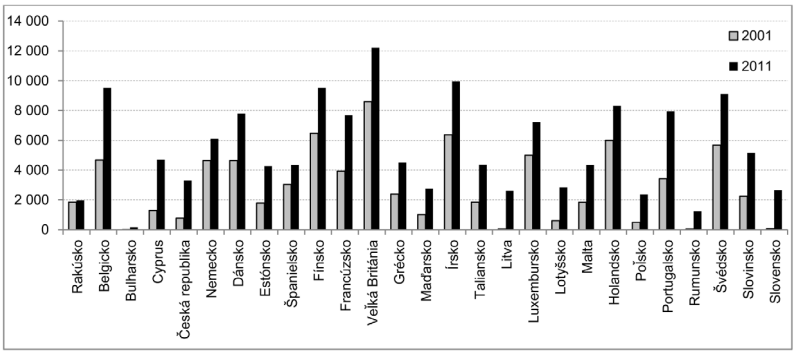
Zdroj: vlastné spracovanie na základe Statistical Data Warehouse

Význam využívania platobných kariet pri bezhotovostnom platení v posledných rokoch neustále narastá. Dokazuje to aj rast počtu terminálov, ktorý môžeme sledovať vo všetkých krajinách EÚ (Obr. 3). K najväčšiemu rozvoju dochádza, rovnako ako pri bankomatoch, v Bulharsku a Rumunsku, kde počet terminálov pripadajúci na 1 mil. obyvateľov narástol o viac ako o 3 000 % (v Bulharsku nárast z hodnoty 248,71 na 8 637,27; v Rumunsku nárast z 122,62 na hodnotu 5 852,27). Najmenší nárast, dokonca mierny pokles počtu terminálov môžeme sledovať vo vysoko rozvinutých krajinách, Dánsku a Belgicku (v Dánsku pokles terminálov pripadajúci na 1 mil. obyvateľov z 22 447,83 na hodnotu 22 213,85 (pokles o 1,04 %); v Belgicku pokles z hodnoty 14 047,37 na 12 837,31 (pokles o 8,61 %). Na Slovensku vzrástol počet terminálov pripadajúci na 1 mil. obyvateľov približne o 198 % (nárast počtu z 2 451,14 na 7 306,47).

- Výber hotovosti na pobočke banky – pomocou platobnej karty je možné vyberať hotovosť aj na pobočky banky, zmenárni či v medzinárodných hoteloch. Držiteľ karty musí okrem platobnej karty predložiť aj doklad totožnosti. Platba musí byť vždy autorizovaná. Tento spôsob využitia platobnej karty je však obvykle zaťažený relatívne vysokými poplatkami, preto sa využíva iba v prípadoch, keď použitie bankomatu nie je možné (napr. čiastka presahuje limit stanovený pre výber z bankomatu).
- Výber hotovosti v obchode (cash back) – spočíva v tom, že klient pri platení kartou v obchode môže požiadať o vyplatenie určitej čiastky hotovosti. Účet klienta je potom zaťažený nielen hodnotou platby, ale aj hodnotou vyberanej hotovosti. Táto transakcia obvykle vyžaduje zadanie PIN kódu [8].

S rýchlym tempom rastu počtu spomínaných zariadení dochádza zároveň aj k rastu hodnoty platieb realizovaných prostredníctvom nich. Dokazuje to aj dynamický vývoj priemernej hodnoty platby pripadajúci na jedného obyvateľa v analyzovaných krajinách (Obr.4). Najväčší, možno povedať až extrémne vysoký rast hodnoty platieb realizovaných cez ATM a EFTPOS terminály pripadajúci na jedného obyvateľa možno sledovať v Bulharsku, Litve, Rumunsku a na Slovensku. Spomedzi uvedených krajín Bulharsko a Rumunsko patrili aj medzi krajiny s najväčším rozvojom počtu spomínaných zariadení. V obidvoch prípadoch išlo o nárast počtu zariadení o viac ako 3 000 %, rovnako bol zaznamenaný aj extrémny rast hodnoty platby pripadajúci na obyvateľa, ktorý však nebol až taký výrazný. Napríklad v Bulharsku dochádza k rastu hodnoty platby pripadajúcej na obyvateľa z 8,93 EUR v roku 2001 na hodnotu 163,75 EUR v roku 2011, čo predstavuje nárast o 1 732,76 %. V Rumunsku vzrástla priemerná hodnota platby pripadajúca na obyvateľa z 43,15 EUR v roku 2001 na 1 229,92 EUR v roku 2011, v percentuálnom vyjadrení ide o nárast o 2 750,62 %. V prípade oboch krajín dochádza síce medzi sledovanými obdobiami k rastu hodnoty platieb, avšak dynamika tohto rastu bola pomalšia ako tomu bolo v prípade počtu uvedených zariadení.

Obr. 4: **Hodnota platieb realizovaných cez ATM a EFTPOS terminály pripadajúca na jedného obyvateľa v krajinách EÚ (EUR)**



Zdroj: vlastné spracovanie na základe Statistical Data Warehouse

Pri sledovaní zmeny hodnoty platieb bol najdynamickejší vývoj zaznamenaný aj v Litve (nárast hodnoty platby na obyvateľa medzi sledovanými obdobiami o 5 429,81 %) a na Slovensku (nárast o 4 459,36 %). V týchto krajinách však nedochádza až k takému dynamickému rozvoju v oblasti počtu bankomatov a terminálov. V prípade oboch krajín dochádza k rastu počtu týchto zariadení medzi sledovanými obdobiami iba na úrovni okolo 200–300 %.

Preto do popredia vystupuje otázka, či krajiny s extrémnym rastom počtu zariadení, aj obrovským rozvojom v oblasti využívania platobných kariet vo všeobecnosti, budú patriť medzi ekonomiky s efektívnymi bankovými sektormi v skupine analyzovaných krajín. Alebo či extrémny rast počtu zariadení nepodporený rastom hodnoty platieb realizovaných prostredníctvom nich, nebude viesť k strate efektívnosti.

2. Meranie efektívnosti

Farrellov pôvodný článok o meraní efektívnosti [9] viedol k rozvoju mnohých prístupov k meraniu vstupnej a výstupnej efektívnosti a k analýze produktivity. Najväčší, až priekopnícky význam medzi nimi má stochastický prístup Stochastic Frontier Approach (SFA), vytvorený Aignerom, Lovellom a Schmidtom [1]; a analýza obalu dát – Data Envelopment Analysis (DEA), ktorú vytvorili Charnes, Cooper a Rhodes [6].

Metóda DEA je úlohou lineárneho programovania, ktorá predpokladá, že neexistujú náhodné chyby. Je jednou z neparametrických metód merania relatívnej efektívnosti produkčných jednotiek (DMU – Decision Making Unit) používanej na meranie technickej efektívnosti. V posledných rokoch sa táto metóda stáva stále viac populárnou pri meraní efektívnosti v národných bankových sektoroch (napr. [15]), ale aj pri komparácii bankových subjektov na globálnom bankovom trhu (napr. [5]). Na Slovensku, v Rakúsku a Česku sa problematikou DEA zaoberajú hlavne Luptáčik a Bohm [13], Sudzina [21], Jablonský a Dlouhý [10], Jablonský a Grmanová [11], Stavárek [12], [19], [20] a Vincová [22], [23].

Výhodou DEA analýzy je, že táto metóda má schopnosť zahrnúť do analýzy mnohonásobné vstupy a výstupy a identifikovať pre neefektívne jednotky cieľové hodnoty premenných. Ďalšou výhodou tejto metódy je fakt, že DEA spočíva vo vyjadrení efektívnosti relatívne vzhľadom na všetky jednotky v skúmanej množine. Okrem spomenutých výhod má DEA analýza aj určité obmedzenia. Jednou z nevýhod tejto metódy je, že nízky počet pozorovaní spôsobuje vyššie množstvo DMU nachádzajúcich sa na hranici efektívnosti. Druhou nevýhodou je, že DEA je citlivá na množstvo vstupov a výstupov vzhľadom na počet skúmaných jednotiek DMU. Preto bola formulovaná podmienka použitia modelov, aby počet skúmaných DMU bol minimálne trikrát väčší ako množstvo použitých vstupov a výstupov v analýze. Ďalšou nevýhodou je fakt, že DEA neberie ohľad na chyby meraní a extrémne body vybočujúce zo súboru zvyšných bodov analýzy. Ak sa takéto extrémne body v analýze objavia, dôsledkom môže byť vychýlenie odhadu efektívnosti analyzovanej DMU, alebo posun hranice efektívnosti všetkých DMU, čo spôsobí vychýlenie v odhadoch efektívnosti všetkých skúmaných DMU.

V literatúre sa môžeme stretnúť s viacerými variantmi a špecifikáciami DEA modelov. V našej práci sa budeme venovať dvom základným modelom: CCR modelu, ktorý bol vytvorený Charnesom, Cooperom a Rhodesom (1978) a BCC modelu vytvorenému Bankerom, Charnesom a Cooperom (1984). Základný rozdiel medzi týmito modelmi je v predpoklade o výnosoch z rozsahu. Kým CCR model predpokladá, že produkčné jednotky operujú za podmienok konštantných výnosov z rozsahu, teda pri optimálnej veľkosti, BCC model predpokladá variabilné výnosy z rozsahu.

Výnosy z rozsahu podľa produkčnej ekonomiky odrážajú reakciu celkového produktu (výstupu) pri proporcionálnom zvýšení všetkých vstupov. V literatúre sa môžeme stretnúť s troma základnými typmi výnosov z rozsahu:

- konštantné výnosy z rozsahu – proporcionálna zmena všetkých vstupov vedie k rovnako veľkému zvýšeniu celkového výstupu,
- klesajúce výnosy z rozsahu – proporcionálne zvýšenie všetkých vstupov vedie k nižšiemu ako proporcionálnemu zvýšeniu celkového výstupu,
- rastúce výnosy z rozsahu – proporcionálne zvýšenie všetkých vstupov vedie k väčšiemu ako proporcionálnemu zvýšeniu úrovne celkového výstupu.

Charnes a kol. vo svojej pôvodnej práci (1978) navrhol vstupne orientovaný model založený na predpoklade konštantných výnosov z rozsahu. Tento model (CCR model) predpokladal, že produkčné jednotky pracujú pri ich optimálnej veľkosti, identifikoval teda neefektívne jednotky bez ohľadu na ich veľkosť. Miera efektívnosti vypočítaná prostredníctvom CCR modelu sa niekedy označuje ako celková technická efektívnosť. Túto celkovú efektívnosť môžeme rozdeliť na čistú technickú efektívnosť a efektívnosť z rozsahu (SE), pričom čistá technická efektívnosť predstavuje mieru efektívnosti vypočítanú prostredníctvom BCC modelu *(CCR=BCC.SE)*.

Uvažujme, že máme súbor n produkčných jednotiek DMU_1, DMU_2,...., DMU_n. Každá z týchto jednotiek produkuje s výstupov a pritom spotrebuje m vstupov. Označme si maticu vstupov $X=\{x_{ij},\ i=1,2,\ldots,m;\ j=1,2,\ldots,n\}$ a maticu výstupov $Y=\{y_{rj},\ r=1,2,\ldots,s;\ j=1,2,\ldots,\ n\}$. Q-tý riadok X_q, resp. Y_q týchto matíc obsahuje kvantifikované vstupy resp. výstupy jednotky DMU_q. Keďže produkčné jednotky $(DMU_j,\ j=1,2,...,n)$ väčšinou vytvárajú viac ako jeden výstup $(y_{rj},\ r=1,2,...,s)$ a používajú viac ako jeden vstup $(x_{ij},\ i=1,2,...,m)$, ktorých dôležitosť je v každej produkčnej jednotke rozdielna, môžeme efektívnosť definovať ako pomer súčtu vážených výstupov k súčtu vážených vstupov. Keďže jednotlivé používané vstupy a produkované výstupy majú pre každú produkčnú jednotku inú mieru významnosti, sú im pri hodnotení efektívnosti priraďované rozdielne váhy. Výhodou DEA modelov je to, že váhy používaných vstupov a produkovaných výstupov sa získavajú optimalizačnými úlohami lineárneho programovania a nie sú priraďované na základe subjektívneho vnímania produkčnej jednotky. Efektívnosť DMU_q môže byť vypočítaná riešením úlohy zlomkového programovania nasledovne:

Maximalizovať

$$h_q = \sum_{r=1}^{s} u_r y_{rq} \Big/ \sum_{i=1}^{m} v_i x_{iq} \qquad (1)$$

Za podmienok

$$\sum_{r=1}^{s} u_r y_{rj} \Big/ \sum_{i=1}^{m} v_i x_{ij} \le 1 \quad j = 1, 2, ..., \ n$$

$$u_r \ge 0 \quad r = 1, 2, ..., \ s \quad v_i \ge 0 \quad i = 1, 2, ..., \ m$$

Kde h_q je odhadovaná miera technickej efektívnosti DMU_q, u_r a v_i sú optimalizované váhy jednotlivých vstupov a výstupov, y_{rj} je pozorovaná hodnota *r*-tého výstupu pre DMU_j, x_{ij} je pozorovaná hodnota *i*-tého vstupu pre DMU_j, y_{rq} je pozorovaná hodnota *r*-tého výstupu pre DMU_q, x_{iq} je pozorovaná hodnota *i*-tého vstupu pre DMU_q, *r* identifikuje s rozdielnych výstupov, *i* označuje *m* rozdielnych vstupov a *j* definuje *n* rozdielnych produkčných jednotiek (DMU).

Meranie relatívnej efektívnosti DMU_q je založené na pozorovaní efektívnosti všetkých produkčných jednotiek DMU_j *(j=1,2,...,n)*. V účelovej funkcii maximalizujeme podiel súčtu vážených výstupov na súčte vážených vstupov. Hodnotená produkčná jednotka je súčasne zahrnutá aj v skupine produkčných jednotiek, ktoré definujú obmedzujúce podmienky úlohy. Tým sa zabezpečí, že pri vybraných váhach výstupov u a vstupov v bude maximálna miera efektívnosti hodnotenej produkčnej jednotky DMU_q menšia alebo rovná jednej. Druhá a tretia obmedzujúca podmienka vyžadujú, aby váhy jednotlivých vstupov a výstupov boli kladné.

Pre praktické riešenie môže byť úloha zlomkového programovania prevedená trans-

formáciou na štandardnú úlohu lineárneho programovania. Ďalej je nutné upraviť podmienku nezápornosti váh vstupov a výstupov, zavedením nezáporného parametra ε, ktorý sa volí spravidla vo výške 10^{-6} alebo 10^{-8}, pričom tento parameter zabezpečí, že model bude zahŕňať všetky uvažované vstupné a výstupné charakteristiky, teda váha žiadneho zo vstupov či výstupov nebude rovná nule. Transformáciou a úpravou podmienky nezápornosti vznikne model, ktorý sa označuje ako vstupne orientovaný primárny CCR model (Charnes, Cooper a Rhodes, [6]). Primárny vstupne orientovaný model môžeme zapísať v tvare:

Maximalizovať

$$h_q = \sum_{r=1}^{s} u_r y_{rq} \qquad (2)$$

Za podmienok

$$\sum_{r=1}^{s} u_r y_{rj} - \sum_{i=1}^{m} v_i x_{ij} \le 0 \qquad j = 1, 2, ..., n$$

$$\sum_{i=1}^{m} v_i x_{iq} = 1$$

$$u_r \ge \varepsilon \qquad r = 1, 2, ..., s$$

$$v_i \ge \varepsilon \qquad i = 1, 2, ..., m$$

Kde ε je konštanta spravidla vo výške 10^{-6} alebo 10^{-8}.

Pre všetky úlohy lineárneho programovania je charakteristické, že veľké množstvo determinujúcich podmienok a obmedzení negatívne ovplyvňuje možnosť riešenia problému. Pre každý lineárny problém je možné zostaviť duálnu úlohu lineárneho programovania, ktorá využíva rovnaké údaje a redukuje počet obmedzení modelu. Duálny vstupne orientovaný CCR model môžeme interpretovať ako mieru radiálnej redukcie vstupov potrebnú na dosiahnutie technickej efektívnosti. Na to, aby sa hodnotená neefektívna produkčná jednotka DMU_q stala efektívnou, musí totiž radiálne znížiť hodnotu používaných vstupov o $(1-\theta_q)100$ %. Riešením duálneho CCR modelu dostaneme mieru technickej efektívnosti θ pre každú hodnotenú produkčnú jednotku DMU, pričom táto miera efektívnosti môže nadobúdať hodnoty menšie alebo rovné jednej. Podľa tohto modelu je hodnotená produkčná jednotka DMU_q efektívna vtedy, ak miera technickej efektívnosti $\theta_q=1$. V tomto prípade nie je potrebná žiadna radiálna redukcia vstupov. Duálny vstupne orientovaný CCR model môžeme zapísať v tvare:

Minimalizovať

$$\theta_q \qquad (3)$$

Za podmienok

$$\sum_{j=1}^{n} x_{ij} \lambda_j \le \theta_q x_{iq} \qquad i = 1, 2, ..., m$$

$$\sum_{j=1}^{n} y_{rj} \lambda_j \ge y_{rq} \qquad r = 1, 2, ..., s$$

$$\lambda_j \ge 0 \qquad j = 1, 2, ..., n$$

Kde θ_q je odhadovaná miera technickej efektívnosti DMU_q, λ_j je váha priradená *j*-tej *DMU*, ktorá poukazuje na zastúpenie efektívnej produkčnej jednotky pri určovaní optimálnych hodnôt vstupov a výstupov neefektívnej produkčnej jednotky.

Primárny a duálny CCR model poskytujú informáciu iba na radiálne dosiahnutie efektívnosti. Túto radiálnu mieru efektívnosti nazývame aj Farrellovou efektívnosťou, resp. slabou efektívnosťou. Niekedy je však na dosiahnutie efektívnosti potrebný aj neradiálny posun. Z toho dôvodu sa do uvedeného CCR modelu pridávajú doplnkové premenné s^+ a s^-, ktoré predstavujú nedostatok výstupov, resp. prebytok vstupov. Hodnotená produkčná jednotka DMU_q je potom efektívna vtedy, ak hodnota premennej $\theta_q=1$ a hodnoty všetkých doplnkových premenných s^+ a s^- sú rovné nule. V tomto prípade už hovoríme o Paretovej-Koopmansovej efektívnosti, resp. o celkovej technickej efektívnosti. Na meranie celkovej technickej efektívnosti je potrebné riešiť dvojfázovú úlohu lineárneho programovania. V prvej fáze sa úloha zameriava na výpočet efektívnosti, druhá fáza zisťuje jednotlivé nadmerné vstupy, resp. nedostatky výstupov. Duálny tvar vstupne orientovaného CCR modelu s doplnkovými premennými môžeme zapísať v tvare:

Minimalizovať

$$\theta_q - \varepsilon \left[\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+ \right] \qquad (4)$$

Za podmienok

$$\sum_{j=1}^{n} x_{ij} \lambda_j + s_i^- = \theta_q X_{iq}$$

$$\sum_{j=1}^{n} y_{rj}\lambda_j - s_r^+ = Y_{rq}$$

$$\lambda_j \geq 0 \quad j = 1, 2, ..., n$$

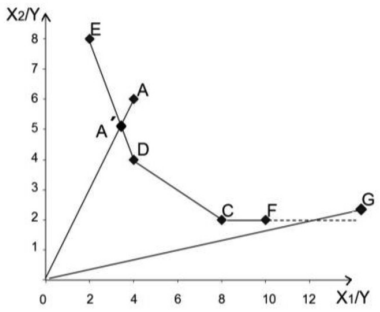
$$s_i^- \geq 0 \quad i = 1, 2, ..., m$$

$$s_r^+ \geq 0 \quad r = 1, 2, ..., s$$

Kde s_r^+ je doplnková hodnota *r*-tého výstupu (nedostatok *r*-tého výstupu), s_i^- je doplnková hodnota i-tého vstupu (prebytok *i*-tého vstupu).

Optimálne riešenie druhej fázy sa nazýva riešením s maximálnymi doplnkovými premennými. Ak pre riešenie s maximálnymi doplnkovými premennými platí, že $s_r^+=0$; $s_i^-=0$ $(r=1,2,...,s;\ i=1,2,...,m)$ potom toto riešenie nazývame riešením s nulovými maximálnymi doplnkovými premennými (zero-max-slack).

Obr. 5: Technická efektívnosť (vstupne orientovaný model, 2 vstupy (X_1, X_2) a 1 výstup (Y)



Zdroj: vlastné spracovanie

V prípade, že optimálne riešenie je typu zero-max-slack a $\theta_q=1$; potom je hodnotená DMU_q úplne efektívna (napr. Obr. 5, $DMU_{C,D,E}$). Ak je riešenie typu zero-max-slack a $\theta_q<1$; potom je hodnotená DMU_q technicky neefektívna, pričom túto neefektívnosť vieme odstrániť proporcionálnou redukciou všetkých vstupov o $(1-\theta_q)100$ % na odporúčané hodnoty vstupov $\theta_q X_q$ a výstupov Y_q, čím dosiahneme posun na hranicu efektívnosti (napr. Obr. 5, $DMU_A \rightarrow DMU_{A'}$). V prípade, že optimálne riešenie nie je typu zero-max-slack a $\theta_q<1$; potom maximálna proporcionálna redukcia hodnotenej DMU_q neodstráni všetky jej neefektívnosti. Pre dosiahnutie efektívnosti je potrebný aj neradiálny posun do bodu $[X_q^*; Y_q^*]$ vyjadrený pomocou doplnkových premenných. $X_q^*=\theta_q X_q - s^-$, $Y_q^*=Y_q+s^+$. V tomto prípade dosahuje hodnotená DMU_q aj technickú aj zmiešanú neefektívnosť (napr. Obr. 5, $DMU_G \rightarrow DMU_C$). Ak riešenie nie je typu zero-max-slack a $\theta_q=1$; hodnotená DMU_q nevykazuje žiadnu technickú neefektívnosť, avšak nenulové doplnkové premenné poukazujú na existenciu zmiešanej neefektívnosti. Tento typ neefektívnosti sa niekedy zvykne označovať ako pseudoefektívnosť vzhľadom na to, že hodnota účelovej funkcie $\theta_q=1$ (napr. Obr. 5, $DMU_F \rightarrow DMU_C$).

Vyššie uvedené modely predpokladajú konštantné výnosy z rozsahu, čo znamená, že napr. pri dvojnásobnom zvýšení všetkých vstupov sa rozsah výstupu zmení o rovnaký násobok. Predpoklad konštantných výnosov môžeme akceptovať len v tom prípade, ak všetky produkčné jednotky vykonávajú činnosť pri optimálnej veľkosti. Nedokonalá konkurencia, finančné obmedzenia, regulačné opatrenia a ďalšie faktory však spôsobujú, že produkčné jednotky pri optimálnej veľkosti nefungujú. Preto bol na prekonanie tohto problému vyvinutý DEA model umožňujúci kalkulovať s variabilnými výnosmi z rozsahu. Variabilné výnosy z rozsahu znamenajú, že napr. pri dvojnásobnom zvýšení všetkých vstupov sa rozsah výstupu zmení o viac alebo menej ako dvojnásobok. V prípade variabilných výnosov z rozsahu musíme model (4) upraviť o podmienku konvexnosti, pričom táto podmienka zaručuje, že neefektívna produkčná jednotka sa porovnáva s produkčnou jednotkou podobnej veľkosti. Tento model sa označuje ako BCC model (Banker, Charnes a Cooper, [2]). Rozdiel medzi CCR (4) a BCC modelom (5) je v pridaní obmedzujúcej podmienky, že $\Sigma\lambda_j=1$. Zavedením tejto podmienky, sa odstráni obmedzenie z CCR modelu, že DMU musí dosahovať efektívnosť z rozsahu. Produkčná jednotka dosahuje efektívnosť z rozsahu v tom prípade, že vykazuje konštantné výnosy plynúce z rozsahu, teda jej jednotkový výstup (vyjadruje množstvo výstupu vyrobeného jednou jednotkou použitého vstupu) je na maximálnej úrovni. Pridaná podmienka ďalej predstavuje obmedzujúcu podmienku konvexnosti hranice efektívnosti. Duálny BCC vstupne orientovaný model môžeme zapísať v tvare:

Minimalizovať

$$\theta_q - \varepsilon\left[\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+\right] \qquad (5)$$

Za podmienok

$$\sum_{j=1}^{n} x_{ij}\lambda_j + s_i^- = \theta_q X_{iq}$$

$$\sum_{j=1}^{n} y_{rj}\lambda_j - s_r^+ = Y_{rq}$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

$$\lambda_j \geq 0 \quad j = 1, 2, ..., n$$

$$s_i^- \geq 0 \quad i = 1, 2, ..., m$$

$$s_r^+ \geq 0 \quad r = 1, 2, ..., s$$

Hodnoty efektívnosti vypočítané na základe BCC modelu sa nazývajú aj čistou technickou efektívnosťou, pretože BCC model eliminuje časť neefektívnosti, ktorá je spôsobená neadekvátnou veľkosťou produkčnej jednotky. Prostredníctvom výpočtu BCC miery efektívnosti teda môžeme rozdeliť celkovú technickú efektívnosť nameranú CCR modelom na čistú technickú efektívnosť a efektívnosť z rozsahu, pričom miera efektívnosti z rozsahu nám ukazuje, v akej miere sa produkčná jednotka správa efektívne vo vlastnej veľkostnej skupine.

3. Analýza efektívnosti bankových sektorov EÚ

Na modelovanie bankových procesov možno použiť množstvo rôznych prístupov, pričom medzi najviac využívané patria produkčný a sprostredkovateľský prístup. Pri uplatnení produkčného prístupu sú banky vnímané ako inštitúcie využívajúce rôzne zdroje práce a kapitálu pri poskytovaní rôznych produktov a služieb pre svojich zákazníkov. Využívajú sa zdroje ako práca a prevádzkové náklady, ktoré sa považujú za vstupy, zatiaľ čo produkty a služby, ako napr. bankové vklady a úvery, sa považujú za výstupy. Pri sprostredkovateľskom prístupe je banka vnímaná ako finančný sprostredkovateľ, ktorý zhromažďuje depozitá a iné vypožičateľné peňažné prostriedky od vkladateľov (považujú sa za vstupy) a požičiava ich ako úvery alebo iné druhy aktív iným subjektom (považujú sa za výstupy) s cieľom dosiahnuť zisk.

Cieľom príspevku je definovať vstupnú a výstupnú štruktúru bankových sektorov tak, aby bolo možné posúdiť efekt vplyvu využívania platobných kariet na efektívnosť bankového sektora meranú DEA modelmi. Pri definovaní vstupnej a výstupnej štruktúry sme zvolili produkčný prístup. Prostredníctvom nameranej hodnoty efektívnosti bankových sektorov v analyzovaných rokoch chceme určiť, ktoré bankové sektory boli pozitívne ovplyvnené rozvojom využívania platobných kariet. Východiskom analýzy bol stav vybraných premenných v 27 bankových sektoroch krajín EÚ v rokoch 2001 a 2011. Uvažované premenné bankových sektorov v uvedených rokoch sa stali základom pri hodnotení efektívnosti prostredníctvom CCR vstupne orientovaného modelu (4) a BCC vstupne orientovaného modelu (5). Súčasťou analýzy bolo aj sledovanie zmien vo vývoji premenných a následne aj zmien v dosahovanej miere efektívnosti medzi týmito dvoma obdobiami.

Rozhodovanie o tom, ktoré premenné sa v analýze použijú ako vstupy a výstupy a aké množstvo premenných zahrnúť do analýzy nie je jednoduchou úlohou. Jednou z nevýhod DEA analýzy je, že DEA je citlivá na množstvo vstupov a výstupov vzhľadom na počet skúmaných jednotiek DMU. Preto bola formulovaná podmienka použitia modelov, aby počet skúmaných DMU bol minimálne trikrát väčší ako množstvo použitých vstupov a výstupov v analýze. Vzhľadom na rozsah skúmaného súboru (27 bankových sektorov krajín EÚ) bol preto stanovený maximálny počet vstupných a výstupných premenných na deväť. Po preštudovaní literatúry zaoberajúcou sa problematikou vplyvu rozvoja informačných technológií na efektívnosť bánk (napr. [4], [7]) boli stanovené dve vstupné a tri výstupné premenné použité pri analyzovaní efektívnosti bankových sektorov v rokoch 2001 a 2011. Daná skupina uvažovaných parametrov zároveň spĺňa aj podmienku použitia DEA modelov, obmedzujúcu počet použitých premenných na maximálne deväť.

Pri uplatnení produkčného prístupu boli do analýzy ako vstupné premenné (x_{ij}), pre každý (j-ty) bankový sektor (DMU_j) zaradené:

- Počet ATM a EFTPOS terminálov (x_{1j}),
- Celkové aktíva bankového sektora pripadajúce na jednu úverovú inštitúciu (CA/ÚI) v mil. EUR (x_{2j}).

V literatúre sa môžeme bežne stretnúť s použitím počtu zamestnancov, počtu pobočiek, počtu úverových inštitúcií a hodnoty celkových aktív ako ukazovateľov využívaného zdroja práce a kapitálu, preto bol do analýzy zahrnutý agregovaný

ukazovateľ CA/ÚI. Pri sledovaní vplyvu rastu siete ATM a EFTPOS terminálov môže byť daná premenná rovnako chápaná ako zdroj kapitálu banky vytvárajúci jeden zo vstupov analýzy.

Za výstupné premenné (y_{ri}) boli pre každý (j-ty) bankový sektor (DMUj) zvolené:

- Hodnota platieb realizovaných cez ATM a EFTPOS terminály pripadajúca na jedného obyvateľa v EUR (y_{1j}),
- Hodnota vkladov v mil. EUR (y_{2j}),
- Hodnota úverov rovnako v mil. EUR (y_{3j}).

Pri uplatnení produkčného prístupu banku vnímame ako inštitúciu, ktorá využíva zdroje na produkovanie výstupov, ktoré sú reprezentované hlavne hodnotou prijatých vkladov a poskytnutých úverov. Z tohto dôvodu pri nami uplatňovanom prístupe boli ako výstupné premenné analýzy zvolené Hodnota vkladov a Hodnota úverov. Tretím uvažovaným výstupom je Hodnota platieb realizovaná cez ATM a EFTPOS terminály. Dôvodom zaradenia tejto premennej je posúdenie efektov zavádzanie technológií do výstupov bankového sektora v podobe ich využívania zo strany klientov. Hodnota platieb je totižto priamym produktom siete uvedených zariadení. Ak by v bankovom sektore neboli uvedené technológie, neexistovala by ani žiadna hodnota platieb.

Predmetom analýzy bolo sledovanie stavu použitých parametrov a následne aj dosahovanej efektívnosti v roku 2001 a 2011. Z tohto dôvodu zobrazuje Tab. 1 deskriptívnu štatistiku použitých vstupov a výstupov v uvedených rokoch. Na základe deskriptívnej štatistiky použitých premenných môžeme medzi sledovanými obdobiami zaznamenať rast na strane vstupov a výstupov. Napr. pri analýze uvedených vstupov bol zaznamenaný rast počtu ATM a EFTPOS terminálov v priemere o 76,54 % a rast hodnoty celkových aktív pripadajúci na úverovú inštitúciu v priemere o 130,57 %. Pri sledovaní výstupov hodnota vkladov vzrástla v priemere o 75,27 %, úvery vzrástli v priemere o 66,69 %. Rast bol rovnako zaznamenaný aj v prípade priemernej hodnoty platieb, a to o 86,67 %.

Tab. 1: Deskriptívna štatistika použitých premenných v roku 2001 a 2011

		Vstupy		Výstupy		
		Počet ATM a EFTPOS	Celkové aktíva/ÚI (mil. EUR)	Hodnota platieb cez ATM a EFT na obyvateľa	Vklady (mil. EUR)	Úvery (mil. EUR)
Maximum	2001	941 177	12 898	8 595	3 556 965	4 144 723
	2011	1 501 895	26 028	12 219	4 575 268	4 693 285
Minimum	2001	2 610	86	9	2 512	2 057
	2011	12 179	268	164	8 859	14 823
Priemer	2001	188 859,07	2 174,33	2 916,38	469 600,41	544 254,05
	2011	333 416,67	5 013,27	5 443,89	823 075,53	907 190,33
Štandardná odchýlka	2001	303 962,93	2 742,15	2 395,29	857 384,67	994 900,91
	2011	484 837,38	5 555,97	3 099,04	1 332 761,59	1 421 339,37

Zdroj: vlastné výpočty na základe Statistical Data Warehouse

Miera dosahovanej efektívnosti bola hodnotená prostredníctvom CCR a BCC vstupne orientovaných modelov. Výhodou BCC modelu v porovnaní s CCR modelom je fakt, že BCC model rozdeľuje celkovú technickú efektívnosť na čistú technickú efektívnosť a efektívnosť z rozsahu. Sumárne výsledky dosiahnutej celkovej technickej efektívnosti aj jej dvoch zložiek zobrazuje nasledujúca tabuľka (Tab. 2). Na základe údajov z Tab. 2 môžeme vidieť, že CCR model identifikoval v roku 2001 priemernú celkovú technickú efektívnosť vo výške 54,90 %, pričom na hranici efektívnosti sa nachádzali 4 z analyzovaných bankových sektorov. V roku 2011 dochádza k rastu priemernej celkovej technickej efektívnosti na 61,43 %, sprevádzanú aj rastom počtu efektívnych bankových sektorov. Na základe hodnôt minimálnej a maximálnej miery efektívnosti môžeme vidieť veľkú variabilitu medzi analyzovanými jednotkami.

Tab. 2: Výsledky DEA modelov

	2001	2011
Celková technická efektívnosť (CCR model)		
Maximum	100,00 %	100,00 %
Minimum	7,93 %	7,23 %
Priemer	54,90 %	61,43 %
Štandardná odchýlka	0,2866	0,2809
Počet (a %) efektívnych DMU	4 (14,81 %)	5 (18,52 %)
Čistá technická efektívnosť (BCC model)		
Maximum	100,00 %	100,00 %
Minimum	21,31 %	26,81 %
Priemer	74,05 %	75,62 %
Štandardná odchýlka	0,2749	0,2655
Počet (a %) efektívnych DMU	10 (37,04 %)	10 (37,04 %)
Efektívnosť z rozsahu – priemer	77,84 %	79,90 %
Výnosy z rozsahu – počet DMU		
Konštantné výnosy z rozsahu	4	5
Rastúce výnosy z rozsahu (z toho BCC efektívne)	20 (4)	11 (1)
Klesajúce výnosy z rozsahu (z toho BCC efektívne)	3 (2)	11 (4)

Zdroj: vlastné výpočty

Ako už vieme, celkovú technickú efektívnosť môžeme rozdeliť na dve zložky. Touto dekompozíciou celkovej efektívnosti môžeme identifikovať zdroje neefektívnosti, teda môžeme určiť, či je neefektívnosť spôsobená neefektívnou činnosťou bankového sektora (čistá technická efektívnosť), nevýhodnými podmienkami (efektívnosť z rozsahu), alebo oboma. Prvou zložkou je teda čistá technická efektívnosť meraná BCC modelom. V prípade analyzovaných krajín v roku 2001 dosiahla priemerná čistá technická efektívnosť hodnotu 74,05 % a BCC model identifikoval 10 efektívnych bankových sektorov (Tab. 2). V roku 2011 dochádza k miernemu rastu priemernej čistej technickej efektívnosti na 75,62 %, pričom počet efektívnych bankových sektorov ostáva nezmenený. Priemerná miera čistej technickej efektívnosti identifikuje potenciálnu úsporu analyzovaných bankových sektorov potrebnú na zvýšenie efektívnosti. Táto hodnota naznačuje, že analyzované bankové sektory by pri produkcii svojich výstupov potrebovali v priemere iba 75,62 % z využívaných vstupov. Táto redukcia na strane vstupov by daným bankovým sektorom mala zabezpečiť posun na hranicu efektívnosti.

Druhou zložkou celkovej efektívnosti je efektívnosť z rozsahu, ktorá určuje, ako efektívne sa správa hodnotená jednotka vo vlastnej veľkostnej skupine. Ako môžeme vidieť analyzované bankové sektory pracujú prevažne za podmienok variabilných výnosov z rozsahu. Kým v roku 2001 väčšina bankových sektorov pracovala za podmienok rastúcich výnosov z rozsahu, v roku 2011 je už rozdelenie analyzovaných subjektov medzi skupinou rastúcich a klesajúcich výnosov z rozsahu rovnomerné. V skupine efektívnych bankových sektorov boli v roku 2001 označené štyri a v roku 2011 päť bankových sektorov, ktoré boli CCR aj BCC efektívne. Dané bankové sektory teda pracujú za podmienok konštantných výnosov z rozsahu. O týchto bankových sektoroch môžeme povedať, že operujú v tzv. najproduktívnejšom veľkostnom rozsahu. Znamená to, že hodnotené bankové sektory sú rozsahom efektívne v tom zmysle, že kombinácia ich vstupov a výstupov maximalizuje priemernú produktivitu, čo im umožňuje byť efektívnymi v podmienkach konštantných aj variabilných výnosov z rozsahu. V prípade ostatných efektívnych bankových sektorov (6 bankových sektorov

v roku 2001 a 5 v roku 2011), ktoré boli označené ako BCC efektívne, ale nedosahovali efektívnosť za podmienok konštantných výnosov z rozsahu môžeme povedať, že sú síce lokálne efektívne, ale nie sú globálne efektívne a to práve z dôvodu veľkostného rozsahu. V roku 2001 v prípade 4 bankových sektorov, a v roku 2011 v prípade 1 bankového sektora, ktoré síce boli BCC efektívne bolo zistené, že operujú za podmienok rastúcich výnosov z rozsahu. Znamená to, že tieto bankové sektory sú neefektívne rozsahom, pretože z disponibilných vstupov by mohli dosiahnuť vyšší výstup. V prípade 2 bankových sektorov v roku 2001 a 4 bankových sektorov v roku 2011, ktoré boli rovnako označené ako BCC efektívne, sme zistili, že operujú za podmienok klesajúcich výnosov z rozsahu. V tomto prípade je neefektívnosť z rozsahu bankových sektorov spôsobená príliš veľkou hodnotu výstupov.

Výhodou DEA analýzy je, že okrem merania úrovne dosahovanej efektívnosti, prináša aj odporúčania o tom, aké množstvo vstupov a výstupov je potrebné na dosiahnutie hranice efektívnosti. V prípade využitia vstupne orientovaných modelov, sú teda výsledkom odporúčania o hodnotách vstupov, ktoré by neefektívnym bankovým sektorom mali pomôcť posunúť sa do skupiny efektívnych krajín. Keďže v predošlej analýze bolo zistené, že väčšina bankových sektorov operuje za podmienok variabilných výnosov z rozsahu, zobrazuje Tab. 3 mieru čistej efektívnosti, pôvodné hodnoty vstupov a odporúčané hodnoty vstupov v rokoch 2001 a 2011. Odporúčané hodnoty pre jednotlivé vstupy boli vypočítané prostredníctvom vektorov optimálnych hodnôt premenných a vstupných hodnôt efektívnych produkčných jednotiek.

Na základe výpočtov uvedených v Tab. 3 vidíme, že najväčší nárast čistej technickej efektívnosti bol zaznamenaný v Belgicku, kde dochádza k posunu miery BCC efektívnosti z 30,63 % nameranej v roku 2001 až na hranicu efektívnosti v roku 2011. V roku 2001 Belgicko nepatrilo medzi krajiny umiestnené na hranici efektívnosti. Pri využití vstupne orientovaného modelu môžeme povedať, že dôvodom neefektívnosti v roku 2001 bola pomerne vysoká úroveň vstupov pri danej úrovni výstupov. Pre efektívne fungovanie a posun na hranicu efektívnosti v roku 2001 mala byť hodnota vstupov v Belgicku nižšia približne o 70 % oproti pôvodnej hodnote. Pri danej hodnote platieb realizovaných cez ATM a EFTPOS terminály, objeme úverov a objeme vkladov, bolo pre efektívne fungovanie bankového sektora potrebné znížiť počet ATM a EFTPOS z pôvodnej hodnoty 155 814 na odporúčanú hodnotu 47 694. Rovnako bolo potrebné aj zníženie hodnoty celkových aktív pripadajúcich na úverovú inštitúciu z pôvodnej hodnoty 6930 mil. EUR na odporúčanú hodnotu 2122 mil. EUR. V roku 2011 už daná krajina dosiahla hranicu efektívnosti. Dôvodom úspechu bol pravdepodobne výrazný posun hlavne v oblasti výstupov, ktorý bol sprevádzaný iba miernym rastom na strane vstupov. Napr. medzi sledovanými obdobiami síce dochádza k rastu počtu ATM a EFTPOS terminálov, avšak tento rast bol iba minimálny vo výške 0,57 %. Na strane výstupov však medzi rokmi 2001 a 2011 výrazne narástla hodnota realizovaných platieb a to o viac ako 103,66 %, kde hodnota realizovaných platieb pripadajúca na obyvateľa vzrástla v priemere z 466,- EUR na 9 510,- EUR.

Rovnaký posun smerom k hranici efektívnosti zaznamenal v sledovanom období aj Cyprus. Kým v roku 2001 bola miera efektívnosti 61,84 %, v roku 2011 už krajina patrila v skupine analyzovaných krajín pri uvažovaných vstupoch a výstupoch medzi efektívne. K rastu efektívnosti o viac ako 38 % pozitívne prispel hlavne rast výstupov medzi sledovanými obdobiami v priemere o viac ako 248 %, ktorý bol sprevádzaný aj rastom na strane vstupov, v priemere približne o 75 %. Kým v roku 2001 bolo potrebné pre dosiahnutie efektívnosti znížiť úroveň vstupov približne o 38 %, v roku 2011 upravil bankový sektor Cypru svoju štruktúru v oblasti platobných kariet tak, že spomínaný nárast šírky bankomatovej a terminálovej siete vykrytý rastom hodnoty platieb realizovaných prostredníctvom týchto zariadení pozitívne prispel k efektívnosti bankového sektora.

K rastu efektívnosti medzi rokmi 2001 a 2011 dochádza ešte v Dánsku, Francúzsku, Taliansku, Malte, Poľsku a na Slovensku, kde bol vo všetkých prípadoch percentuálny rast počtu bankomatov a terminálov prevýšený percentuálnym rastom hodnoty realizovaných platieb.

Na druhej strane k najväčšiemu poklesu miery efektívnosti dochádza v Rumunsku, kde miera BCC efektívnosti poklesla z 86,18 % na hodnotu 26,81 %. Ako môžeme vidieť, ani v jednom roku nepatrilo Rumunsko medzi efektívne krajiny. Pri použití vstupne orientovaného

Tab. 3: Miera BBC efektívnosti, pôvodné a odporúčané hodnoty vstupov

Krajina*	BCC efektívnosť (%)		Počet ATM a POS terminálov (pôvodné hodnoty)		Počet ATM a POS terminálov (odporúčané hodnoty)		CA/ÚI (pôvodné hodnoty)		CA/ÚI (odporúčané hodnoty)	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
AT	83,78	99,57	64 695	115 560	54 220	115 031	685,87	1 319,04	574,70	1 313,19
BE	30,63	100,00	155 814	156 695	47 694	156 695	6 930,12	11 096,10	2 122,24	11 096,10
BG	100,00	45,59	2 610	70 217	2 610	32 011	264,40	1 360,19	264,40	620,14
CY	61,84	100,00	9 972	25 017	6 166	25 017	960,64	950,43	594,00	950,43
CZ	57,88	31,08	1 9854	106 539	11 478	33 109	657,04	3 110,26	380,04	966,67
DE	100,00	100,00	485 300	795 162	485 300	795 162	2 481,67	4 422,28	2 481,67	4 422,28
DK	49,09	74,15	123 016	128 240	60 413	95 061	2 238,07	7 111,46	1 098,76	5 272,78
EE	100,00	83,07	5 940	30 651	5 940	25 461	624,57	1 118,82	624,57	929,43
ES	21,31	27,86	900 045	1 420 064	133 637	395 528	3 409,83	10 874,84	726,64	3 029,38
FI	100,00	100,00	76 332	205 241	76 332	205 241	442,86	1 964,39	442,86	1 964,39
FR	41,82	74,37	941 177	1 501 895	288 803	920 920	3 589,47	12 714,44	1 501,15	9 454,76
GB	100,00	100,00	808 666	1 424 936	808 666	1 424 936	12 897,7	2 6027,6	12 897,7	2 6027,6
GR	36,84	40,35	42 717	93 229	15 715	37 627	3 323,54	8 221,93	1 224,44	3 318,20
HU	91,83	56,75	29 346	88 813	20 264	50 418	160,14	608,06	147,11	345,22
IR	100,00	100,00	49 335	156 298	49 335	156 298	4 796,66	2 734,92	4 796,66	2 734,92
IT	37,64	45,89	811 316	1 306 349	156 148	491 396	2 196,90	5 391,29	826,90	2 473,86
LT	100,00	100,00	9 947	39 459	9 947	39 459	85,51	268,43	85,51	268,43
LU	100,00	100,00	6 754	13 204	6 754	13 204	3 716,50	7 811,96	3 716,50	7 811,96
LV	100,00	98,06	7 699	25 912	7 699	25 408	186,64	950,40	186,64	931,95
MT	94,23	100,00	6 277	12 179	5 914	12 179	716,45	1 974,61	675,01	1 974,61
NL	78,36	85,09	172 915	287 411	135 502	244 540	2 256,52	8 462,51	1 768,21	4 650,30
PL	84,70	100,00	119 373	284 907	21 824	284 907	176,09	442,58	149,10	442,58
PT	44,07	50,65	114 099	291 376	50 297	147 568	1 407,68	3 701,15	620,50	1 874,51
RO	86,18	26,81	4 038	135 926	3 461	36 402	340,91	2 238,06	293,71	599,81
SE	61,14	65,51	90 790	208 797	55 507	136 777	3 035,50	6 516,69	1 855,84	4 160,57
SI	100,00	80,68	26 800	36 014	26 800	29 049	193,28	2 093,99	193,28	1 689,14
SK	38,04	56,28	14 368	42 159	5 454	23 726	932,43	1 871,78	354,71	1 053,36

* AT – Rakúsko, BE – Belgicko, BG – Bulharsko, CY – Cyprus, CZ – Česká republika, DE – Nemecko, DK – Dánsko, EE – Estónsko, ES – Španielsko, FI – Fínsko, FR – Francúzsko, GB – Veľká Británia, GR – Grécko, HU – Maďarsko, IR – Írsko, IT – Taliansko, LT – Litva, LU – Luxembursko, LV – Lotyšsko, MT – Malta, NL – Holandsko, PL – Poľsko, PT – Portugalsko, RO – Rumunsko, SE –Švédsko, SI – Slovinsko, SK – Slovenská republika.

Zdroj: vlastné výpočty

modelu môžeme povedať, že dôvodom neefektívnosti bola vysoká úroveň vstupov pri danej úrovni výstupov, ktorá sa v roku 2011 ešte viac prehĺbila. Kým v roku 2001 bolo pre posun na hranicu efektívnosti potrebné znížiť hodnoty vstupov približne o 14 %, v roku 2011 by na dosiahnutie efektívnosti bolo potrebné znížiť vstupy už o viac ako 73 %. V danej skupine analyzovaných bankových sektorov a pri definovaných a použitých vstupných a výstupných premenných, by teda pre efektívne fungovanie Rumunského bankového sektora bolo potrebné znížiť v roku 2011 počet bankomatov a terminálov na odporúčanú hodnotu 36 403 z pôvodnej hodnoty 135 926 a hodnotu celkových aktív pripadajúcu na úverovú inštitúciu na odporúčanú hodnotu približne 600 mil. EUR z pôvodnej hodnoty 2 238 mil. EUR. Pri nezmenenej hodnote výstupov by táto redukcia na strane vstupov mala viesť k dosiahnutiu hranice efektívnosti. Hoci teda Rumunsko dosiahlo prvé miesto v percentuálnej zmene počtu bankomatov a terminálov medzi sledovanými obdobiami (nárast počtu zariadení o viac ako 3 000 %), nemôžeme povedať, že by to pozitívne vplývalo na rast efektívnosti. Dôvodom je práve fakt, že rast počtu nebol krytý rovnako veľkým rastom hodnoty platieb realizovaných cez túto sieť. Hoci aj percentuálny nárast hodnoty platieb medzi sledovanými obdobiami (nárast o 2 570 %) vysoko prevyšuje priemer ostatných krajín, jeho výška nebola postačujúca.

Rovnaká situácia ako v Rumunsku, bola aj v Bulharsku. Ide o rozvíjajúce sa krajiny, ekonomicky na približne rovnakej úrovni (sledované ukazovateľom HDP na obyvateľa v parite kúpnej sily; Zdroj: Eurostat), ktoré v roku 2007 vstúpili do EÚ. Aj v Bulharsku bol v sledovanom období zaznamenaný pokles miery BCC efektívnosti meranej vstupne orientovaným modelom, pričom dochádza dokonca k strate efektívnosti. Kým v roku 2001 Bulharsko patrilo medzi krajiny umiestnené na hranici efektívnosti, v roku 2011 ho môžeme zaradiť medzi krajiny s podpriemernou mierou efektívnosti. V roku 2011 dosahovala miera efektívnosti Bulharska iba 45,59 %, čo predstavuje pokles miery efektívnosti o viac ako 54 % v porovnaní s rokom 2001. Rovnako ako vo všetkých rozvíjajúcich sa krajinách aj Bulharsko zaznamenalo medzi sledovanými obdobiami výrazný rast počtu bankomatov a terminálov, kde počet uvedených zariadení vzrástol z 2 610 na 70 217 zariadení (rast o viac ako 2 590 %). Týmto rastom počtu zariadení medzi rokmi 2001 a 2011 sa Bulharsko zaradilo na druhé miesto v súbore krajín pri sledovaní zmeny uvedeného ukazovateľa medzi analyzovanými odbobiami. Tento obrovský nárast však nebol krytý rastom hodnoty platieb realizovaných prostredníctvom týchto zariadení. Kým počet vzrástol o spomínaných 2 590 %, hodnota platieb pripadajúca na obyvateľa vzrástla iba o 1 732 %. Počet zariadení teda rástol rýchlejšie ako miera ich využívania klientmi bánk. V danej skupine analyzovaných krajín a pri uvažovaných vstupoch a výstupoch, by bol pri nezmenenej úrovni výstupov pre efektívne fungovanie bulharského bankového sektora v roku 2011 postačujúci počet ATM a EFTPOS terminálov v rozsahu 32 011 zariadení namiesto 70 217. Pri danom raste celkových aktív pripadajúcich na úverovú inštitúciu a dosiahnutom raste na strane výstupov medzi sledovanými obdobiami, by uvedený rast počtu zariadení vedel bulharskému bankovému sektoru zaručiť zotrvanie sa na hranici efektívnosti.

Medzi krajiny, ktoré zaznamenali pozitívny posun v oblasti efektívnosti patrilo aj Slovensko. Kým v roku 2001 bola miera efektívnosti iba 38,04 %, v roku 2011 už dosahuje hodnotu 56,28 %. K rastu efektívnosti pozitívne prispel rast počtu ATM a EFTPOS terminálov, ktorý bol zároveň doplnený výrazným rastom miery využívania týchto zariadení zo strany klientov. Kým v roku 2001 predstavovala hodnota platieb cez tieto zaradenia pripadajúca na obyvateľa iba 58,03 EUR, v roku 2011 už hodnota platieb dosahuje úroveň 2 645,- EUR. Ide teda o nárast hodnoty platieb medzi sledovanými obdobiami o viac ako 4 459 %, čím sa Slovenská republika zaradila na druhé miesto v súbore krajín pri sledovaní zmeny uvedeného ukazovateľa medzi analyzovanými obdobiami. K rastu efektívnosti pozitívne prispel aj rast počtu ATM a EFTPOS terminálov, kde medzi rokmi 2001 a 2011 vzrástol počet týchto zariadení o viac ako 190 %. Kým v roku 2001 mohli klienti našich bánk využívať 14 368 týchto zariadení, v roku 2011 im ich už svoje služby ponúkalo 42 159. Dôležité je však to, že tento rozvoj počtu zariadení bol zároveň podporený aj rastom miery ich využívania zo strany klientov bánk.

Na prvom mieste pri sledovaní zmeny hodnoty platieb medzi rokmi 2001 a 2011 sa umiestnila Litva, kde hodnota platieb vzrástla o viac 5 000 %.

Tento obrovský nárast hodnoty platieb sprevádzaný rastom počtu ATM a EFTPOS terminálov skoro o 300 % pomohol Litve udržať sa v skupine efektívnych bankových sektorov.

V krajinách kde teda dochádzalo k najväčšiemu rozvoju počtu bankomatov a terminálov, zákonite nedochádza aj k rastu efektívnosti. Dôvodom tohto javu je fakt, že podmienkou pre rast efektívnosti nie je iba rast na strane vstupov zo strany banky, ale musí ísť aj o rast na strane výstupov, teda rast miery využívania týchto zariadení klientmi bánk premietnutý do objemu realizovaných platieb. Úlohou banky teda nie je iba zavádzať nové technológie, ale musí ich aj propagovať a zvyšovať ich obľubu a mieru využívania klientmi. Ak totižto banky neprimerane zvyšujú počet ATM a EFTPOS zariadení, pričom toto zvyšovanie nezodpovedá miere ich využívania zo strany klientov, môže to banke namiesto rastu efektívnosti priniesť pravý opak.

Miera efektívnosti predstavuje schopnosť bánk, resp. bankového sektora ako celku, transformovať vstupy na výstupy. Efektívnosť celého bankového sektora je teda ovplyvňovaná viacerými faktormi a ich vývojom. Medzi faktory, ktoré prispievajú k úrovni dosahovanej efektívnosti patria aj zvolené vstupné a výstupné charakteristiky. Miera, akou jednotlivé vstupy a výstupy prispievajú k hodnote dosahovanej efektívnosti, je vyjadrená aj prostredníctvom optimálnych váh získaných riešením maximalizačných úloh lineárneho programovania (2).

Váhy priradené jednotlivým vstupom a výstupom poukazujú na silné a slabé stránky neefektívnych DMU. Pri výpočte optimálnych váh vstupných a výstupných charakteristík dochádza k situácii, že model určil váhy niektorých z faktorov rovné nule, alebo blížiace sa k nule. V tomto prípade môžeme hovoriť, o slabých stránkach, alebo o faktoroch, ktoré znižujú efektívnosť. Na druhej strane, faktory, ktorých optimálne hodnoty váh dosahujú najvyššiu úroveň (max.1) môžeme považovať za silné stránky, ktoré prispievajú k zvyšovaniu efektívnosti. [12]

Význam vplyvu jednotlivých vstupných a výstupných faktorov na dosahovanú efektívnosť môžeme ilustrovať na príklade odhadnutej BCC efektívnosti v roku 2011. Na základe priemerných hodnôt váh pridelených použitým vstupom a výstupom môžeme povedať, že počet ATM a EFTPOS terminálov a hodnota platieb realizovaných prostredníctvom nich patrili medzi silné stránky a pozitívnym spôsobom prispeli k úrovni dosahovanej efektívnosti. V prípade obidvoch silných stánok model priradil štyrom analyzovaným bankovým sektorom váhu týchto vstupov dokonca na maximálnej úrovni 1. Pri výstupe hodnota platieb model priradil ďalším 7 hodnoteným bankovým sektorom váhu vyššiu ako 0,8. Pri vstupe počet zariadení bola váha vyššia ako 0,8 zaznamenaná ešte v prípade ďalších trhoch bankových sektorov. Môžeme teda predpokladať, že k úrovni dosahovanej efektívnosti v skupine analyzovaných bankových sektorov viac pozitívne prispela hodnota platieb realizovaná cez ATM a EFTPOS terminály.

Z výsledkov analýzy ďalej môžeme vyčítať, že efektívnosť najviac negatívne ovplyvnila nevhodné množstvo vkladov, čo dokazuje aj fakt, že až v štrnástich prípadoch dosiahla váha tohto výstupu nulovú hodnotu.

Posúdenie významnosti vplyvu jednotlivých vstupných a výstupných premenných na dosahovanú efektívnosť bolo prevedené prostredníctvom určenia optimálnych váh vstupov a výstupov. Dané tvrdenia o vplyve jednotlivých vstupov a výstupov na dosahovanú efektívnosť môžeme overiť prostredníctvom regresnej analýzy. Regresnou analýzou vzťahu použitých vstupov, výstupov a dosahovanej efektívnosti môžeme posúdiť dominantnosť vplyvu jednotlivých premenných na dosahovanú efektívnosť. Celkové zhodnotenie regresného modelu zobrazuje Tab. 4. Na celkové zhodnotenie regresného modelu bol použitý koeficient determinácie a F-štatistika významnosti. Podľa hodnoty koeficientu determinácie (R^2) môžeme povedať, že regresný model vysvetľuje 37,48 % variability závislej premennej. Rovnako môžeme povedať, že na hladine významnosti 0,1 je aj model ako celok významný, čo dokazuje hodnota testovacej F-štatistiky modelu väčšia ako kritická hodnota pre túto testovaciu štatistiku. Podľa hodnoty Významnosti F rovnej 0,061731234, testovanú hypotézu H0 o nezávislosti pozorovaných premenných zamietame. Pravdepodobnosť chyby, ktorej sa na hladine významnosti 0,1 zamietnutím hypotézy dopustíme je 6,173 %. Na základe hodnoty F-štatistiky celého modelu môžeme na hladine významnosti 0,1 povedať, že regresný model je štatisticky významný, resp. aspoň jedna z vysvetľujúcich premenných významne ovplyvňuje dosahovanú BCC efektívnosť.

Tab. 4: Regresná štatistika modelu

Regresná štatistika	
Násobené R	0,61220081
Hodnota spoľahlivosti (R^2)	0,374789832
Nastavená hodnota spoľahlivosti R	0,225930268
Chyba strednej hodnoty	0,233596926
Pozorovania	27

ANOVA	*rozdiel*	*SS*	*MS*	*F*	*Významnosť F*
Regresia	5	0,686934466	0,137387	2,517741	0,061731234
Rezídua	21	1,145917997	0,054568		
Celkom	26	1,832852463			

Zdroj: vlastné výpočty

Výsledky regresnej analýzy medzi použitými vstupmi, výstupmi a hodnotou BCC efektívnosti v roku 2011 zobrazuje Tab. 5. Podľa odhadnutých p-hodnôt pre jednotlivé regresné premenné na hladine významnosti 0,1 môžeme vidieť, že počet zariadení a hodnota platieb realizovaná prostredníctvom nich, patrili v roku 2011 medzi faktory so signifikantým vplyvom na dosahovanú efektívnosť meranú prostredníctvom BCC modelu. Najnižšia p-hodnota bola nameraná pri premennej hodnota platieb, čím sa potvrdil aj jej vyšší vplyv na dosahovanú efektívnosť. Odhad koeficientov regresného modelu nám teda potvrdil tvrdenia získané analýzou optimálnych váh. Signifikantnosť vplyvu počtu zariadení a hodnoty realizovanej prostredníctvom nich sa potvrdili aj prostredníctvom F-testu štatistickej významnosti individuálne medzi jednotlivými vstupnými, výstupnými premennými a dosahovanou efektívnosťou. Iba v prípade dvoch vyššie uvedených premenných bola hodnota testovacej F-štatistiky väčšia ako kritická hodnota pre túto testovaciu štatistiku. V prípade počtu a hodnoty platieb realizovanej cez ATM a EFTPOS terminály sa zamieta nulová hypotéza o štatistickej nevýznamnosti vysvetľujúcej premennej na vysvetlenie variability vysvetľovanej premennej. Znamená to teda, že prínos počtu zariadení a hodnoty platieb realizovanej prostredníctvom nich je štatisticky významný.

Tab. 5: Regresná štatistika, F-test, miera korelácie

	Regresná analýza			**F – test**		**Korelačný**
	Koeficienty	**t štatistika**	**P-hodnota**	**F**	**Významnosť F**	**koeficient**
Intercept	0,607622	6,187795957	3,87E-06			
P ATM a POS	-4,43E-07	-2,035788884	**0,054583**	**0,694336933**	**0,412584**	-0,164386
CA/ÚI	-1,25E-05	-0,864644846	0,397003	0,007822895	0,930226	0,017687
H ATM a POS	4,34E-05	2,075434006	**0,050422**	**4,015276673**	**0,05604**	**0,372001**
V	2,07E-07	0,520314988	0,608287	0,143858594	0,707677	0,075640
Ú	-5,21E-08	-0,134926824	0,893955	0,133173671	0,718233	0,072792

Zdroj: vlastné výpočty

Keďže vstupné a výstupné premenné môžu byť vyjadrené v rôznych jednotkách nemôžeme tvrdiť, že faktor, ktorému prislúcha najvyššia hodnota regresného koeficientu má najvyšší vplyv na analyzovaný výstup. Premennú, ktorá má najväčší vplyv na analyzovaný výstup (BCC efektívnosť) určíme podľa hodnôt čiastkových korelačných koeficientov medzi zvoleným determinantom a odhadovanou efektívnosťou. Na základe korelačných koeficientov vidíme, že

najväčší vplyv na dosahovanú efektívnosť mala naozaj hodnota platieb realizovaná cez ATM a EFTPOS terminály pripadajúca na jedného obyvateľa. Hodnota celkových aktív, vkladov a úverov mala na BCC efektívnosť v roku 2011 skoro nulový vplyv, čo potvrdzuje aj výsledky regresnej analýzy, kde dané faktory boli zaradené do skupiny bez signifikantného vplyvu.

Záver

K dynamickému rozvoju využívania platobných kariet dochádza v posledných rokoch vo všetkých členských štátoch EÚ, čo dokazuje rast počtu ATM a EFTPOS terminálov, aj hodnoty platieb realizovaných prostredníctvom nich. Najväčší, možno povedať až extrémne vysoký rast hodnoty platieb realizovaných cez bankomaty a terminály pripadajúci na jedného obyvateľa sme mohli sledovať v Bulharsku, Litve, Rumunsku a na Slovensku. Spomedzi uvedených krajín Bulharsko a Rumunsko patrili aj medzi krajiny s najväčším rozvojom počtu spomínaných zariadení.

Cieľom tohto príspevku bolo analyzovať, či rozvoj využívania platobných kariet mal pozitívny vplyv na efektívnosť bankových sektorov krajín EÚ. Úlohou bolo definovať vstupnú a výstupnú štruktúru bankových sektorov tak, aby bolo možné posúdiť efekt vplyvu využívania platobných kariet na efektívnosť bankového sektora meranú metódou DEA. Východiskom analýzy bol stav vybraných premenných (počet ATM a EFTPOS terminálov, celkové aktíva bankového sektora pripadajúce na jednu úverovú inštitúciu, hodnota platieb realizovaných cez ATM a EFTPOS terminály pripadajúca na jedného obyvateľa; hodnota vkladov a hodnota úverov) v 27 bankových sektoroch krajín EÚ v rokoch 2001 a 2011. Uvažované premenné bankových sektorov v uvedených rokoch sa stali základom pri hodnotení efektívnosti prostredníctvom CCR a BCC vstupne orientovaného modelu. Výpočtom miery efektívnosti sme zistili, ktoré bankové sektory boli pozitívne ovplyvnené rozvojom využívania platobných kariet. Na základe výsledkov získaných CCR a BCC modelom môžeme povedať, že krajiny ako Belgicko, Cyprus, Dánsko, Francúzsko, Taliansko, Malta, Poľsko a Slovensko boli pozitívne ovplyvnené vývojom v oblasti využívania platobných kariet. V prípade týchto krajín bol percentuálny rast počtu bankomatov a terminálov prevýšený percentuálnym rastom hodnoty realizovaných platieb, čo sa prejavilo v raste miery dosahovanej efektívnosti v daných krajinách. Na druhej strane v krajinách ako Bulharsko, Rumunsko, Česká republika, Estónsko, Maďarsko, dochádza k poklesu efektívnosti v dôsledku rýchlejšieho tempa rastu počtu ATM a EFTPOS terminálov, ktorý prevýšil tempo rast hodnoty platieb realizovaných prostredníctvom nich. V skupine analyzovaných krajín boli aj také, ktoré sa svojou štruktúrou vstupných a výstupných parametrov v obidvoch rokoch dokázali udržať na hranici efektívnosti (napr. Fínsko, Nemecko, Írsko, Litva, Luxembursko, Veľká Británia). Výsledky DEA analýzy teda potvrdili predpoklad, že ak rastúci počet zariadení, nie je podporený, možno povedať až prevýšený, ich využívaním zo strany klientov, bude to mať na bankový sektor negatívny vplyv v podobe straty efektívnosti.

Výhodou DEA analýzy je, že okrem merania úrovne dosahovanej efektívnosti, prináša aj odporúčania o tom, aké množstvo vstupov a výstupov je potrebné na dosiahnutie hranice efektívnosti. Prostredníctvom vstupne orientovaných modelov, boli teda navrhnuté odporúčania o hodnotách vstupov, ktoré by neefektívnym bankovým sektorom mali pomôcť posunúť sa do skupiny efektívnych krajín.

Prostredníctvom hodnoty optimálnych váh pridelených DEA modelom bolo zistené, že dve premenné a to počet zariadení a hodnota platieb realizovaná prostredníctvom nich, patrili medzi silné stránky, ktoré pozitívne prispeli k úrovni dosahovanej efektívnosti bankových sektorov v roku 2011. Signifikantný vplyv uvedených dvoch parametrov potvrdila aj regresná a korelačná analýza.

V krajinách kde teda dochádzalo k najväčšiemu rozvoju počtu bankomatov a terminálov, zákonite nedochádza aj k rastu efektívnosti. Dôvodom tohto javu je fakt, že podmienkou pre rast efektívnosti nie je iba rast na strane vstupov zo strany banky, ale musí ísť aj o rast na strane výstupov, teda rast miery využívania týchto zariadení klientmi bánk premietnutý do objemu realizovaných platieb. Úlohou banky teda nie je iba zavádzať nové technológie, ale musí ich aj propagovať a zvyšovať ich obľubu a mieru využívania klientmi. Ak totižto banky neprimerane zvyšujú počet ATM a EFTPOS zariadení, pričom toto zvyšovanie nezodpovedá miere ich využívania zo strany klientov, môže to banke namiesto rastu efektívnosti priniesť pravý opak.

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Abstract

THE USE OF CREDIT CARDS AND BANK EFFICIENCY

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The dynamic development of the use of credit cards there in recent years in all EU Member States, as evidenced by the growth of ATM, EFTPOS terminals, and the value of payments made by them. The aim of this paper was to analyse whether the development of the use of payment cards have a positive impact on the efficiency of the EU banking sector measured by DEA models. The starting point was the status of selected variables (number of ATM and EFTPOS terminals, total assets to a credit institution, the value of payments made via ATM and EFTPOS terminals per capita, the value of deposits and loans) in the banking sectors of the 27 EU countries in 2001 and 2011. Considered variables in these years became the basis for evaluating the effectiveness by CCR and BCC input oriented model. Calculation of the efficiency score was found to Belgium, Cyprus, Denmark, France, Italy, Malta, Poland and Slovakia were positively influenced by the use of credit cards. For these countries, the percentage increase in the number of ATMs and terminals exceeded the percentage increase in the value of payments made, which resulted in the growth of efficiency score in those countries. On the other hand, in countries such as Bulgaria, Romania, Czech Republic, Estonia, Hungary, there is a decrease in efficiency due to higher growth in the number of ATM and terminals, compared with the growth rate of the value of payments made by them. In the group of analysed countries, there were the countries with such a structure of input and output parameters in both years were able to maintain the effectiveness (Finland, Germany, Ireland, Italy, Luxembourg, and United Kingdom). DEA analysis results confirm the assumption that if an increasing number of devices aren't supported by the use of the clients, it will have the negative impact of the banking sector in the form of lost efficiency. The results of the correlation and regression analysis confirmed a significant impact of parameters (number of ATM and terminals; values of payments) to achieved efficiency.

Key Words: *Payment cards, efficiency, DEA models.*

JEL Classification: *D61, D81, G21.*

THE EFFECTS OF CO-BRAND MARKETING MIX STRATEGIES ON CUSTOMER SATISFACTION, TRUST AND LOYALTY FOR MEDIUM AND SMALL TRADERS AND MANUFACTURERS

Ki-Pyeong Kim, Yoo-Oh Kim, Min-Kweon Lee, Myoung-Kil Youn

Introduction

Due to Korea's recent economic depression, polarised consumption, and intensifying competition, its medium and small traders and manufacturers find it increasingly difficult to compete for sales in the domestic and foreign markets. The reality is that their survival is being threatened by the weakness of their brand power compared to that of large businesses and global enterprises, and a global problem is particularly acute in Korea because of the nature of its economy.

Therefore, this study addresses the following questions. First, are there any methods for small traders and manufacturers to achieve competitiveness? We shall try to find a way for them to overcome the inferiority of scale and secure competitiveness through systematization among similar business types.

Second, would it be possible to make co-branding among small stores necessary? We shall also discover what marketing strategy is necessary for co-branded businesses.

Third, what effects does co-branding have on consumers? We shall perform an empirical analysis that demonstrates whether the Co-Brand Strategy can induce trust and customer satisfaction from customers.

Fourth, can customer loyalty be strengthened through co-branding? We shall perform a study on whether the Co-Brand Marketing Strategy affects customer loyalty.

This study closely examines the performance of co-brand marketing activity based on the problems presented above and presents a strategic co-brand alternative for medium and small traders and manufacturers.

This paper is clearly different from existing studies targeting medium and small businesses since it focuses on medium and small traders and manufacturers. This significance of this study is in its assertion that the co-brand strategy can become a method for medium and small traders and manufacturers facing difficulty to gain competitiveness.

1. Study Method

1.1 Study Model and Hypotheses

In social sciences, finding a theory to fit every circumstance is rather difficult. It is almost impossible to find a dominant law by objectifying conditions with all their complexities because the physical, mental, socioeconomic, and environmental conditions of the subjects, as well as their desires, are diverse and variable. This study model was designed to systematise correlations and levels of influence by finding the factors corresponding to the effect of the co-brand Marketing Mix Strategy on customer satisfaction and loyalty.

Accordingly, this study will try to verify the effects which the Co-brand Marketing Mix Strategy pursued by medium and small traders and manufacturers have on customer satisfaction and loyalty through empirical analysis. A study model has been set up for this purpose.

The hypotheses of this study are as follows:

Hypothesis 1. The co-brand Marketing-Mix Strategy will have a significant effect on Customer Satisfaction.

Hypothesis 1-1. There will be a more significant effect on Customer Satisfaction as the co-brand price decreases.

Hypothesis 1-2. There will be a more significant effect on Customer Satisfaction as the location of the co-brand improves.

Hypothesis 1-3. There will be a more significant effect on Customer Satisfaction as the quality standard of the co-brand rises.

Hypothesis 1-4. There will be a more significant effect on Customer Satisfaction as the number of co-brand promotions rises.

Hypothesis 2. The co-brand Marketing-Mix Strategy will have a significant effect on Trust.

Hypothesis 2-1. There will be a more significant effect on Trust as the co-brand price decreases.

Hypothesis 2-2. There will be a more significant effect on Trust as the location of the co-brand improves.

Hypothesis 2-3. There will be a more significant effect on Trust as the quality standard of the co-brand rises.

Hypothesis 2-4. There will be a more significant effect on Trust as the number of co-brand promotions rises.

Hypothesis 3. Customer Satisfaction will have a significant effect on Trust.

Hypothesis 4. Customer Satisfaction will have a significant effect on Loyalties.

Hypothesis 4-1. Customer Satisfaction will have a significant effect on Repurchase Intentions.

Hypothesis 4-2. Customer Satisfaction will have a significant effect on Recommendation Intentions.

Hypothesis 5. Trust will have a significant effect on Loyalties.

Hypothesis 5-1. Trust will have a significant effect on Repurchase Intentions.

Hypothesis 5-2. Trust will have a significant effect on Recommendation Intentions.

1.2 Design of Survey

1.2.1 Technical Definition and Measurement of Variables

Empirical studies tend to use empirical or quantitative analyses [8], [11], [12]. This analysis will use only quantitative analyses. To that end, we must define the concepts to be measured by the empirical survey.

The Co-Brand Marketing Strategy has spread to many fields, with the Kiho Trading Ltd. becoming a business leader and making a success through its company brand name 'Kapachi' and partnerships with medium and small manufacturers. Making a co-brand secures customer awareness by publicising the brand inexpensively with government support. Therefore, as the Co-Brand Marketing Strategy can be useful for the price, sales promotion, place, quality, and promotion strategies of medium and small businesses, Price, Place, Quality, and Promotion have been classified as sub-fields in order to identify the effect on them of co-branding.

This study organises its questions based on previous studies [4]. The questions have been measured on a 5-point Likert scale spanning from 1 ('not at all') to 5 ('very much so').

Purchase satisfaction represents the ultimate purpose of consumption activity. The concept of 'satisfaction' refers to the follow-up stage of awareness [5]. This study has reorganized the data of a previous study [7], [10] in order to measure purchase satisfaction on a 5-point Likert scale running from 1 ('not at all') to 5 ('very much so').

Trust can be defined as the mental act of trying to bear insufficiency through the optimistic belief in another's intentions or behaviour or the positive intention of having a conviction. Consumer trust in this study was conceptualised by reorganizing for this study a tool used by a previous study [6].

Jacoby & Kyner [3] define brand loyalty as continued biased purchase behaviour toward one or more brands among many alternatives. When facing fierce competition, maintaining customer loyalty becomes the key factor of success. Many studies on the concept of loyalty have been performed in the field of consumer behaviour. In this study, the concept of 'loyalty' has been reorganised with 'reuse intentions' and 'oral transmission intentions' as sub-fields

based on the tool of previous studies [1], [2] and is measured on a 5-point Likert scale spanning from 1 ('not at all') to 5 ('very much so').

1.2.2 Organization of Questionnaire

The questionnaire was organized as shown in Tab. 1 below.

Tab. 1: Organization of Questionnaire

Field and Details		Question No.	No. of Questions
Co-Brand Marketing Factor	Price Place Quality Promotion	I. 1,2 I. 3,4,6,8 I. 5,9,10 I. 7,11,12,13	13
Customer Satisfaction	Selection of Co-Brand and Satisfaction of Expected value	II. 1–10	10
Trust	Overall Trust in Co-Brand	III. 1–5	5
Loyalties	Repurchase Intentions	IV. 1–5 IV. 6–9	9
Purchase Conditions	Purchase Cost or Product Type, etc.	V. 1–6	6
General Details	Gender, age, education, job and income standard, etc.	VII. 1–6	6

Source: own

1.2.3 Analysis Method

The statistics processing of data gathered in this investigation was performed using the SPSS 12.0 for Windows Statistics Package and the AMOS 7.0 Program, including data coding and data cleaning processes.

In order to identify the common characteristics in the sample, a frequency analysis was performed. Moreover, an exploratory factor analysis using SPSS and a confirmatory factor analysis using AMOS were performed in order to analyse the validity of the measuring tool. In order to identify the reliability of this study a reliability analysis was performed using Cronbach's α.

In order to analyse the suitability of the study model, the causal relationship among variables, and the path effect of questionnaire, a path-analysis was performed using the AMOS 7.0 Program.

2. Empirical Analysis

2.1 Validation of Measuring Tool

The high reliability of a measuring tool does not guarantee high validity. The higher its validity is, however, the higher the reliability is. Therefore, a validity analysis of the measuring tools was performed for this study. The validity of the measured items was raised through the exploratory factor analysis and confirmatory factor analysis, while the reliability of the descaled factors was raised through the reliability analysis. The measuring items with confirmed validity and reliability were added and averaged depending on the variable to be considered as basic data of the structural equation model analysis.

2.1.1 Co-Brand

The first factor analysis on co-brand marketing discovered that nos. 7, 8 and 9 bound the theoretically set factor differently. While the factor loading value of these questions was .05 or higher, we found the optimum factors through elimination, as the corresponding questions produced closer relationships with questions with different factors from the ones that had been theorised. The details that did not fit the content have been removed, while nos. 7, 8, and 9 have also been removed. As shown in Tab. 2, 4 factors have been extracted, and the

total coefficient of determination on the 4 factor groups was 73.87%. If we examine this, factor 1 can be defined as Place, factor 2 as Quality, factor 3 as Promotion, and factor 4 as Price.

Tab. 2: Exploratory Factor Analysis Result on Co-Brand

Question No.	Factor 1	Factor 2	Factor 3	Factor 4
	Place	Quality	Promotion	Price
Question 6	.858	.015	.167	.020
Question 3	.843	.062	.156	.150
Question 4	.600	.498	.087	.098
Question 10	.229	.783	.077	.188
Question 5	-.094	.714	.306	.291
Question 12	.287	.219	.743	.216
Question 11	.224	.048	.701	.480
Question 13	.066	.554	.628	.021
Question 1	.117	.285	.086	.868
Question 2	.083	.150	.423	.747
Unique Value	2.025	1.836	1.784	1.742
Coefficient of Determination	20.25	18.36	17.84	17.42
Accumulated Coefficient of Determination	20.25	38.61	56.45	73.87

Source: own

2.1.2 Loyalties

As shown in Tab. 3, 2 factors were extracted after eliminating Question 5, which was bound differently from the theoretically set factor after the factor analysis of the Loyalties item. The total coefficient of determination on 2 factor groups was 66.89%. Upon examination, Factor 1 can be named 'recommendation intention', and Factor 2 can be named 'repurchase intention'.

Tab. 3: Exploratory Factor Analysis on Loyalties

Question No.	Factor 1	Factor 2
	Recommendation Intention	Repurchase Intention
Question 8	.835	.204
Question 6	.817	.206
Question 7	.797	.213
Question 9	.710	.315
Question 3	.084	.802
Question 4	.215	.795
Question 1	.423	.718
Question 2	.448	.631
Unique Value	2.936	2.416
Coefficient of Determination	36.70	30.20
Accumulated Coefficient of Determination	36.70	66.89

Source: own

2.1.3 Customer Satisfaction

As shown in Tab. 4, only 1 factor was extracted for Customer Satisfaction because there was no sub-factor and the total coefficient of determination was 46.40%.

Tab. 4: Exploratory Factor Analysis on Customer Satisfaction

Question No.	Factor 1
	Customer Satisfaction
Question 9	.710
Question 8	.707
Question 2	.707
Question 1	.704
Question 7	.701
Question 10	.697
Question 6	.685
Question 3	.640
Question 4	.632
Question 5	.619
Unique Value	4.640
Coefficient of Determination	46.40
Accumulated Coefficient of Determination	46.40

※ Values above are component matrix.

Source: own

2.1.4 Trust

As shown in Tab. 5, only 1 factor was extracted for Trust because there was no sub-factor and the total coefficient of determination was 58.03%.

Tab. 5: Exploratory Factor Analysis on Trust

Question No.	Factor 1
	Reliability
Question 4	.819
Question 3	.797
Question 1	.790
Question 2	.723
Question 5	.670
Unique Value	2.902
Coefficient of Determination	58.03
Accumulated Coefficient of Determination	58.03

※ Values above are component matrix.

Source: own

2.2 Reliability Analysis

Reliability among variables is measured through test-retest reliability, alternative-form reliability, split-half reliability, and internal consistency reliability.

In this study, internal consistency, the typical method of evaluating reliability among questions designed as plural numbers, will be applied in order to measure specific variables. The Cronbach's Alpha, or the reliability coefficient Alpha (α), a value indicating internal consistency, is used to discover whether the test questions are composed of homogeneous factors based on an average correlation among the variables in the test.

Nunnally [9] insists that a Cronbach Alpha value of 0.6 or higher is enough in the exploratory field of study, must be 0.80 in basic field, and must be 0.90 or higher in the applied field of study. Ven de Ven & Ferry [13] also generalise that the reliability of a measuring tool is sound if the Cronbach Alpha value is 0.60 or higher.

As shown in Tab. 6, a reliability analysis was performed on the Co-Brand Marketing-Mix Factor and Loyalties based on the questions derived from the previous factor analysis; their reliability was confirmed, as the Cronbach's Alpha value was shown to be 0.6 or higher.

Tab. 6: Reliability Analysis Results for Measuring Tools

Category		Question No.		Reliability
		First	Final	
Common Brand Marketing Mix	Price	2	2	.755
	Place	4	3	.748
	Quality	3	2	.737
	Promotion	4	3	.617
Customer Satisfaction		10	10	.871
Trust		5	5	.815
Loyalties	Repurchase Intention	5	4	.803
	Recommendation Intention	4	4	.847

Source: own

2.3 Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was performed in this study in order to verify the construct validity. This was performed in order to derive the measurement model for the measured items after completing the exploratory factor analysis and reliability test.

In order to evaluate the suitability of deriving the optimum state of item organization for each stage, the basic Fit value of χ^2 statistics quantity ($p>0.05$ is suitable), the GFI (Goodness of Fit Index: 0.9 or higher is suitable), the AGFI (Adjusted Goodness of Fit Index: 0.9 or higher is suitable), the RMR (Root Mean Square Residual: 0.05 or lower is suitable), the NFI (Normed Fit Index: 0.9 or higher is suitable) and the CFI (Comparative Fit Index: 0.9 or higher is suitable) were used.

Meanwhile, although the standard of χ^2 also must be considered in case the size of sample is large (as the χ^2 value is sensitive to the size of the sample), the suitability of the model must be evaluated by first considering other, higher priority suitability indices.

2.4 Correlation Analysis

Tab. 7 shows the significant positive (+) correlation among all factors through correlation analysis. Customer Satisfaction showed a positive (+) correlation with Price, Place, Promotion, and Quality, while both Repurchase Intention and Recommendation Intention showed a significant positive (+) correlation with Co-Brand Marketing Factor. Among these, Customer Satisfaction showed the highest correlation with Trust (at $r=.780[p<.01]$).

Tab. 7: Correlation Analysis

Category	Price	Place	Quality	Promotion	Customer Satis-faction	Trust	Repurchase Intention	Recommen-dation Intention
Price	1							
Place	.308**	1						
Quality	.509**	.314**	1					
Promotion	.606**	.460**	.576**	1				
Customer Satisfaction	.627**	.262**	.553**	.582**	1			
Trust	.527**	.244**	.545**	.596**	.780**	1		
Repurchase Intention	.482**	.234**	.486**	.474**	.703**	.647**	1	
Recommendation Intention	.363**	.151*	.391**	.404**	.604**	.563**	.597**	1

*p<.05, **p<.01 Source: own

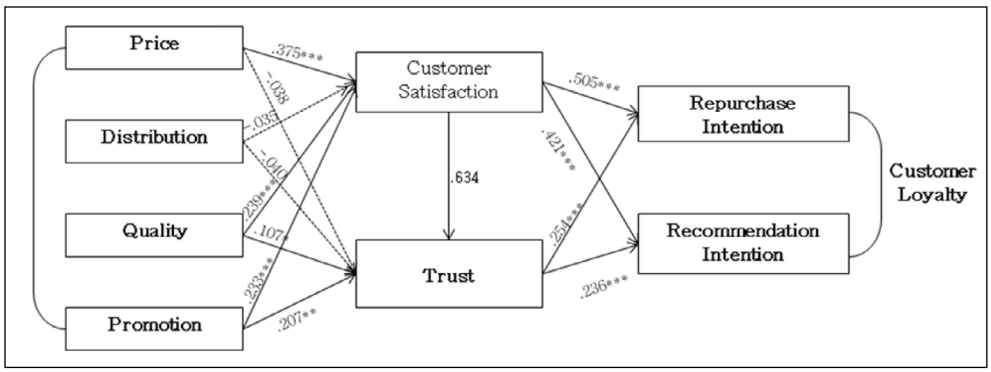
3. Verification of Study Hypotheses

3.1 Verification of Hypotheses

A structural equation model analysis was performed using AMOS 7.0 in order to clarify the relationship between the Co-Brand Marketing Mix Strategy and Customer Satisfaction, Trust, and Loyalties.

In this study, the fitness of the analysed model is determined by the Goodness Fit Index (GFI), the Adjusted Goodness Fit Index (AGFI), the Absolute Fit Measures such as Root Mean square Residual (RMR), and the Incremental Fit Measures such as the Normed Fit Index (NFI) or Comparative Fit Index (CFI).

Fig. 1: Path Diagram of Study Model



Source: own

For the path analysis using AMOS, the researcher must turn the study model into a diagram based on theoretical assumptions. Therefore, the path diagram in Fig. 1 has been designed. The model has been derived under the assumption that the measurement error of the possible related measurement variables will show correlations through the revised index.

The processes above revealed a fitness test result for the final study model of χ^2=22.358 (p<.01), GFI=.976, AGFI=.903, RMR=.012, NFI=.976, and CFI=.985, as shown

in Tab. 21. The GFI, AGIF, NFI, and CFI satisfied the standard values, as anything 0.9 or above is suitable. On the other hand, although the p value must be greater than 0.05 in the case of χ^2, it was determined not to be problematic given other fitness indices, even though it does not reach the standard value as a sensitive index.

3.2 Summary of Empirical Analysis Results

The results of the empirical analysis on this study model and the summaries of the main details are shown in Tab. 8.

Tab 8: Hypothesis Test Summary Table

Hypothesis Classification				Path Coefficient	Standardized Path Coefficient	Standard Error	t Value	P	Rejected/ Selected
Hypothesis 1	Customer Satisfaction	<---	Price	.245	.375	.041	5.982	.000***	Selected
	Customer Satisfaction	<---	Place	-.021	-.035	.033	-.649	.516	Rejected
	Customer Satisfaction	<---	Quality	.185	.239	.047	3.911	.000***	Selected
	Customer Satisfaction	<---	Promotion	.179	.233	.054	3.352	.000***	Selected
Hypothesis 2	Trust	<---	Price	-.031	-.038	.046	-.671	.502	Rejected
	Trust	<---	Place	-.030	-.040	.034	-.872	.383	Rejected
	Trust	<---	Quality	.104	.107	.051	2.019	.043*	Selected
	Trust	<---	Promotion	.200	.207	.057	3.480	.000***	Selected
Hypo-thesis 3	Trust	<---	Customer Satisfaction	.795	.634	.071	11.183	.000***	Selected
Hypothesis 4	Repurchase Intention	<---	Customer Satisfaction	.638	.505	.095	6.711	.000***	Selected
	Recommendation Intention	<---	Customer Satisfaction	.517	.421	.104	4.955	.000***	Selected
Hypothesis 5	Repurchase Intention	<---	Trust	.256	.254	.076	3.378	.000***	Selected
	Recommendation Intention	<---	Trust	.231	.236	.083	2.775	.006**	Selected

Source: own

(1) Effect of the Co-Brand Marketing Mix Strategy on Customer Satisfaction

As shown in the result of testing Hypothesis 1, 'Co-Brand Marketing Mix Strategy (Factor) will have a significant effect on customer satisfaction', the Price (Standardized Path Coefficient=.375, t=5.982, p=.000), Quality (Standardized Path Coefficient=.239, t=3.911, p=.000), Promotion (Standardized Path Coefficient=.233, t=3.352, p=.000), excluding Place, had significant effects. Therefore, Customer Satisfaction was improved as the Price, Quality, and Promotion were evaluated as positive. On the other hand, the Place (Standardized Path Coefficient=-.035, t=-.649, p=.516) was shown not to have significant effect on Customer Satisfaction. Through this, hypotheses 1-1, 1-3 and 1-4 were selected and Hypothesis 1-2 was rejected, so that Hypothesis 1 was selected.

(2) Effect of Co-Brand Marketing Mix Strategy on Trust

As shown in the result of testing Hypothesis 2, 'Co-Brand Marketing Mix Strategy (Factor) will have significant effect on Trust', the Quality (Standardized Path Coefficient=.107, t=2.019, p=.043) and the Promotion (Standardized Path Coefficient=.207, t=3.480, p=.000) had significant effects. Therefore, Trust was shown to be improved as the Quality and Promotion were evaluated as positive. On the other hand, the Price (Standardized Path Coefficient=-.038, t=-.671, p=.502) and Place (Standardized Path Coefficient=-.040, t=-.872, p=.383) were shown not to have significant effects on Trust. Through this, hypotheses 2-2 and 2-3 were selected while 2-1 and 2-2 were rejected, so that Hypothesis 2 was selected.

(3) Effect of Customer Satisfaction on Trust

As shown in the result of testing Hypothesis 3, 'Customer Satisfaction will have a significant effect on Trust', Customer Satisfaction had a significant effect on Standardized Path Coefficient .634(t=11.183, p<.001). Therefore, Trust became higher as Customer Satisfaction became higher, so that Hypothesis 3 was selected.

(4) Effect of Customer Satisfaction on Loyalties

As shown in the result of testing Hypothesis 4, 'Customer Satisfaction will have a significant effect on Loyalties', Customer Satisfaction had significant effects on Repurchase Intention (Standardized Path Coefficient=.505, t=6.711, p=.000) and Recommendation Intention (Standardized Path Coefficient=.421, t=4.955, p=.000). Therefore, Repurchase Intention and Recommendation Intention became higher as Customer Satisfaction became higher, so that Hypothesis 4 was selected.

(5) Effect of Trust on Customer Loyalties

As shown in the result of testing Hypothesis 5, 'Trust will have significant effect on Loyalties', Trust had significant effects on Repurchase Intention (Standardized Path Coefficient=.254, t=3.378, p=.000) and Recommendation Intention (Standardized Path Coefficient=.236, t=2.775, p=.006). Therefore, Repurchase Intention and Recommendation Intention became higher as Trust became higher, so that Hypothesis 5 was selected.

Conclusion

This study has presented a study model in order to clarify the effect of the Co-Brand Marketing Mix Strategy as employed by medium and small traders and manufacturers on customer satisfaction and loyalty after previous studies on the co-brand, the Marketing Mix Strategy, customer satisfaction, trust, and loyalty had been examined to establish hypotheses clarifying the relationships among the variables. A survey was performed on government workers and consumers who deal with medium and small traders and manufacturers. The study's questionnaire derived its sample frequency analysis using the SPSS Statistics program, and reliability and validity tests on the measured items were performed. In order to test the hypotheses, a structural equation model analysis was performed.

The results of the tests on the effect of the Co-Brand Marketing-Mix Strategy on Customer Satisfaction are as follows.

First, testing the hypothesis that 'the Co-Brand Marketing Mix Strategy will have a significant effect on Customer Satisfaction' showed that it had significant effects on Price, Quality, and Promotion (excluding Place): Customer Satisfaction was improved as the Price, Quality, and Promotion of the Co-Brand were evaluated as more positive. It is thus determined that a business plan must be able to manage factors such as the price, quality, and promotion of the brand product in order to enact the Marketing-Mix Strategy.

Second, testing the hypothesis that 'the Co-Brand Marketing Mix Strategy will have a significant effect on Trust' showed that Quality and Promotion had significant effects: Trust was improved as Quality and Promotion of the Co-Brand was evaluated as more positive. It is thus determined that a Marketing Manager's business strategy must allow customers to trust in the brand's Marketing-Mix factors such as quality and promotion.

Third, testing 'Customer Satisfaction will have significant effect on Trust' showed that Customer Satisfaction had a significant effect on the Standardized Path Coefficient: thus, a customer who is satisfied with the product or

service of a business makes it profitable. Satisfaction creates positive results from limited resources and is crucial for individual customers.

Fourth, testing 'Customer Satisfaction will have a significant effect on Loyalties' showed that Customer Satisfaction had significant effects on Repurchase Intention and Recommendation Intention. Thus, the customer will always select the business providing the highest value or benefit; a business can expect continued repurchase when the customer is satisfied through the provision of value or benefit.

Fifth, testing 'Trust will have significant effect on Loyalties', showed that Trust had significant effects on Repurchase Intention and Recommendation Intention. It is thus determined that a strategically well managed brand should be able to strengthen brand loyalty by heightening its reliability thereby increasing its consumer usage and emotional ties to its identity.

Therefore, empirical analysis shows that customer satisfaction, reliability, and co-branding have effects on loyalty. This study has verified that customer satisfaction and trust increase loyalty, inducing repurchase and recommendation intention. In order for medium and small traders and manufacturers to achieve competitiveness, then, their strategic planning must improve customer satisfaction and reliability by consolidating the factors such as product, quality, price, place, and promotion through co-brands.

The results of this study allow medium and small traders and manufacturers, as well as related government agencies, to reflect on the appropriate business strategies. They need to consider the following facts.

First, a management company for the promotion of co-branding should be incorporated as a cooperative cartel. In order to establish such a management company, it is necessary to change the enforcement regulations of 'The Law Related to Monopolization Control and Fair Trades' Article 19 Clause 1 No. 1, No. 6 and No. 8 to prevent limiting the establishment and business activity of any co-brand management company.

Second, approval from the Fair Trade Committee should be necessary to carry out the co-brand business. It must be demonstrated that the management company had not been designed to pursue profit through monopoly but to create social value by improving and maintaining quality and providing instruction in and supervision of service improvement in order to prevent unethical business practices.

Third, for medium and small traders and manufacturers to effectively use marketing strategies (such as cut down of fixed allowance, joint sales, and joint publicity) during the initial market entry of their co-brands, they need to hold presentations, seminars on successful co-brands, co-brand fashion shows, a general exhibition on agricultural co-brand products, and information on the private contract system for government funded co-brands.

Fourth, It is necessary to consolidate the government support policy for Co-Brand. Currently, the Medium and Small-sized Businesses Administration is providing support through programs like the Co-Brand Product Development and Facility Extension, the Co-Brand Design Development Fund, the Raw and Subsidiary Material Purchase Funds for Production of Co-Brand Products, the Export Finances for Promoting Export of Co-Brand Products, the Extension of In organization Funds for Setting Up ERP and SCM, and the Tuition Support for Using CRM. It will be more helpful to medium and small traders and manufacturers if tax exemption support is offered, such as a tax exemption on leases or transfers of Co-Brands or an exemption on investment tax for funds invested as development, Co-Brand publicity, and promotion. Additional policy support projects, such as management instruction and consulting support for the establishment and operation of a co-brand management company will be helpful.

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Abstract

THE EFFECTS OF CO-BRAND MARKETING MIX STRATEGIES ON CUSTOMER SATISFACTION, TRUST AND LOYALTY FOR MEDIUM AND SMALL TRADERS AND MANUFACTURERS

Ki-Pyeong Kim, Yoo-Oh Kim, Min-Kweon Lee, Myoung-Kil Youn

Due to Korea's recent economic depression, polarised consumption, and intensifying competition, its medium and small traders and manufacturers find it increasingly difficult to compete for sales in the domestic and foreign markets. The reality is that their survival is being threatened by the weakness of their brand power compared to that of large businesses and global enterprises. As the brand has become a key method for identifying products and guaranteeing quality owing to the spread of the Internet, the position of medium and small traders and manufacturers with relatively weak brand power has become tenuous. Accordingly, securing the brand marketing function is becoming a crucial factor for those medium and small traders and manufacturers who wish to leap into the middle ranks through sales increases and business stabilization achieved by market extension.

Therefore, this study presents a model that clarifies the effect of the Co-Brand Marketing Mix Strategy when used by medium and small traders and manufacturers on customer satisfaction and loyalty and offers hypotheses to clarify the relationship among variables by examining previous studies on co-brand, the Marketing Mix Strategy, customer satisfaction, trust, and loyalty. The fact that customer satisfaction increases loyalty, thus triggering repurchase intentions and recommendation intentions, will also be verified. This paper is, therefore, clearly different from existing studies targeting large, medium, and small businesses since it focuses on medium and small traders and manufacturers. The significance of this study is in its assertion that the co-brand strategy can become a method for medium and small traders and manufacturers to secure their competitiveness.

Key Words: *Medium and small traders and manufacturers, small- and medium-sized businesses, co-brand marketing mix strategy, customer satisfaction and loyalties.*

JEL Classification: *M31, O53, C44.*

FAKTORY OVLIVŇUJÍCÍ KUPNÍ CHOVÁNÍ SPOTŘEBITELŮ A JEJICH VÝZNAM PRO PODNIKY

Josef Novotný, Pavel Duspiva

Úvod

Faktory, které ovlivňují kupní chování spotřebitelů, jsou pro podniky velice významné, protože na základě těchto faktorů je možné dobře zaměřit obchodní politiku, která by tak měla vést k lepším obchodním výsledkům např. ke zvýšení objemu tržeb, podílu na trhu, rozšíření portfolia klientů.

Každý člověk je spotřebitel a pro každého spotřebitele jsou klíčové jiné faktory, které ovlivňují jeho kupní chování. Teorie i praxe v dnešní době postrádá větší propojení mezi podnikem a spotřebitelem, založené na segmentaci podle vhodných segmentačních kritérií. Na detailní popis segmentačních kritérií upozorňuje Koudelka [18]. V řadě oborů právě toto propojení včetně výzkumů, které by usnadnily rozhodování podniku, je nedostatečné. Existuje řada výzkumů zaměřených na životní styl, oblékání, kouření, stravování apod., ale výzkumy včetně modelů a faktorů ovlivňující kupní chování spotřebitelů u mnohých výrobních odvětví chybí. Na problematiku kupního chování spotřebitelů upozorňuje několik významných autorů jako např. Kotler, Armstrong [16], Solomon [31], Stávková [32]. Předpokladem je, že se spotřebitel bude rozhodovat racionálně a bude maximalizovat celkový užitek, jenž je spojován s kombinací statků a služeb, které výrobek doprovází. Podle Hese [10] je však spotřebitel limitován při svém rozhodování, a to především finančními prostředky. V řadě oborů propojení podniků a spotřebitelů včetně výzkumů jejich chování, které by usnadnily rozhodování managementu podniku, je nedostatečné.

Existuje řada výzkumů na českém trhu, zaměřených na životní styl, oblékání, kouření a stravování spotřebitelů. Např. Simová [30] se zabývala výzkumem hodnoty pro zákazníka u sortimentů oděvů, Kozák [19] zkoumal příčiny poklesu spotřeby piva v ČR, Puplánová a Simová [28] se věnovaly faktorům spokojenosti zákazníků v cestovním ruchu, Matusiková [23] analyzovala vnímání spotřebitelských práv mladou generací. U mnohých odvětví výzkumy postojů spotřebitelů však chybí. Dosud nebyly provedeny výzkumy faktorů ovlivňující kupní chování spotřebitelů v propojení na segmentaci trhu, které by byly podkladem pro modely, jejichž využití by umožňovalo podnikům vhodné zaměření obchodních, inovačních a marketingových aktivit. Cílem článku je, na základě vlastního výzkumu, takové modely formulovat.

Pro výzkum faktorů ovlivňující kupní chování spotřebitelů bylo vybráno odvětví bytových doplňků a vybavení domácnosti. Téměř každý občan je nebo byl, spotřebitelem tohoto odvětví. Také počet výrobních a obchodních podniků v uvedeném odvětví je v České republice vysoký. Přesto, že je toto odvětví v ČR široké co do počtu výrobních podniků, sortimentu výrobků a obchodní sítě, chybí dosud praktické výzkumy chování spotřebitelů v této oblasti. Uvedené odvětví je převážně podporováno reklamou v médiích, tisku, apod., ale chybí poznatky o propojení vztahu podniku a konečného spotřebitele. Článek obsahuje výsledky výzkumu chování spotřebitelů a jejich preferencí v této oblasti a vypracované modely, které vyjadřují rozhodující faktory ovlivňující kupní chování spotřebitelů. Využití modelů umožní podnikům efektivnější rozhodování při inovaci výrobků, zaměření obchodní politiky a marketingových aktivit.

1. Faktory, segmentace a indexy spokojenosti u spotřebitelů

Pro každého spotřebitele jsou důležité jiné faktory, je to dáno např. věkem, příjmem, pohlavím, bydlištěm. Pro snadnější určení klíčových

faktorů slouží segmentace trhu. Podle předem určených segmentačních kritérií a zjištěných faktorů je možné kvalitnější rozhodování managementu podniku.

1.1 Faktory ovlivňující kupní chování spotřebitelů

Dnešní spotřebitel je doslova zaplaven tisíci produkty a službami, které se na trhu nabízejí. Avšak každý z nich je limitovaný finančními prostředky a poznávací kapacitou. Proto je třeba identifikovat potřeby spotřebitelů. Management podniku, hlavně za podpory marketingových pracovníků, musí rozumět jejich volbám: co si o tom spotřebitel myslí, co chce, co dělá a jaké má obavy. Marketingoví pracovníci musejí také sledovat, koho spotřebitelé obdivují a kdo je ovlivňuje, aby bylo dosaženo co nejlepších výsledků. [16]

Dále do vztahů se spotřebiteli vstoupil fenomén internet a s ním spojené služby, které se promítají do jejich kupního chování. Spotřebitelé, případně segmenty spotřebitelů, hlavně podle věku, mají různou úroveň znalostí a zkušeností s tímto mediem, což se projevuje v jejich kupním chování a návazně i v rozhodování managementu podniku. Jako příklad lze uvést frekvence nákupů přes internet. [13]

Solomon [31] dělí faktory ovlivňující kupní chování spotřebitelů do pěti hlavních skupin a to na: kulturní, společenské, osobní, psychologické a situační.

Kulturní faktory se dále dělí na kulturu, subkulturu a společenskou vrstvu. Kultura představuje hodnoty, přesvědčení, zvyky a vkus, kterým určitá skupina spotřebitelů přisuzuje důležitost. Kulturu reprezentují příjemné události jako je svatba, ale i nepříjemné, jako je třeba pohřeb. Každá tato událost je spojena s kulturou a nese určitá specifika, která jsou typická pro určitou skupinu spotřebitelů, která jim přisuzuje odlišný význam a průběh. Každá kultura zahrnuje menší subkultury. Tyto skupiny spotřebitelů jsou charakterizované převážně národností, náboženstvím, rasou a geografickou oblastí. Právě každá subkultura vytváří tržní segmenty, které jsou zajímavé pro výzkum spotřebního trhu. V některých zemích podniky přímo na míru připravují produkty, aby tyto segmenty uspokojily v jejich potřebách. V každé společnosti jsou nějaké společenské vrstvy, které mají určitou strukturu. Zpravidla se vyznačují trvalými a uspořádanými skupinami. Členové těchto skupin sdílejí podobné hodnoty, zvyky, tradice a společenské chování. Z pohledu marketingu jsou společenské vrstvy velice zajímavé, protože se vyznačují podobným kupním chováním. To usnadňuje pracovníkům marketingu jejich práci, protože dokáží zacílit svoje marketingové strategie např. na členy společenské vrstvy, kteří jsou zajímavé pro vysoký příjem. Problematiku kulturních faktorů nalezneme např. v [27], [5], [21], [31] a [16].

Následují společenské faktory, které zahrnují skupiny, rodiny, role jednotlivce ve společnosti a jeho společenský status. Na každého jednotlivce působí řada různě velkých skupin, ať je jejich členem nebo není. Dalším společenským faktorem je rodina. Ta je považována za rozhodující kupní organizační jednotku spojenou právě s nakupováním spotřebního zboží a služeb. Podle kupního chování Kotler a Keller [17] rozlišují dva typy rodin orientační a reprodukční. Pro orientační rodinu je typické, že se skládá z rodičů a jejich dětí. Reprodukční se vyznačuje soužitím s partnerem a dětmi. Poslední skupinu společenských faktorů tvoří role jednotlivce ve společnosti a jeho společenský status. Role může být dána, avšak člověk v průběhu života přijímá role nové. Změna role spotřebitele může vést zásadně ke změně v kupním chování, kterou může ovlivnit např. narození vlastního potomka. Status vyjadřuje postavení spotřebitele ve společnosti. Těmito faktory nebo některými dílčími částmi se věnují někteří autoři jako je Hubinková [12] a Ronner [29].

Další skupinu tvoří osobní faktory, jako je věk, zaměstnání, ekonomická situace, životní styl a osobnost a pojetí sebe sama. První v pořadí v této skupině je věk, který je velice významným faktorem s vlivem na kupní chování jednotlivých věkových skupin včetně změn, které v průběhu věku spotřebitelé provádí. Dále je to zaměstnání, které produkuje příjem, který dál rozvíjí a ovlivňuje kupní chování spotřebitelů. Následuje velice klíčový osobní faktor a to ekonomická situace spotřebitele, která je v tržních podmínkách dominantní. Tuto skupinu doplňuje životní styl, který je hlavně limitován penězi a časem spotřebitele. Osobnost a pojetí sebe sama, vychází ze skutečnosti, že každý spotřebitel má jedinečnou osobnost a každý z nich se rozhoduje jinak. Význam osobních faktorů zdůrazňují např. autoři Thaler a Sunstein [33] a Hawkins [8].

Předposlední skupinu faktorů tvoří psychologické faktory, které v sobě zahrnují motivaci, vnímaní, učení, paměť, přesvědčení a postoje. Motivaci je přisuzována veliká důležitost při koupi produktů a služeb. Na motivaci navazuje vnímání, protože právě na základě vnímání spotřebitelé třídí, vybírají a předávají informace. Dále ovlivňuje spotřebitele učení, které se taktéž projevuje v kupním chování. S učením úzce souvisí paměť, na její důležitost je kladen důraz v reklamě a na učení navazují faktory přesvědčení a postoje. Každý spotřebitel totiž zaujímá jiné přesvědčení a postoje v různých oblastech života. Význam těmto faktorům uvádějí Vysekalová [36], Clegg [3] a Tosi [35].

Situační faktory jsou poslední skupinou faktorů, která se značným vlivem podílí na procesu spotřebitelského rozhodování. Do skupiny situačních faktorů patří prvky fyzického prostředí, sociální okolnosti, čas, druh úkolu a předchozí stavy. Marketingoví pracovníci by měli brát v potaz tyto faktory, třebaže na první pohled nemusejí při prodeji svých výrobků nebo poskytování služeb spotřebitelům působit klíčově. Dobrá znalost této skupiny faktorů určitě přispěje, či již v některých oblastech přispívá, k lepší podpoře prodeje vlastních produktů a služeb. Avšak fyzické prostředí evokuje v zákazníkovi rozhodnutí, zda bude reagovat na prostředí prodejny pozitivně nebo negativně. Na spotřebitele také působí cizí osoby, které jsou přítomné v procesu rozhodování, potom hovoříme o sociálních okolnostech. Dnes spotřebitelé tráví významnou část svého života v zaměstnání a proto faktor času je velice důležitý v procesu kupního chování. Následuje druh úkolu, na to upozorňuje Koudelka [18], který tvrdí, že dochází ke značným změnám v kupním chování v případě, že kupujeme výrobek pro sebe, nebo pro někoho jiného. Posledním skupinu situačních faktorů tvoří předchozí stavy, což jsou momentální nálady spotřebitele. Na důležitost situačních faktorů upozorňuje např. Solomon [31].

1.2 Segmentace spotřebitelů

Segmentace je velice významná a usnadňuje rozhodování podniku na základě segmentů spotřebitelů, kteří jsou do segmentů začleněny podle zvolených segmentačních kritérií. Koudelka [18], doporučuje hledat a poznávat takové skupiny spotřebitelů, které splňují dva podstatné atributy. První z nich se dívá na spotřebitele, kteří jsou si co nejvíce podobní v kupním chování, tzn., jsou co nejvíce homogenní. Druhý atribut přisuzuje spotřebitelům, kteří jsou naopak ve svém kupním chování co nejvíce odlišní, tzn., jsou vůči sobě heterogenní. Podobně definuji segmentaci i další autoři např. Pelsmacker [26], Kotler a Keller [17] a Bárta [1]. Avšak Kotabe a Helsen [15] upozorňují, že segmentace by měla mít šest základních atributů, které jsou charakteristické pro každý segment – identifikovatelnost, velikost, dostupnost, stabilitu, vnímavost a stížnosti (od spotřebitelů).

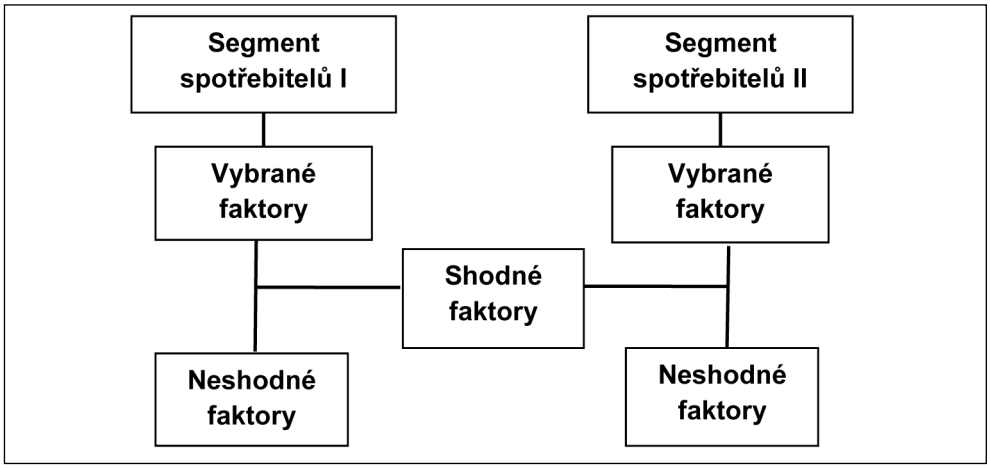
Významnou část segmentace tvoří segmentační kritéria. Právě při hlubším poznávání jednotlivých tržních segmentů, je dobré se neomezovat jen na některá segmentační kritéria, ale je třeba hledat i další rozdíly, které poslouží k lepšímu poznání kupního chování spotřebitelů. Koudelka [18] rozděluje segmentační kritéria do dvou hlavních skupin na tradiční a netradiční segmentační kritéria, kde do tradičních zahrnuje demografická, etnografická, fyziografická a geografická kritéria a netradiční dělí do dvou skupin na psychografická a behaviorální. Další autoři jako Tomek a Vávrová [34], Foret a Stávková [6], Hawkins [9], Loudon a Della Bitta [21], Foret [7], Boyd [2], Clow a Baack [4], Jobber [14] a Machková [22] se zmiňují taktéž o segmentačních kritériích, avšak ne tak podrobně jako Koudelka [18].

2. Metodologie výzkumu

Koncepce výzkumu vycházela ze současných poznatků teorie a praxe související s faktory, které mají vliv na kupní chování spotřebitelů. Před zahájením výzkumů u spotřebitelů a podniků byl proveden předvýzkum, který se zaměřil na faktory ovlivňující kupní chování spotřebitelů při nákupu spotřebního zboží. Předvýzkum se uskutečnil v měsících dubnu a květnu v roce 2010. Segmenty spotřebitelů tvořili manažeři podniků a studenti Fakulty ekonomicko-správní. Výzkum byl proveden pomocí dotazníkového šetření. Získáno bylo správně vyplněných 132 dotazníků od manažerů a 100 dotazníků od studentů. Pro pozice manažerů nebyla stanovena přesná kritéria, nebylo tak rozlišováno, zda se jedná o top management, střední management nebo nižší pozice managementu. Hlavní podmínkou bylo, že respondent působí na manažerské pozici. Segment studentů tvořili studenti prvního ročníku navazujícího magisterského studia. Výzkum byl

poměrně rozsáhlý, dotazník obsahoval 41 výzkumných otázek, týkajících se kupního chování spotřebitelů. Hlavním cílem předvýzkumu bylo zjistit, zda jsou v dotazníku správně položeny zkoumané otázky a respondenti nemají problémy s vyplněním dotazníku. Provedený předvýzkum posloužil jako vstup do zkoumané problematiky a přispěl k utvoření představy o řešení modelu faktorů ovlivňující kupní chování spotřebitelů. Obecný návrh modelu, který vyplynul z předvýzkumu, je znázorněn na obrázku 1.

Obr. 1: Obecný tvar modelu



Zdroj: [23]

Pro vlastní výzkum chování spotřebitelů a následně podniků bylo vybráno odvětví bytových doplňků a vybavení domácnosti, jak již bylo zmíněno v úvodu. Byly upřesněny vědecké metody pro zpracování výsledků výzkumů a konstrukci modelů. Jednalo se hlavně o analýzu, která byla využita při rešerši odborné literatury, zabývající se kupním chováním spotřebitelů a jeho využití při manažerském rozhodování. Na to navazovala metoda brainstorming pro výběr významných faktorů chování spotřebitelů a metoda konkretizace, kterou se počet faktorů pro výzkum zpřesnil. V rámci výzkumu se uskutečnila dvě dotazníková šetření a to nejdříve u spotřebitelů a po jeho vyhodnocení u podniků. Podniky byly vybrány podle předem stanovených kritérií a tím byl proveden empirický výzkum, kvantitativní výzkum posloužil k potvrzení nebo vyvrácení zvolených hypotéz. Vzniklé vztahy mezi faktory upřesnil kvalitativní výzkum a metoda komparace. Poslední významnou použitou metodou bylo modelování, jehož výsledkem bylo vytvoření modelů kupního chování spotřebitelů, které mohou být využity při rozhodování managementu podniku v obchodní politice. Při výzkumu, hodnocení výsledků a řešení modelů byly využity i principy logiky a logického myšlení, zejména při aplikaci metod, které na sebe párově navazují, jako je analýza-syntéza, indukce-dedukce a abstrakce-konkretizace.

3. Charakteristika výzkumu u spotřebitelů

Nejdříve byla přesně vymezena kritéria pro výzkum, která určovala, že se muselo jednat o spotřebitele s trvalým bydlištěm v Pardubickém a Královehradeckém kraji a věk respondenta musel být 18 let a více.

Po stanovení kritérií byl určen vzorek počtu respondentů podle vzorce pro neznámé složení respondentů, který uvádí Kozel [20].

$$n \geq (z^2 * p * q) / \Delta^2 \quad (1)$$

kde n je minimální počet respondentů;

kde p, q jsou v procentech počty respondentů znalých problematiky, resp. přiklánějících se k variantě jedné (p) a neznalých, příp.

přiklánějících se k variantě druhé (*q*), pokud tato čísla přesně neznáme, musíme vytvořit součin *p x q* maximální, tedy 50 % x 50 %;

kde Δ je námi stanovená maximální přípustná chyba;

kde *z* kritická hodnota normovaného normálního rozdělení při zvolené hladině významnosti.

Pro výpočet minimální velikosti vzorku byla stanovena spolehlivost 95 % (vybrané kvantily normovaného normálního rozdělení nalezneme pro konstrukci 95% intervalu spolehlivosti hodnotu 1,96 [11]) a přípustná chyba byla 5%. Na základě těchto údajů byl vypočten následující výsledek:

$$n \geq (1{,}96^2 * 0{,}5 * 0{,}5) / 0{,}05^2 \quad (2)$$
$$n \geq 384$$

Z výsledku vyplývá, že aby byl výzkum reprezentativní podle zvolených kritérií, je třeba, aby se výzkumu zúčastnilo 384 a více respondentů.

Výzkum byl proveden náhodně na základě dotazníkového šetření v uvedených dvou krajích České republiky. Správně vyplněných a odpovídajících zvoleným kritériím pro výzkum bylo získáno od 440 respondentů. Počet správně vyplněných dotazníků byl dostatečně reprezentativní, protože podle předem stanovených kritérií jich bylo více jak 384.

Ze 440 respondentů se výzkumu v absolutním vyjádření zúčastnilo 284 žen a 156 mužů. Podle věku byli respondenti rozděleni do šesti skupin, do 20 let bylo 47 respondentů, nejpočetnější skupinou byli respondenti ve věku od 21 do 30 let, kterých bylo 155, následují respondenti od 31 do 40 let, kterých bylo 91, po nich ve věku 41 až 50 let v počtu 51, předposlední skupinu tvořili respondenti ve věku od 51 do 60 let v počtu 48 a poslední skupinu tvořili respondenti starší 61 a více let, kterých bylo taktéž 48. Následuje charakteristika podle vzdělání, kde byli respondenti rozděleni to čtyř skupin a to s maturitou, kterých bylo 261 (do této skupiny byli zahrnuti respondenti se vzděláním z VOŠ), následuje 105 vysokoškolsky vzdělaných, třetí nejpočetnější skupinu tvoří respondenti bez maturity v počtu 62 a poslední skupinu tvoří respondenti bez vzdělání, kterých bylo pouze 12. Z hlediska výše příjmů 151 uvedlo do 10 000Kč, je třeba brát ohled na to, že výzkumu se zúčastnilo 122 studentů, do 20 000 odpovědělo 138, do 30 000 Kč v počtu 67, příjem nad 30 000 Kč uvedlo 27 a poslední skupinu tvořili respondenti, kteří neuvedli svůj příjem a to v počtu 57. Dále byli respondenti tázáni, z jakého kraje pochází. Vzhledem k tomu, že jedním z kritérií výzkumu je, že respondent musí být buď z kraje Královéhradeckého, anebo Pardubického, byli respondenti z jiných krajů z výzkumu vyřazeni. Proto jsou zde hodnoceny jen dvě skupiny dotazovaných. Počet respondentů z kraje Královéhradeckého bylo 120 a z Pardubického 320. Další v pořadí je rozdělení tázaných do skupin podle počtu obyvatel v obci, kde mají trvalé bydliště. Nejvíce respondentů 162 uvedlo, že žije v obci do 3 000 obyvatel. Po nich následuje 131 respondentů s počtem obyvatel nad 50 001 a více. Následuje další skupina dotazovaných žijících v obcích s počtem obyvatel od 3 001 do 20 000, kterých bylo 113. Poslední skupina se týká 34 respondentů, kteří žijí v obcích s počtem obyvatel od 20 001 do 50 000. Předposlední rozdělení respondentů bylo podle jejich současného rodinného stavu. Nejvíce z nich uvedlo možnost svobodný/á v počtu odpovědí 203 (je třeba brát ohled na to, že výzkumu se zúčastnilo 122 studentů). Druzí v pořadí jsou respondenti, kteří žijí v manželství, čili ženatý/vdaná, kterých je 188. S velkým odstupem za těmito skupinami následují respondenti rozvedení s 33 odpověďmi a poslední skupinu tvoří vdovec/vdova s počtem 16 odpovědí. Poslední rozdělení respondentů bylo podle počtu členů v domácnosti. Dotazovaní byli rozděleni do pěti skupin. Respondenti žijící v jednočlenné domácnosti 30, dvoučlenné 128, tříčlenné 100, čtyřčlenné 136 a více členné domácnosti to je 5 a více členů se týkalo 46 respondentů.

Dotazník obsahoval 25 výzkumných otázek a dělil se na dvě hlavní části. První část se týkala faktorů ovlivňujících kupní chování spotřebitelů při nákupu bytových doplňků a vybavení domácnosti. Druhá část se zabývala sociálně demografickými daty spotřebitelů, jejichž charakteristika je popsána v předchozím odstavci. První část dotazníku měla charakter výzkumných otázek, z nichž hlavní a klíčovou otázkou celého dotazníkového šetření u spotřebitelů byla otázka číslo 2 „Čemu dáváte přednost při výběru bytových doplňků a vybavení domácnosti?“, kde respondenti museli obodovat 15 vybraných faktorů podle významnosti na pěti bodové hodnotící škále, kde 1 bod zna-

menal nejméně významný faktor a 5 nejvýznamnější faktor. Výsledky odpovědí k této otázce jsou v tabulce 1. Vyhodnocení bylo provedeno následovně: body byly násobkem počtu odpovědí, např. když 10 respondentů dalo kvalitě 3 body tak 10 x 3 = 30 bodů, 30 respondentů ohodnotilo kvalitu 4 body, tak 30 x 4 = 120 bodů. Tyto body byly sečteny u jednotlivých faktorů. Z výsledků této otázky byly vytvořeny modely, které následně byly ověřeny v podnicích se zaměřením na bytové doplňky a vybavení domácnosti.

Tab. 1: Význam faktorů podle počtu získaných bodů

Pořadí	Faktor	Body	Body v %
1	Kvalita	1 859	8,78
2	Cena	1 726	8,15
3	Design	1 694	8,00
4	Záruka/servis	1 663	7,86
5	Zkušenost/údržba	1 555	7,31
6	Barva	1 483	7,01
7	Slevy	1 470	6,94
8	Místo/dostupnost	1 469	6,93
9	Doporučení	1 375	6,50
10	Značka	1 305	6,16
11	Původ	1 277	6,03
12	Recenze/odborné články	1 220	5,76
13	Novinky/moderní trendy	1 217	5,75
14	Reklama/propagace	936	4,42
15	Obal	919	4,34

Zdroj: vlastní úprava podle [25]

3.1 Vypracování modelů

Na základě výsledků získaných z dotazníkového šetření u spotřebitelů byly vytvořeny dva modely – model shodných a neshodných faktorů a model pavučiny, oba modely byly vytvořeny s využitím sociálně demografických otázek.

Model shodných a neshodných faktorů

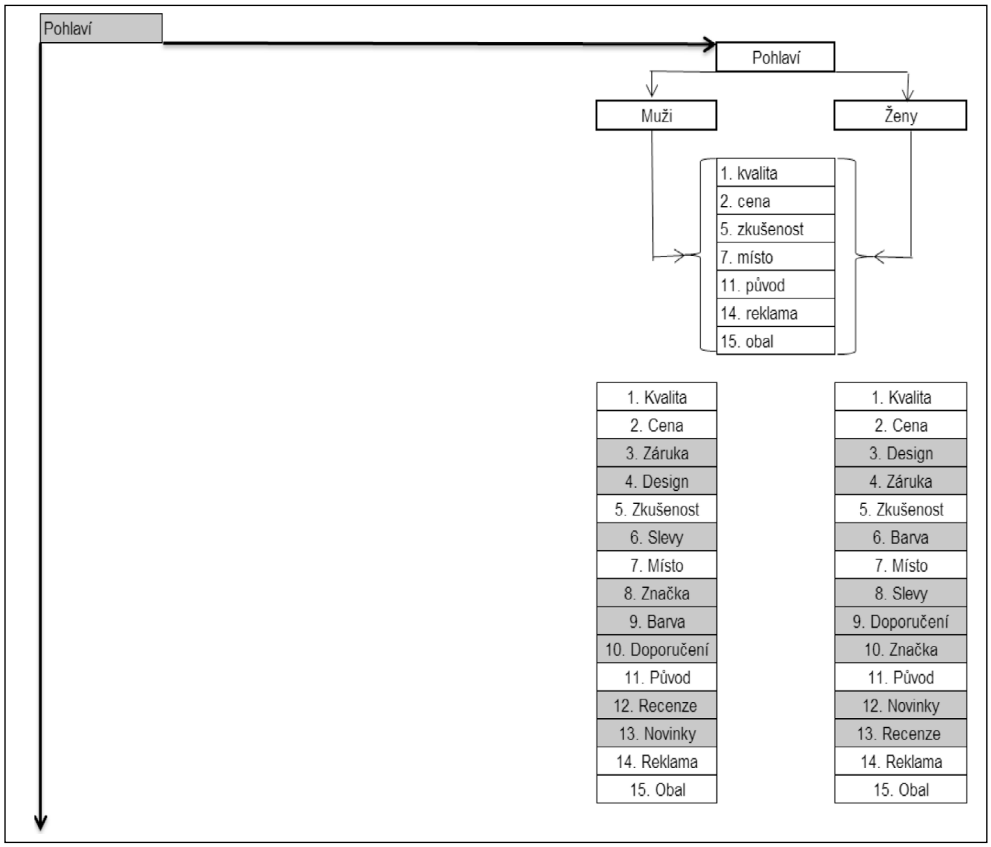
V prvním kroku byla provedena segmentace spotřebitelů na základě zvolených segmentačních kritérií. Tato segmentační kritéria byla seřazena tak, aby se získalo co nejvíce informací o respondentech (spotřebitelích). U modelu shodných a neshodných faktorů je segmentace založena na demografických segmentačních kritériích. Tato demografická segmentační kritéria jsou seřazena v modelu od jednoznačně zjistitelných (pohlaví) až po složitě zjistitelných (bydliště). Řazení kritérií je záměrné, protože má pomoci podnikům při sestavování dotazníků a jejich vyhodnocení.

U modelu shodných a neshodných faktorů jsou segmentační kritéria seřazena následovně podle:

1. pohlaví,
2. věku,
3. vzdělání,
4. příjmu,
5. rodinného stavu,
6. počtu členů v domácnosti,
7. počtu obyvatel,
8. kraje, z kterého respondent pochází.

U každé zvolené segmentace bylo hodnoceno 15 vybraných faktorů, které jsou uvedeny v tabulce 1, které mají vliv na kupní chování spotřebitelů při nákupu bytových doplňků a vybavení domácnosti. Faktory jsou seřazeny podle počtu bodů, které jednotlivé faktory získaly podle zvolené segmentace. Na základě těchto údajů byl vytvořen následující model shodných a neshodných faktorů na obrázku 2.

Obr. 2: Model shodných a neshodných faktorů v segmentu pohlaví



Zdroj: [25]

Dále byly určeny shodné a neshodné faktory u všech výše uvedených segmentačních kritérií, u kterých bylo vyhodnocení provedeno stejně jako u faktoru pohlaví. Podrobnější informace jsou v [25].

Model pavučiny

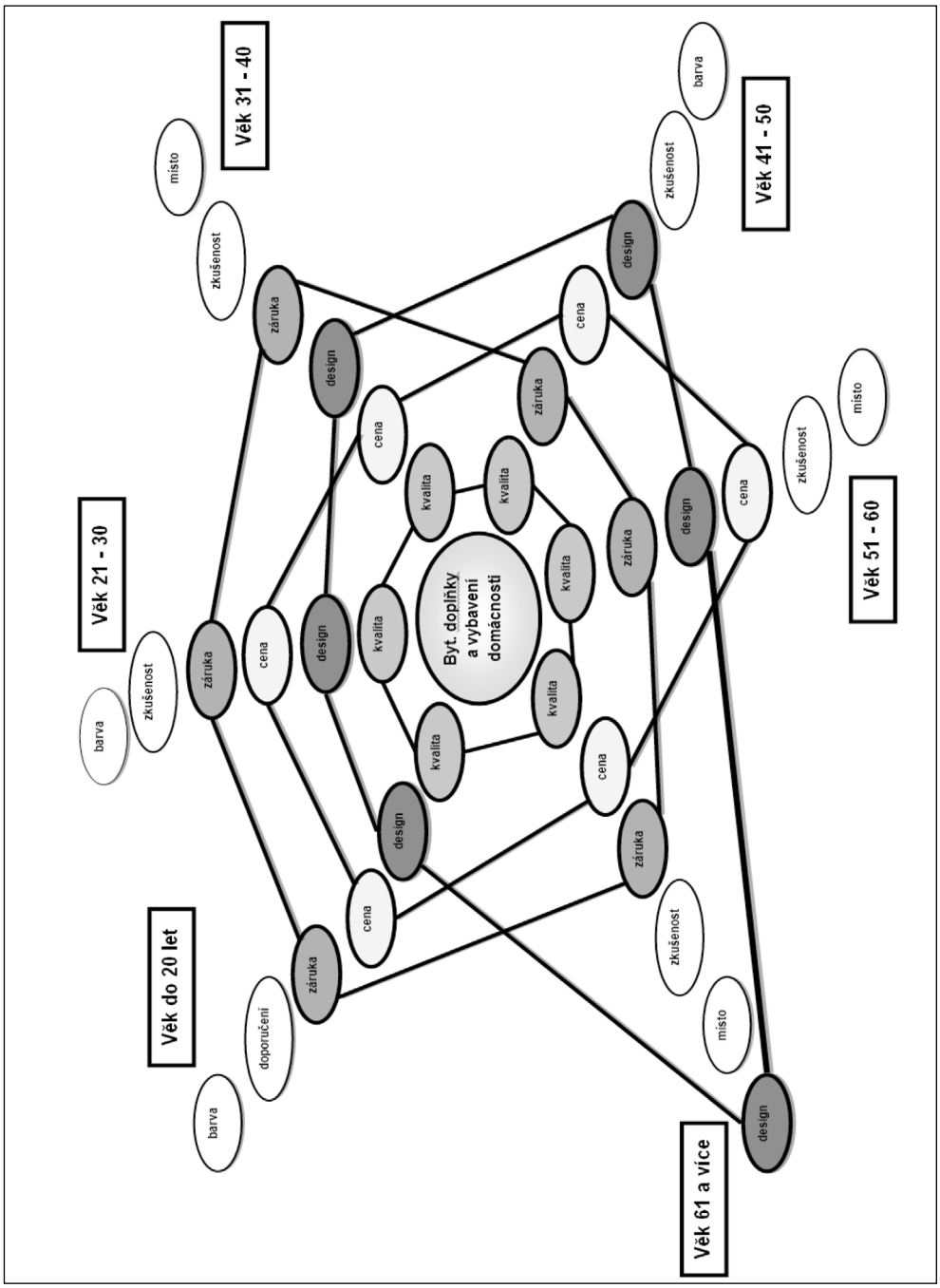
Jedná se o model, který byl taktéž zpracován v návaznosti na výsledky z dotazníkového šetření u spotřebitelů. Model je znázorněn na obrázku 3. Podstata modelu spočívá v určení, který faktor je nejdůležitější (nejblíže středu tj. bytovým doplňkům a vybavení domácnosti) při kupním chování spotřebitelů. Tento model operuje pouze s prvními šesti faktory z patnácti (viz Tab. 1), které jsou u zvoleného segmentu seřazeny podle preferencí spotřebitelů. Pro tento model byla zvolena segmentace podle věku spotřebitelů, rozdělených do šesti věkových skupin. Jedná se o faktor, který obchodník nebo prodávající může poznat bez předchozího dotazování spotřebitelů.

4. Charakteristika výzkumu u podniků

Stejně jako u výzkumu spotřebitelů byla i při výzkumu u podniků stanovena přesná kritéria, aby byl výzkum reprezentativní a měl co nejvíce vypovídací schopnost. Podniky musely splnit následující kritéria výzkumu:

- kritérium území – byly zvoleny podniky působící na území České republiky,
- kritérium velikosti podniku – podniky musely mít 10 a více zaměstnanců

Obr. 3: Model pavučiny v segmentu věk



Zdroj: [25]

z důvodu předpokladu, že podniky mající větší počet zaměstnanců budou některé z nich zapojovat do marketingových aktivit podniku, přičemž dotazovaný musel pracovat v nejužším managementu podniku,

- kritérium právní formy – podnik musel mít právní formu společnost s ručením omezeným nebo akciovou společnost z důvodu předpokladu existence marketingového oddělení v podniku, případně jiného oddělení, např. obchodního, které má marketingové aktivity na starosti, při neexistence tohoto oddělení alespoň nějaký zaměstnanec musel být pověřen marketingovými aktivitami,
- kritérium předmět podnikání – vybrány byly podniky, jejichž hlavním předmětem podnikání je výroba, prodej, distribuce a zprostředkovatelská činnost bytových doplňků a vybavení domácnosti.

Vytvořený dotazník měl čtyři části, kde první část ověřovala určená kritéria, druhá část se zabývala stanovenými hypotézami, třetí část se vztahovala k modelům a jejich ověřením v podnikové praxi a čtvrtá část ověřovala název podniku a zájem podniků o výsledky z výzkumu. Sestavení dotazníku včetně stanovení hypotéz bylo provedeno na základě výsledků získaných z dotazníkového šetření u spotřebitelů. Dotazníkové šetření probíhalo osobním dotazováním a bylo zahájeno v prosinci roku 2011 a ukončeno v únoru 2012 a bylo získáno 156 správně vyplněných dotazníků.

Ověření vzorku počtu podniků bylo určeno na základě stejného vzorce jako u určení vzorku počtu spotřebitelů. Jediný údaj, který byl, odchylný byla přípustná chyba, která je u spotřebitelů 5% a u podniků je 8% s ohledem na menší vzorek.

$$n \geq (1{,}96^2 * 0{,}5 * 0{,}5) / 0{,}08^2 \quad (3)$$
$$n \geq 150{,}1$$

Z výsledku vyplynulo, že výzkum je reprezentativní pro stanovené údaje, protože se ho zúčastnilo 156 podniků, které splnily zvolená kritéria.

První část ověřující stanovená kritéria vykázala tyto výsledky: všechny podniky byly na území ČR z 12 krajů, žádný podniky nabyl zastoupen z kraje karlovarského a jihočeského. Podle právní formy bylo 134 podniků s ručením omezeným a pouze 22 podniků s formou akciová společnost. Dále byl ověřován předmět podnikání související s bytovými doplňky a vybavením domácnosti, nejvíce byly zastoupeny podniky zabývající se výrobou a prodejem. Počet zaměstnanců v podnicích vycházel z platné legislativy EU pro určení malých a středních podniků podle počtu zaměstnanců a obratu. Pro potřeby výzkumu bylo bráno jen hledisko počtu zaměstnanců, kde nejvíce podniků bylo s počtem zaměstnanců více jak 10 a méně než 50 s absolutním počtem 111, další v pořadí jsou podniky s méně jak 250 zaměstnanci, kterých bylo 30 a poslední skupinu tvoří 15 podniků s více jak 250 zaměstnanci. Poslední výzkumnou otázkou bylo, zda podniky mají samostatné marketingové oddělení, toto oddělení mělo pouze 43 a zbývající část v počtu 113 marketingové oddělení nemá nebo tyto aktivity jsou zahrnuty v jiném oddělení např. v obchodním.

V druhé části dotazníku byly otázky pro ověření stanovených hypotéz. Všechny hypotézy byly ověřeny stejným testem, jednalo se o hypotézu o relativní četnosti včetně stanovení stejné hladiny významnosti alfa 0,05. [11]

$$U = (p - \pi o) / \sqrt{\frac{\pi o\,(1 - \pi o)}{n}} \quad (4)$$

kde n normované normální rozdělení
kde p je zjištěná relativní četnost z výběru
kde W je kritický obor (pro α = 0,05): **U≥1,645**

Pro výzkum byly stanoveny tři hypotézy a hodnoty dosazené do vzorců pro ověření případně vyvrácení hypotéz jsou v tabulkách 2, 3 a 4 vyznačeny tučným písmem.

Hypotéza číslo 1

„Většina obchodních a výrobních podniků se zabývá určováním rozhodujících faktorů ovlivňujících kupní chování spotřebitelů podle segmentů zvolených skupin spotřebitelů."

Za účelem vyvrácení, či potvrzení hypotézy číslo 1 byla managementu podniku předložena následující otázka: „Zabýváte se určováním rozhodujících faktorů, které mají podstatný vliv na kupní chování spotřebitelů, jako je např. cena, kvalita, design, podle předem zvolených segmentů spotřebitelů?" Následně byly předloženy dotazovaným konkrétní možnosti odpovědi na zkoumanou otázku, kde výsledky jsou vyjádřeny v tabulce 2.

Tab. 2: Určování faktorů

Určování faktorů	Počet absolutní	Počet relativní (%)
ano	104	**67**
ano – využíváme	2	**1**
někdy	26	17
ne	14	9
využíváme dostupné výzkumy	10	6
Celkem	**156**	**100**

Zdroj: [25]

$$U = (0{,}68 - 0{,}5) / \sqrt{\frac{0{,}5(1 - 0{,}5)}{156}} = 4{,}496 \quad (5)$$

Realizace testovací veličiny U je větší než 1,645. Proto H0 zamítáme a přijímáme hypotézu H1, že více než polovina (tj. většina) obchodních a výrobních podniků se zabývá určováním rozhodujících faktorů ovlivňujících kupní chování spotřebitelů podle segmentů zvolených skupin spotřebitelů a tedy stanovená hypotéza byla potvrzena.

Hypotéza číslo 2

„Určení preferencí faktorů ovlivňujících kupní chování jednotlivých segmentů spotřebitelů se promítá do obchodní a inovační aktivity více jak poloviny podniků". Za účelem vyvrácení, či potvrzení hypotézy číslo 2 byla managementu podniku předložena následující otázka: „Určení preferencí faktorů, které ovlivňují, kupní chování jednotlivých segmentů spotřebitelů se Vám promítne, případně promítá do obchodní a inovační aktivity podniku?". Pro ověření hypotézy se vycházelo z výsledků výzkumné otázky, kde počet jednotlivých odpovědí je vyjádřen v tabulce 3.

Tab. 3: Určování preference faktorů se promítá do obchodní a inovační aktivity podniku

Určování preferencí faktorů	Počet absolutní	Počet relativní (%)
ano, již promítá	76	**49**
ano, promítne	46	29
ne, nepromítá	34	22
Celkem	**156**	**100**

Zdroj: [25]

$$U = (0{,}49 - 0{,}5) / \sqrt{\frac{0{,}5(1 - 0{,}5)}{156}} = -0{,}2498 \quad (6)$$

Realizace testovací veličiny U je menší než 1,645 a H0 nezamítáme. Nepodařilo se nám tedy prokázat, že by se určení preferencí faktorů ovlivňující kupní chování jednotlivých segmentů spotřebitelů promítalo do obchodní a inovační aktivity více jak polovině podniků, tedy stanovená hypotéza nebyla prokázána.

Hypotéza číslo 3

„Většina podniků nevyužívá služeb externích marketingových firem k marketingovým výzkumům spotřebitelů". Za účelem vyvrácení, či potvrzení hypotézy číslo 3 byla managementu podniku předložena otázka související s využíváním služeb externích marketingových firem: „Využíváte spolupráce externích firem k marketingovým výzkumům spotřebitelů a podpoře prodeje výrobků?". I tato hypotéza nabídla možnost respondentům zvolit nejvhodnější odpověď, která vystihuje jejich současnou situaci v podniku související s položenou otázkou. Pro ověření hypotézy se vycházelo z výsledků výzkumné otázky, kde počet jednotlivých odpovědí je vyjádřen v tabulce 4.

Tab. 4: Spolupráce externích firem

Spolupráce s externími firmami	Počet absolutní	Počet relativní (%)
ano, ke krátkodobým jednorázovým akcím	28	18
ano, dlouhodobě, ale k jednorázovým akcím	15	9
ano, dlouhodobě, ale nejen k jednorázovým akcím	9	6
nevyužíváme	104	67
Celkem	**156**	**100**

Zdroj: [25]

$$U = (0{,}67 - 0{,}5) / \sqrt{\frac{0{,}5(1 - 0{,}5)}{156}} = 4{,}2466 \quad (7)$$

Realizace testovací veličiny U je větší než 1,645. Proto H0 zamítáme a přijímáme hypotézu H1, že více než polovina (tj. většina) podniků nevyužívá služeb externích marketingových firem k marketingovým výzkumům spotřebitelů a tedy stanovená hypotéza byla potvrzena.

4.1 Ověření navržených modelů v podnicích

Možnosti využití modelů – model shodných a neshodných faktorů a model pavučiny bylo ověřeny v podnicích. S dotazníkem byly podnikům předány i oba uvedené modely. Cílem bylo zjistit, zda vybrané podniky mají zájem uplatnit navržené modely.

Pro ověření prvního modelu byla položena výzkumná otázka: „Je možnost využít ve Vašem podniku model shodných a neshodných faktorů u kupního chování spotřebitelů podle předem zvolených segmentačních kritérií u spotřebitelů?“. U modelu shodných a neshodných faktorů 106 podniků uvedlo, že tento model v jejich podniku neuplatní. Přesto 14 podniků uvedlo, že využívá podobný model, a 36 podniků připustilo, že by uplatnilo navrhnutý model, ale potřebují k tomu podrobnější informace. Zájem o tento model projevilo 32 % dotazovaných podniků.

Využívání dalšího modelu v podnicích ověřovala následující výzkumná otázka: „Využili byste nebo využíváte model pavučiny k rychlému určení preference faktorů u kupního chování spotřebitelů podle zvolených segmentů spotřebitelů?“. Z výsledku vyplynulo, že 117 podniků model nevyužije. Na druhou stranu 15 podniků uvedlo, že využívají podobný model. Avšak 24 podniků uvedlo, že model pavučiny využije, ale potřebují podrobnější informace. Dále 39 podniků využívá, případně využije k výzkumům spotřebitelů podobný nebo navržený model. Celkově se tedy 50 % podniků zabývá obdobnými modely nebo uvažuje o využití uvedeného modelu.

Z ověření modelů shodných a neshodných faktorů včetně modelu pavučiny vyplynul převážně negativní názor dotazovaných manažerů na využití modelů. Přesto zhruba třetina manažerů uvedla, že modely využije a že jim umožní lepší rozhodování. Více jak polovina manažerů projevila zájem o podrobnější nastudování modelů a metodiky jejich sestavení a připouštěla jejich potenciální přínosy při rozhodování a řízení obchodní politiky. Praktická využitelnost manažerských metod a nástrojů je dána dosavadní praxí a kvalifikací manažerů, jejich upřednostňováním určitých rozhodovacích a marketingových postupů. Žádný model nebo nástroj není praxí přijímán jako univerzální a bez výhrad. Proto zájem třetiny manažerů o uplatnění zpracovaných modelů včetně jejich přínosů pro rozhodování v otázkách obchodní politiky lze považovat za pozitivní výsledek. Praktické využívání modelů a jejich širší znalost může v budoucnu přispět k jejich většímu uplatnění v podnikové praxi.

Závěr

V tržní ekonomice v podmínkách globalizace je pro podniky nutností, aby se zabývaly faktory ovlivňujícími kupní chování spotřebitelů. Jednou z výhod, kterou to podniku přinese, je kvalitnější, rychlejší a spolehlivější manažerské rozhodování v obchodní politice založené na využití uvedených faktorů.

Podniky proto musejí sami nebo s využitím externích marketingových agentur pravidelně

provádět výzkum u spotřebitelů a výsledky systematicky vyhodnocovat. Popsaný výzkum a vypracované modely jsou metodickým vodítkem pro tyto činnosti. Získané výsledky lze využít při rozhodování ve výrobkové a obchodní politice podniku, především v oblastech inovace sortimentu a marketinkových aktivit. Východiskem pro získání potřebných objektivních informací je správně volená segmentace spotřebitelů a vyhodnocení faktorů ovlivňující jejich kupní chování. Znalost shodných a neshodných faktorů u jednotlivých segmentů spotřebitelů umožňuje pro dané spotřebitele správně zacílit užitné vlastnosti výrobků a volit efektivní nástroje marketingu, především v reklamě a propagaci, což vede ke snižování nákladů na tyto činnosti.

Vypracované modely, i když pro jejich konstrukci byl použit výzkum spotřebitelů v oboru bytové doplňky a vybavení domácnosti, mají obecnou platnost. Zkonstruovat a využívat je lze pro jakýkoli obor nebo odvětví, počet volených segmentů a počet vybraných faktorů. V praxi podniků je vhodné modely upravit tak, aby byly v souladu s podnikatelskou činností a přinášely podniku žádoucí výsledky. Další možností je vytvářet svoje vlastní modely na základě empirických zkušeností, které vyplynuly z podnikatelské praxe a z výzkumů, které byly v podniku provedeny.

Podnik by měl pravidelně aktualizovat a upravovat používané modely, aby byly aktuální a měly dostatečně vypovídací výsledky. Platnost modelů je tak časově omezená. Frekvence výzkumů spotřebitelů a aktualizace modelů vyplývá z charakteru daného oboru. U předmětů střednědobé spotřeby, jako jsou bytové doplňky a vybavení domácnosti, je vhodná perioda 2 až 3 roky, u výrobků dlouhodobé spotřeby, jako jsou např. automobily, lze uvažovat periodu 5 až 7 let. Určitá prodleva mezi výzkumy je potřebná k realizaci inovací výrobků a jejich obchodní prosazení u spotřebitelů na základě zjištěných preferencí.

Podniky musejí aktuálně reagovat na nové situace, které mohou změnit žebříček pořadí faktorů, protože některé zásadní změny se buď okamžitě anebo po určitém časovém úseku projeví v kupním chování spotřebitelů. Může se jednat o rozhodnutí, která mají vliv na důchody spotřebitelů jako je např. zvýšení DPH. V tom okamžiku se sníží spotřeba spotřebitelů a tím se změní i pořadí některých faktorů, které se promítají do kupních vztahů.

Pro usnadnění práce s modely je v podnicích vhodné vytvořit počítačový program, zaměřený na problematiku manažerského rozhodování s návazností na faktory ovlivňující kupní chování spotřebitelů. Počítačový program by měl umožňovat pravidelně vyhodnocovat pořadí určených faktorů u daných segmentů spotřebitelů se zaměřením na určitou podnikatelskou oblast. V programu by měl být prostor pro rozšiřování počtu faktorů, případně snižování jejich počtu a na základě dalších výzkumů pro změnu pořadí faktorů u jednotlivých segmentů spotřebitelů. Měla by zde být i historie modelů s vyznačením zásadních událostí, které ovlivnily kupní chování spotřebitelů a významně změnily pořadí faktorů. Program by měl na základě nastavení faktorů a propojení jejich vazeb automatizovaně vytvářet model shodných a neshodných faktorů a model pavučiny a tyto modely včetně historie a přehledů událostí poskytovat managementu podniku pro rychlejší a kvalitnější rozhodovaní v obchodní politice. Potřebné je výstupy z programu propojit do celého informačního systému podniku. Žádoucích efektů se dosáhne, jak uvádí Myšková [24], když informační systém je výsledkem integrace mnoha systémů a podsystémů a informační systém podporuje operativní (day-to-day), taktické a strategické rozhodování, především propojení obchodních plánů s informačními strategiemi.

Nutné je také získávat informace, které podnik potřebuje. Vedle vlastních marketingových výzkumů je dnes možné získávat poměrně snadno a levně některé informace na internetu. Jsou i další možnosti, které nabízejí určité množství dostupných informací, např. média, tisk. Čerpat lze informace i z různých klastrů, sdružení, státních organizací a úřadů na podporu podnikání.

Tržní prostředí je velice proměnlivé a rychle se měnící. V dnešní době se podniky musejí rozhodovat a reagovat na tyto změny rychle, pokud možno správně a s nejlepšími výsledky. K tomu jsou potřebné teoretické i praktické znalosti vhodných manažerských metod a nástrojů. Příspěvkem v tomto smyslu je popsaný výzkum kupního chování spotřebitelů a výše uvedené modely.

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Abstract

FACTORS INFLUENCING CONSUMERS' BUYING BEHAVIOR AND THEIR IMPORTANCE FOR ENTERPRISES

Josef Novotný, Pavel Duspiva

The article reports the results of research consumers' behavior and preferences when buying housing supplements, household equipment and preparation of new processed models which identifies the key factors influencing the purchasing behavior of consumers. Nowadays, the purchasing behavior of consumers is a topical problem on market due to frequent changes in society which have a substantial impact on the purchasing behavior, such as economic conditions, demographic trends, the influence of minorities, globalization or climate changes in the world. Therefore, a questionnaire survey was performed through research of consumers according to segmentation criteria divided into eight segments and that was aimed on selected factors having a topical influence on consumers. Based on the results of the research was drawn a model of identical and nonidentical factors influencing purchase consumers' behavior and the model cobwebs. Both models forms basis for management decision-making enterprise in business policy. Subsequently, research was performed in enterprises whose business activities are aimed on home furnishings and household equipment. Research observed verification of test hypotheses concerning the marketing activities of enterprises and the possibility of using models. The proposed models allow enterprises more efficient decision-making during product innovation, specialization in business policy and marketing activities. The enterprises that do not consistently pay attention to purchasing behavior of consumers with using of factors that are influencing consumers' purchasing behavior, they may lose competitiveness, market position and customers.

Key Words: *Manager's decision making, purchasing behavior, factors, consumer, segmentation, model.*

JEL Classification: *M31.*

MODEL OF COMMUNICATION USABLE FOR SMALL AND MEDIUM-SIZED COMPANIES FOR THE CONSUMER COMMUNICATION IN SOCIAL MEDIA

Otakar Ungerman, Světlana Myslivcová

Introduction

Social media are among the fastest developing Internet marketing tools, and more and more Internet users connect to it every day. With regard to the ever-growing amount of various social media, there is a lot of ambiguity regarding how company representatives should approach them. Therefore, it is important to understand a way how various types of social media function. At the same time, based on understanding, determine how to use such media for as efficient creation of business opportunities as possible and for increase of head start on competition. If they are utilized correctly, they can become the best mechanism that can be utilized when building a brand, product awareness, or increase of revenues. Rapid growth of activities in social media represents an opportunity, as well as a challenge. Opportunity lies in the possibility to utilize correct marketing procedures in social media and encouragement of growth of entrepreneurial activities. Challenge rests in time demand necessary to "crack a code" that will enable to utilize social networks efficiently and effectively. The study reacts to lack of information on possible utilization of social media for communication with consumers for small and medium companies. On one hand, there is a lot of publications related to marketing communication issues. Communication models that analyze this relationship in a lot of detail have been created to connect consumers and businesses. On the other hand, models of communication using social media elaborated in detail do not exist. This missing part of the marketing communication was a reason for carrying out the primary research that is presented in this study.

The main objective of the study rested in researching social media based on the primary and secondary research and create a communication model that can be utilized by small and medium companies. In order to achieve the overall intent of the study, the main objective was decomposed into two partial objectives:

- **Objective A:** Map the current situation in communication between consumers and companies carried out using social media.
- **Objective B:** Identify factors that influence communication methods and define importance of communication attributes that affect it.

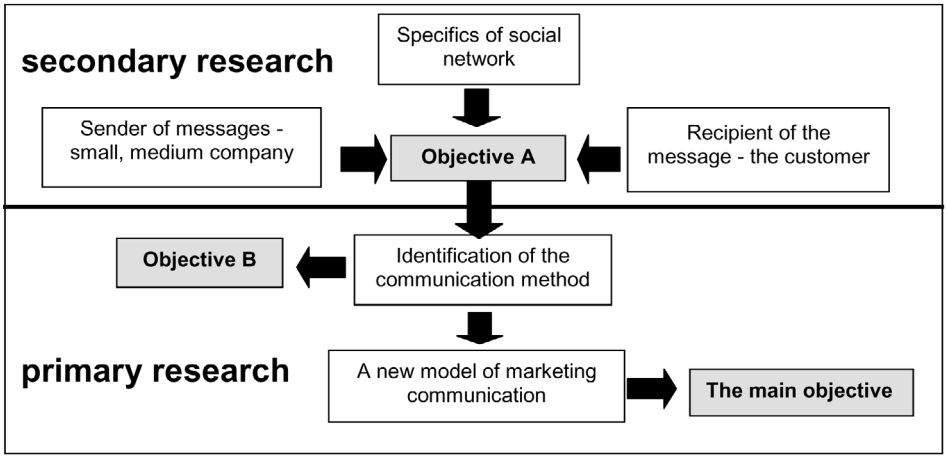
The concept framework shown (Fig. 1) has the descending tendency. The upper part is derived from secondary sources. The lower part consists of the primary research.

The concept framework is compiled so that it identifies attributes that affect communication of small and medium companies with consumers. The whole concept leads to the main objective, which is compilation of the communication model for social media.

1. Literature Overview

Social media have currently become an important communication channel in all countries where the Internet is freely accessible. It is illustrated by data specifying a number of users of the largest social network, Facebook, in the Czech Republic. In June 2012, the number already reached 3.7 million residents. In the world-wide

Fig. 1: Concept frame of the study



Source: own

scale, Facebook by itself has 950 million users [29]. However, Facebook is not all the social media, but there is a lot of international and local media types that are created or cease to exist at any given time. For example, the largest Asian network, "QQ", has more than 850 million [12] users.

Social media in general are considered a powerful tool for companies to keep in touch with customers and acquire feedback from them. They can also maintain contact with their customers through the fan groups or promote their events. Not only companies, but even products can be promoted or have their fan groups there. On the other hand, bad reputation of a company spreads through Social media even faster [33], [14]. Social media can be characterized as a subset of media using the Internet connection. This type of media is sometimes referred to as the "new media" or "media 2.0." [19]. The exact definition of social media has been time-developing, and it can be characterized in various ways. Bouda [3] characterizes them as follows: "Social media enable communication that is not targeted such as in case of traditional media. Social media are built on interaction among people. Feedback from the public in the form of comments or editing of original texts or contents is the key element." Victoria Bush [4] offers another interesting definition: "Social media provide simple use of collaborative work areas with utilization of various communication tools". Scoble [25] expresses his opinion on social media in a novel way: "Traditional media are not as fast as social media in rectifying published errors – errors can be rectified immediately or pointed up immediately in a blog. It is not possible to immediately communicate via traditional media or comment to their contents, contrary to comments in blogs. Traditional media do not have their archives currently and easily accessible, contrary to blog archives". Definition [27] is interesting and fitting, "A social medium is any Internet medium where a group of like-minded people can meet and discuss certain topics". If definitions of social media are summarized, they can be defined as online media where contents are created and also shared by users.

The reason why the model of communication has been designed chiefly for small and medium-sized businesses is especially the opportunity to fight against large multinational companies. In the area of social media unlike other mass media (television), money is not as much decisive, but here it is an activity, an idea or process that makes decisions. Social media help to create a level playing field for all and provide small and medium-sized businesses access to larger markets through cost-effective promotion. This phenomenon is especially pronounced in the Czech Republic, where small and medium-sized businesses represent

more than half the country's annual revenue and employ 62% of employees. At the same time the small and medium-sized companies in social media face certain problems. In that process six typical problems were detected that may slow down the introduction of Internet communication. These problems were: unclear communication strategy, new communication paradigms, non integrating marketing communication, and the company's involvement in Internet challenge, organizational changes, and people' skills in Internet communication [35], [2]. To increase competition factors in small and medium-sized business activities SME paid attention to the analysis of real conditions in a small enterprise aimed at the use of communication system as support for business activities. The determination of the concept of information demands, their tactics, methods, tools, and rules as well as decisions to use social network more effectively are the basic points of the information process analysis. Small and Medium-sized Enterprises turned our attention to monitor currently applied rules and tactics and according to them they should provide an answer to processes and activities used in the analyzed enterprise [23].

The main objective of information activity in marketing is communication with the consumer. Each observation can only become information provided that it is communicated, i.e. it passes through an arbitrary communication act or process. These communication acts can be expressed graphically by means of modelling. Modelling is one of the main methods of of studying the complex phenomena of the real world where all phenomena are related to each other and it is practically impossible to give their overall and accurate description. The model makes possible to depict objective reality in a simple way and capture only those aspects of the phenomenon that are considered important, i.e. that are close to the purpose for which the model has to fulfill. Necessarily, there happens a certain idealization of a particular phenomenon and its abstraction, which should not be confused with creating a copy of the modelled object or phenomenon, or a logical tautology. Communication models can be divided into one-way and multi-shift. One-way are mostly traditional models. In the traditional communication process, a sender relays a message through a channel to a receiver. The social marketers act as the sender or gatekeeper of information. This is referred to as vertical or top-down communication. The consumers, as the receivers, play a less active role. The channels, or means by which a sender transmits a message to the receiver, vary depending on the communication purpose, the intended receiver, and the type of message. Traditional communication channels include print, TV, broadcast, outdoor or personal [15]. The multi-directional communication models are those where consumers become creators and senders of messages. Consumers have always talked about an organization and its products with or without organizational leaders' or gatekeepers' consent.

And although word-of-mouth marketing is not new [36], emerging technologies and Web 2.0 social media applications have made it easier for messages to go "viral" at a faster pace. Therefore, social marketers must be proactive and strategic in using word-of-mouth or viral marketing as part of promotional strategies [31]. This model has several implications for social marketing practitioners. First, embracing the multi-directional models has the potential to reemphasize the consumer centered focus of social marketing. Consumers will be at the center of the communication process because they are both senders and creators of information. Second, social marketers must develop evaluation plans that include metrics for measuring the impact of communication and promotion. Most metrics related to print and broadcast communication channels are process in nature, measuring gross impressions [30].

2. Methodology

The research process consists of five phases. As the first step, there were established the research methods, next the research purpose, the respondent selection methods, the data collection methods and the data evaluation methods were the last step.

1. **Methodology** – from the methodology aspect, quantitative as well as qualitative methods were applied during the research. Both research methods were applied in succession. Qualitative methods preceded quantitative methods [16].
2. **Research purpose** – with respect of the study's objectives, it is possible to identify in the research the exploration purpose that

directly explores an extent of importance attributed to a consumer and also the descriptive purpose that maps the current situation [24].

3. **Selection of respondents** – the "random quota sampling" method was carried out via social networks and the Internet. The population consisted of social media users over 13 on the territory of the Czech Republic. The total of 603 respondents participated in two primary stages of the research.
4. **Data collection** methods were adjusted to objectives and evaluation methods so that they would ensure validity of acquired data. Validity, which can also be interpreted as reliability, represents verification that the scientific method was selected correctly. Applied data collection methods:
   - Dual group interview – a group interview or discussion; it belongs to the so-called qualitative research. At the group interview, visualization, associative and projective technique and role playing are used to discover relationships, attitudes, feelings, behaviors and motivations of consumers. Direct contact and inducing a certain social situation affect positively the expression of spontaneous, uncontrolled subjective reactions. The modified method called "dual group interview", which was used in the work, represents using multiple moderators for each data collection. Thus, the smooth progress of discussion is ensured.
   - Group observation – observation is one of the basic methods of data collection although it is often underestimated. It is an indirect data collection instrument that does not require direct contact with the respondent. The advantage is that the researcher does not need the consent of the respondent to cooperate. This applies especially in case that the respondent does not want to cooperate or if the respondent is a company that resists co-operation. The keystone of observation is deliberate, purposeful and planned monitoring of ongoing reality without the observer's active intervening. Observation is used mainly in combination with other methods of data collection, especially with inquiries. Observations must have a certain scenario, in order to avoid distortion. The basis of observation is an accurate statement of the objective, which is needed to find out.
   - Electronic inquiries – interviewing is based on direct or mediated contact between the researcher and the respondent. This contact is prepared in advance of the already identified issues. This serves to unify the conditions for processing the results. According to the specifics of the research, the intended method of questioning is determined. Electronic polling is the latest method based on the Internet. This method of questioning was conducted by e-mail, web pages and using social media. The advantage of electronic interviewing is the ability to target a certain group of respondents with relatively low costs.
5. **Data evaluation methods** were derived from the research objective and the type of researched data. Acquired data was evaluated using the "R" mathematical software and the "Statgraphics 16 statistical program. Evaluation methods can be divided into the following groups:
   - Nominal variables – as for nominal variables, qualitative sequence of the individual phenomena occurrences is not determined, thus there is not a relation of better-worse type between the individual values. An example is the representation of respondents in each age group. The group "30–39 years" is not qualitatively different from the group "13–19 years" or "40–49". At nominal variables, it is determined whether there is a statistically significant difference in the representation of pairs of individual categories of variables on the level of statistical significance, using the "pearson c2 test". Further, the p-value is calculated which determines what error can be made when rejecting the hypothesis H0.
   - Ordinal variables – are variables that can take a finite number of values in a given interval and can be sorted according to qualitative terms. An example is the overall satisfaction rate

which may gain integer values in the range <1, 7>, where 1 is the best and 7 the worst. For better explanatory power, the values can be aggregated into three groups <1, 3> – satisfied, <4> – neutral, <5, 7> – unhappy.

- Cardinal variables – are numeric variables whose values have the significance of numbers. It is possible to line them up in ascending or descending line, and they can take theoretically any value from the definition variables interval. When they are analyzed, at first the basic descriptive statics is performed with the calculation of the basic parameters of location, dispersion and skewness. Next, the verification of basic assumptions of homogeneity and normality is carried out. If the basic assumptions are granted, the links between individual files are examined. It is either rejection or non-rejection of the null hypothesis H0 by the set of t-tests. In case of rejection of normality by Shapiro-test at its significant distortion the nonparametric Wilcoxon test is used. In the work, unless stated otherwise, the operating level of significance is a = 0.05.
- Factor analysis – focuses on the analysis of the structure of internal relations among a large number of variables using a smaller set of latent variables, called factors. The aim was to summarize and reduce variables, with minimal loss of information. In order to conduct the factor analysis, Bartlett's test of sphericity and the condition of Kaiser-Meyer-Olkin (KMO) had to be met. Bartlett's test of sphericity tested the correlation among the original characters, i.e. that there is no correlation. KMO rate is the index of the comparison of the size of experimental correlation coefficients to the sizes of partial correlation coefficients. The evaluation result shows that: KMO » 0.9 marked great, KMO » 0.8 high, KMO » 0.7 medium, KMO » 0.6 low, KMO » 0.5 bad. If KMO is less than 0.5, the correlation was unacceptably low, and therefore the factor analysis is inappropriate.

For the purpose of better interpretation of the data, the rotation of factors was performed (i.e. redistribution of explained variance for each factor). For the rotation there was chosen orthogonal varimax rotation method since the goal was to reduce the number of original variables and, in addition, it was empirically proven that varimax creates stress that can be explained easily. When interpreting the factors, it started from the load factor which was represented by the correlation coefficient between the original variable and factor. Correlations greater than ± 0.5 were considered significant. If the variables did not reach the stated values, they were discarded and the analysis was carried out once again, or several times until the correlation coefficients of all the variables reached the minimum value ± 0.5. The aim of this procedure was to obtain the optimal number of variables. Acquired factors were named by variables tracks [18].

As for the data validation, reliability was used which indicates the reliability of measurement. The measurement reliability focuses on stability and conformity of the results obtained. The most commonly used indicator of reliability is Cronbach's alpha, which is a statistical method of detecting the degree level, degree of internal consistency and the reliability. It takes values ranging from 0 to 1, while the value of 0.7 or more indicates a high consistency and reliability [22].

3. Current State Analysis

Contents of the first partial Objective A were: **Map the current situation in communication between consumers and companies carried out using social media.** This objective was fulfilled using the current state analysis. Secondary research published in foreign media will be used for the analysis. We were unable to uncover any relevant research dealing with the researched topic in the Czech Republic.

Social media are online media based on continuous mutual communication. When consumers use online media, they substitute traditional offline search by Internet-based search [13]. Besides facilitating the low-cost search, online media also provide display advertising via banners. Banner advertising presents visual and textual information about the brand, occupies approximately 10% of the computer monitor's area, and allows consumers to access the company's website when clicked on [34]. Some studies investigate the

effectiveness of banner advertising [28], [10], [17]. Although its click-through rates are small, banner advertising creates a trace of ad exposure at pre-attentive levels of information processing, enhancing advertising and brand recalling [6]. According to Hollis [9], who analyzed 1,239 campaigns in the AdIndex database, the correlation between online ad awareness and purchase intent is 0.439, suggesting that online advertising builds attitudinal equity of a brand similar to traditional media. Thus, companies can build brands using online media [9].

It is possible to incorporate social media into the model of communication by using 4 steps:

1. Setting the target segment for which the communication is directed.
2. Determining the reasons for which the company wants to cooperate with the audience.
3. Introducing a specific strategy that builds on the defined reasons.
4. Choosing technology which corresponds with the given strategy and also coincides with the choice of socially relevant applications [7], [32].

According to the research company Euromonitor International from 2012, which is a world leader in strategic research for consumer markets, social networking has quickly become a cornerstone of modern life, especially among the modern youth, and the Survey results reflect this trend. Less than 5% of Quick Pulse respondents claimed not to use social media at all. Other respondents prefer to use these resources to stay in touch with friends both local (72%) and abroad (79%), or to reconnect with old friends (68%). Most also share photos (69%) or seek out news (64%). However, in addition to interacting with friends and acquaintances, some of our analysts interact with brands online. More than a third reported using social media to learn more about a certain product or service, or to read reviews or ask friends for advice (36–38%). Many also use social media for the purpose of following companies or brands they like (26%), and nearly that number (23%) seek discounts and deals from those companies. A few also reported sharing such discounts with friends (10%) or writing their own reviews (9%). As the use of social media grows and as e-interaction with companies becomes more commonplace, these numbers are only likely to increase [8].

The basic research outputs follow:

a) None of the existing communication model proposes the universal solution utilizable for social media. If all the communication models are summarized, it is possible to reach the conclusion that communication models cannot be used for all social media. Reasons why none of the already compiled communication models can be used are as follows:
- Models are intended for social networks only, which is only a subset of all social media.
- Found communication models are intended for all types of companies; contrary to that, our research was focused on small and medium companies only.

b) The general norm of behavior of companies in social media was compiled from the secondary research. Compliance with the norm guarantees a good approach to social media. Three basic areas of communication in social media were generated at the conclusion.
- The first area focuses on criteria applied by successful companies in social media. Such criteria are arranged hierarchically. They are getting attention, inducing cooperation, attaining a user, uncovering preferences, and creating a permanent relationship [5].
- The second area focuses on principles of company communication, which are directness, expeditiousness, and accessibility [26].
- The third area consists of 10 identified rules that form behavior barriers, which companies should observe in social media [20]. These rules are listening, targeting, quality, patience, interconnection, influence, appreciation, accessibility, reciprocity, and the value principle.

If companies comply with this norm, there is a good assumption that their communication will lead to success.

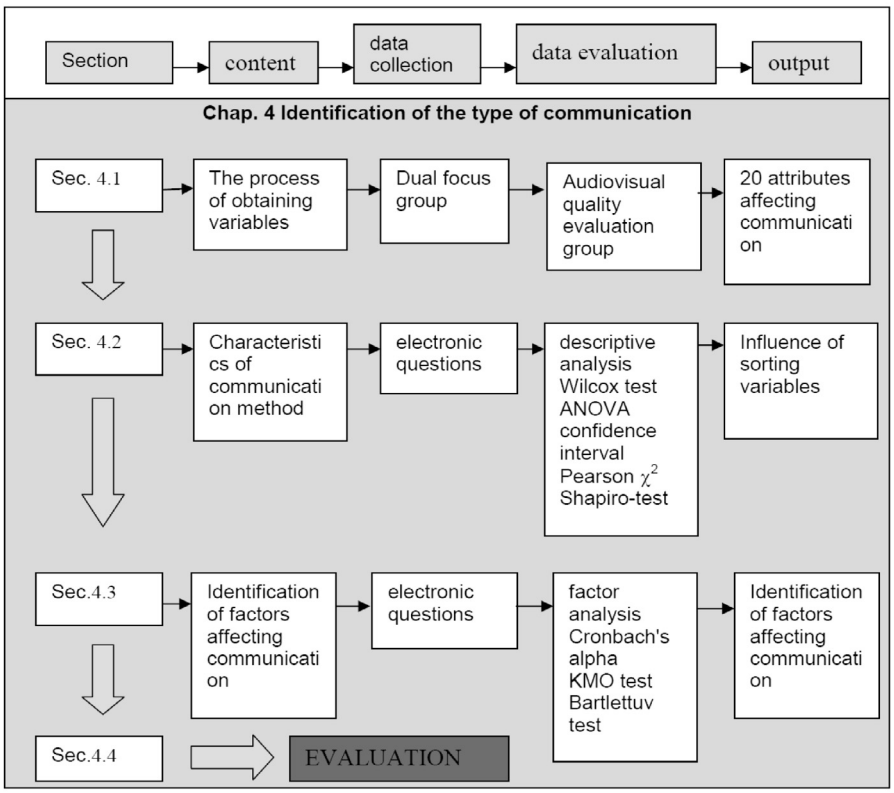
c) The following results were derived from research carried out by foreign agencies and companies on the territory of the European Union:
- The main reasons for using social media are as follows: Lifestyle, services, business activity, family, and friends [21].

- Prevalence of personal communication over commercial communication was unambiguously proved [11].
- A customer perceives reasons of communication in social media completely differently than a company [11].
- There are differences in age composition and quantity of users in individual types of social media [1].

4. The Main Achieved Results

The primary research of communication in social media represented the second partial **Objective B: Identify factors that influence communication methods and define importance of communication attributes that affect it.** Graphical illustration is shown in Fig. 3.

Fig. 3: Schematic research segmentation



Source: own

This chapter's structure was divided into three main parts. The first part, Section 4.1, identifies attributes influencing communication in social media. The second part, Section 4.2, groups these attributes using statistical methods. The last part, Section 4.3, describes how the research led to the factor analysis whose objective rested in identification of factors influencing communication in social media.

4.1 Variable Acquisition Process

Research via a group interview was carried out in March 2012 with groups of respondents selected in advance. The data collection plan was adjusted to objectives and the method of data collection so that it secures required information in the appropriate way. The data collection plan gave answers to questions as to when, where, who, and whom the research

would concern. Group interviews were executed in two days with the total of 48 respondents divided in five age groups: 13–19, 20–24, 25–29, 30–39, and 40 and above. A number of participants in one group was set as 7–11 persons. For orientation purposes, duration of questioning was set as an hour and a half, based on the number of questions. The place of information collection was set with regard to a presentation possibility and especially a possibility to record the interviews. A research team consisting of five persons was formed for the purpose of data collection. The whole debate was led by a moderator who asked appropriate questions developing the whole issue. Other two team members encouraged discussion by stating their opinions and solution proposals. The remaining two members ensured interview recording and for that purpose, operated the corresponding equipment. Age intervals in the groups were defined based on the specified distribution of Facebook users, in which every group represents 20% of social media users.

There was a great emphasis on correct evaluation of data from the qualitative research. The team that participated in evaluation consisted of social media and marketing experts and a psychologist. Evaluation of acquired data was carried out in two phases. Outputs from the dual group interview were specified separately for each group in the first phase. Five partial tables with the resulting attributes were produced. Subsequently, a data synthesis into the final 20-attribute form took place: *Speed of response to my question, Individual approach of the company, Online company communication all day long, Regular updates of information, The veracity of the information provided, Clarity of information provided, Humorous form of information, Qualification of provided information, Lotteries, contests, coupons from companies to SM, Complaint processing, Obtaining information for SM through advertising, Index of corporate information to social media, The way of providing information to social media, Presentation in Czech, Corporate social responsibility (environment, ethics), Supporting not-for-profit events (cultural, sports), Link to the company's website, Acquiring solicited information only, Obtaining integral and complete information, Communication through forums (chat).*

The objective was fulfilled, the attributes were identified. Results may be used as recommendation how to communicate with customers. Differences, as well as similarities that connect all the age groups are apparent from group results. The list of the total 20 attributes could be utilized for compilation of a market strategy; however, it would be very complicated. The resulting attributes only define which variables influence customers. However, they do not show the scope of their influence and above all, they do not show if they influence them positively or negatively. For that purpose, it was necessary to subject the variables to further examination via statistical analyses.

4.2 Characteristics of the Communication Method

Research via electronic inquiring in social networks and the Internet was carried out in May 2012. The electronic questionnaire contained five questions where the first one dealt with assigning importance to twenty attributes uncovered in the previous research. Respondents were provided with a possibility to assign importance to these attributes by means of the 7-point scale where 1 = the maximum importance and 7 = the maximum unimportance. The remaining four questions were for the classification purposes only, and they were establishing: Sex, age, education, and economic activity. The total of 555 completed questionnaires were submitted for analysis. Questionnaires were excluded if they were incomplete or contained logical incoherence.

a) Evaluation of variables unaffected by classification parameters is shown in Tab. 1, in which attributes for assigning importance are classified based on the average, from the most important to the least important. Based on the resulting values, researched attributes can be divided into four groups. Based on indication of confidence intervals containing the mean value it is apparent that the following attributes have the best evaluation rating: *Veracity and clarity of provided information,* which forms the first group with the average evaluation rating approximately of the value of 2. The second group contains attributes that do not exceed evaluation rating in the value of 3: *Acquiring of integral and complete information, regular information updates, speed*

of response, acquiring solicited information only, qualification of provided information, presentation in Czech, connection to the company's website. The third group consists of attributes with the average evaluation rating: *The company's individual approach, corporate social responsibility, a way of providing information in social media, online communication all day long, contents of company information in social media, support of not-for-profit events, communication via a forum. The last group consists of attributions with evaluation rating exceeding 4: Humorous form of information, acquiring information for social media through advertisement, lotteries, contests, coupons.*

Tab. 1: Evaluation of the main variables unaffected by classification parameters

Evaluated attributes	$\bar{x}$	Median	$\bar{x} - t\frac{s}{\sqrt{n}}$	$\bar{x} + t\frac{s}{\sqrt{n}}$	Standard deviation
Veracity of provided information	2.04	1	1.898	2.182	1.702
Comprehensibility of provided information	2.056	2	1.932	2.179	1.48
Acquiring of integral and complete information	2.314	2	2.176	2.451	1.65
Regular information updates	2.413	2	2.273	2.552	1.671
Speed of response	2.497	2	2.366	2.629	1.576
Acquiring solicited information only	2.569	2	2.431	2.708	1.662
Qualification of provided information	2.634	2	2.506	2.762	1.537
Presentation in Czech	2.659	2	2.513	2.806	1.762
Connection to the company's website	2.834	2	2.693	2.976	1.698
Company's individual approach	3.077	3	2.931	3.224	1.752
Corporate social responsibility:	3.306	3	3.166	3.447	1.687
Method of providing information in SM	3.312	3	3.169	3.455	1.716
Online communication all day long	3.342	3	3.197	3.487	1.739
Contents of company information in SM	3.559	3	3.425	3.692	1.606
Support of not-for-profit events	3.649	4	3.502	3.795	1.76
Communication through a forum	3.699	3	3.547	3.851	1.821
Processing complaints via social media	4.047	4	3.886	4.207	1.927
Humorous form of information	4.247	4	4.099	4.395	1.779
Information for SM from advertisement	4.587	5	4.435	4.74	1.829
Lotteries, contests, coupons	5	6	4.848	5.152	1.825

Source: own calculation

b) For evaluation of the main variables affected by classification parameters, an analysis of influence of individual identification parameters was carried out. The analysis was carried out via the one-factor variance analysis. Based on executed tests, it is possible to say that differences in perception of communication methods by respondents exist across the demographic groups. Age, education, and sex play the main role. Demographic groups where statistically significant difference was identified (Tab. 2) were submitted to the analysis.

Tab. 2: Distribution of respondents for the factor analysis

Sex	Age	Education	Economic activity
Male/female	13–29 years	High School or less	Economically active
	30 and above	Vocational school or college	Economically inactive

Source: own calculation

Upon further examination of difference variables, no significant differences were identified between the sexes. As for the other three classification parameters where statistically significant differences were identified, respondents were always divided into two groups. That significantly simplified division. Created groups were internally homogenous and mutually heterogeneous, which formed the prerequisite for further research (see the next section).

4.3 Identification of Factors Influencing Communication

Since the objective of Section 4.3 rested in identification of factors influencing the manner of communication, results were further processed via the factor analysis. This section focuses on determination of attributes that were really important for respondents and summarizes them into a smaller number of factors. In the first instance, the factor analysis was evaluated via the varimax method on all answers, regardless the classification variable. Evaluation based on demographic factors, for which statistically significant difference was detected, followed.

4.3.1 Overall Evaluation of All Respondents

The factor analysis was carried out in total of four phases because the first analysis (or the second and third) identified attributes with the correlation coefficient value lower than ± 0.5, which were then excluded. This procedure's objective rested in reduction of variables and extracted factors to so-called optimum level, i.e. to a number of factors that affect communication with a customer the most. Table 3 is summarizing results of the factor analysis's four stages.

Tab. 3: Factor analysis results for all respondents

		1. phase FA	2. phase FA	3. phase FA	4. phase FA
Cronbach's alpha		0.83028			
95% interval of confidence		0.80970;0.85087			
Kaiser-Meyer-Olkin (KMO) measure		0.855	0.857	0.835	0.812
Bartlett's Test of Sphericity	chi-square	4,453.9	3,098.9	2,800.1	2,374.3
	degrees of freedom	190	78	66	45
	significance level	0	0	0	0
The number of variables entering the factor analysis		20	13	12	10
Number of factors		9	4	4	3
The number of variables in the factor		13	12	10	10
Cumulative percentage of variability		62.7	58.2	60.7	60

Source: own calculation

Cronbach's alpha is met, and it unambiguously exceeds the value of 0.7. The value of 0.83028 means high consistency and reliability, thus meeting the conditions for interpretation. The confidence interval content is valid, since the interval is (0.80970–0.85087). The condition for achieving the Kaiser-Meyer-Olkin measure, i.e. the KMO value exceeding 0.5 was met in all phases. Rating of the first phase is "high" 0.86, rating of the second phase is "high" 0.86, rating of the third phase is "high" 0.84, and rating of the fourth phase is "high" 0.81. Bartlett's test of sphericity was met for all phases. The resulting matrix after the four steps is presented in Table 4.

Tab. 4: The resulting factor analysis matrix

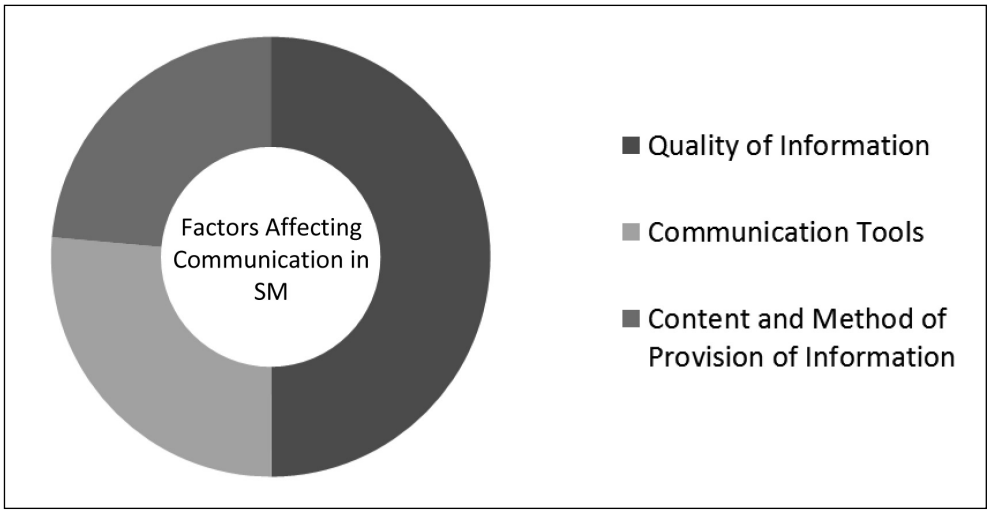
variables	Factor 1	Factor 2	Factor 3
Regular information updates	0.702	-0.076	0.233
Veracity of provided information	0.877	-0.129	0.17
Comprehensibility of provided information	0.824	-0.115	0.079
Lotteries, contests, coupons	-0.213	0.714	0.014
Processing complaints via social media	0.074	0.625	0.119
Acquiring information for social media from advertisement	-0.137	0.752	0.133
Contents of company information in social media	0.154	0.283	0.844
Method of providing information in social media	0.291	0.048	0.756
Acquiring solicited information only	0.635	-0.022	0.058
Acquiring of integral and complete information	0.666	-0.049	0.199
percentage of variability	**29.70**	**15.90**	**14.50**
Cumulative % of the variability	**29.70**	**45.50**	**60.00**

Source: own calculation

When choosing the number of factors, there was chosen a combination of the two. The first approach was a graphical representation of the "screening" test, where a choice of three factors resulted from the position of the inflection point of the curve. The second way was “an appropriate interpretation of factors”, in which it is necessary to build meaningful items so that they can be classified into a single concept factor. Here, only solutions with three factors were appropriate. Thus, three spheres of resulting factors were obtained from the factor analysis (Fig. 4), which were named based on the topic associated with the individual attributes:

- Information quality.
- Communication tools.
- Contents and method of providing information.

Fig. 4: Resulting determination of variables for all respondents



Source: own elaboration

The first factor named as **quality of information** associates five variables that amount to 30% of the cumulated 60% variability. All five variables have a certain relation to information quality embedded. Regular updates imply importance of every-day upgrades of shared information. Veracity and clarity of information directly leads to the quality of communication. Acquiring of solicited and complete information also leads to the quality of communication. Respondents make it clear that **quality of information** is their main requirement.

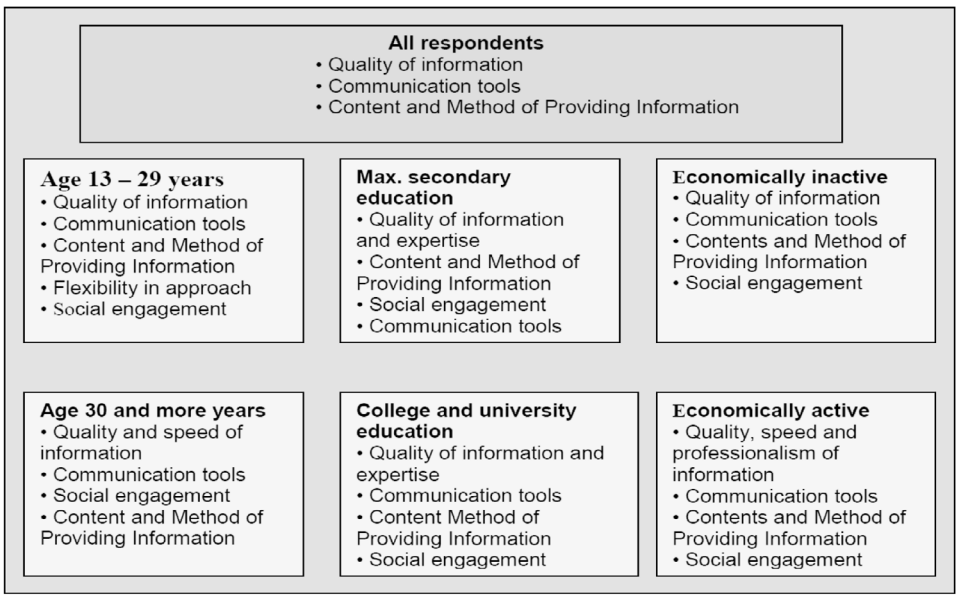
The second factor named as **communication** tools associated three variables: Lotteries, contests, coupons provided by companies in social media, complaint processing in social media, and obtaining information in social media through advertisement amounts to 16% variability. Based on the results, it is apparent that communication tools have to be taken into account.

The third factor named **a content and method of provision of information** consists of two variables. Both the variables explain 14% variability. After thorough analysis, it has not been possible to define a common hidden denominator. In this case, information content, as well as method of provision of information plays the important role and the factor is named after them.

4.3.2 Evaluation of Factors Affecting Methods of Communication in Social Media

The same factor analysis was applied to other six homogenous groups identified based on classification parameters with statistically significant differences. Results of evaluation in the individual demographic groups of respondents are shown in Fig. 5.

Fig. 5: Resulting factors affecting communication in social media divided based on respondent groups



Source: own elaboration

1 FA: Quality of information – this factor appears in all respondent groups, even though sometimes in certain modifications. The factor was identically named for the group of 13–29 year old economically inactive respondents. In the age group 30 and above, there is the speed of providing information attribute present, in addition to quality of information. For two groups of respondents with the High School education or less and the vocational school or college

education, the qualification of provided information appears together with the quality. For the only "economically active" group of respondents, the following attributes appear: Information quality, qualification, and speed of its provision. In evaluation of variability, this factor is always the first. Its percentage representation in the total variability is from 20% to 30%. The reason the factor's name being "quality of provided information" is clearly hidden implicit meaning in all contained variables.

2 FA: Communication tools – is the second most important factor of the overall evaluation. This factor placed the second based on the variability size also in all other groups of respondents, with the exception of the group with High School education or less. This factor is extensive, and it is subject to further research in the following section. The absolute variability range for this factor's individual groups is from 10% to 16%. Contained variables that clearly identify communication tools are the reason for its name.

3 FA: Contents and method of providing information – is the third factor. This factor places the third in the majority of respondent groups divided based on demographic groups. The absolute variability range is from 9.5% to 13.5% across all groups. Two absolutely independent variables contained in this factor are the reason for its ambiguous name.

4 FA: Social engagement – is the fourth factor affecting communication in social media. This factor did not appear in the analysis of the whole sample of respondents; however, it was always described in the analysis based on the demographic classification elements. In all cases, it consisted of two identical variables. The absolute variable range was from 8% to 12% in all demographically divided groups. The reason for this factor's name rests in engagement in the non-commercial sphere of contained attributes.

5 FA: Flexibility in approach – this factor was described by only one group of respondents divided based on the classification parameters, and it was the 13 to 29 age group. It consists of three variables, and its absolute variability is 9.5%. This factor is unique and utilizable for this age group only. The reason for the name was hidden behind independent variables that are overall connected by variability.

5. Communication Model

The main objective of this study rested in proposal of a communication model for utilization by small and medium companies in the social media environment. Using synthesis, all the results were summarized into a new communication model (Fig. 6).

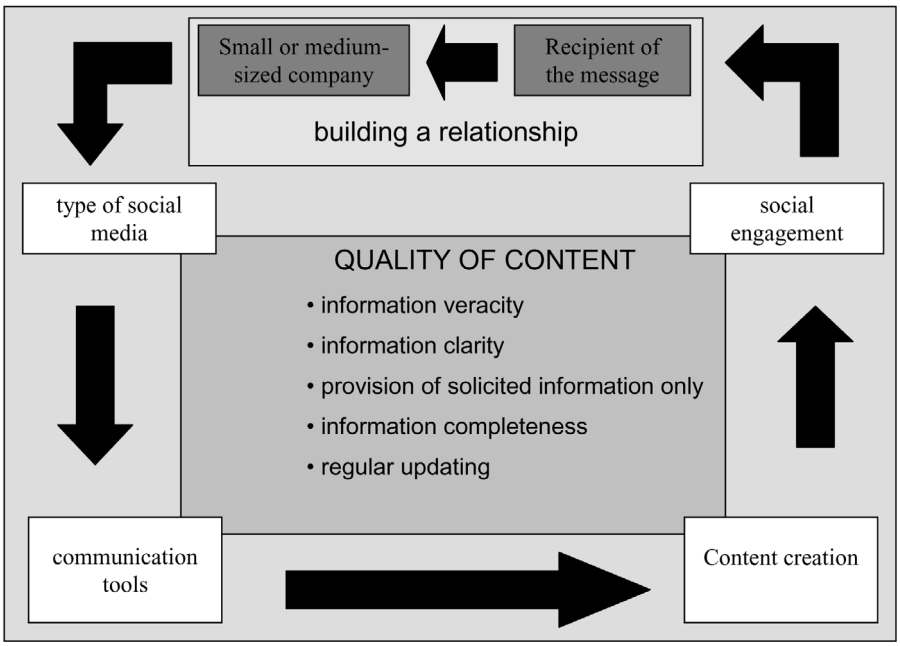
In the proposed communication model using social media, it is possible to define neither the beginning, nor the end. The whole model is based on the continuous information circulation. The initial impulse for utilization of social media can occur in the company if it decides to utilize this method of communication with a customer. Or, contrary to that, the company can be forced to enter into it as a result of the company's environment. The pressure can be generated by the micro-environment, as well as the macro-environment. Building a relationship between the company and a customer is the basis of the whole communication model. In the communication model, this relationship is proposed in its upper part.

After realizing an impulse initiated by the company or a customer, selection of the social media type follows, and it is the model's first part. Based on the secondary research, social media were already divided into seven sub-groups, based on the communication tactics. Selection of one or more types of social media, which the company wishes to utilize, follows. It is ideal to begin with one medium and gradually add other types. The research confirmed that connection between individual types of social media also plays a certain role.

After selection of the social media type, selection of a communication tool, which is the model's second part, follows. This factor is very extensive as for its contents. Social media users prefer new forms of communication, such as mobile, buzz, viral, guerilla, and engagement marketing. These new tools are complemented with sales support, to which respondents assigned high importance. These tools are recommended for utilization in social media.

Contents creation forms the third part of the communication model. This part was specified based on the factor analysis result. Two identified factors are connected in this point. High-quality message is the first factor, and it has also been the strongest factor of the research. Information content was the second factor. Combination of all factors produced

Fig. 6: Communication model



Source: own

"content creation", which is subject to quality. Content quality consists of information veracity, information clarity, provision of solicited information only, information completeness, and regular updating. At the same time, these attributes are the most important ones, derived from the research of the communication method. They form a part of the whole model as well, since these principles apply to the whole communication process and, therefore, they form the intersection in the model's centre.

Social engagement forms the fourth part of the communication model. It is a supplement added to a message; however, respondents in all researched groups consider it very important. Respondents named ecology, culture, ethics, and sport support the most important areas of social engagement.

In this point, the whole communication circle is closed; however, the process does not end here. As was already mentioned, this communication model does not have the exactly specified beginning. At the same time, it does not have the end. If the communication was successful, it led to the return contact with the company, which is the best state that could by achieved by the company. Based on such mutual communication, a relationship that leads to acquiring of a loyal customer is created. A loyal customer brings the biggest profit to the company. To the contrary, it there is no response from customers-users, an error occurred somewhere in the communication process. However, that must not discourage the company, but only bring an error in the process to attention. The company must react to it via a change and modify the whole communication process.

Conclusion

Based on national, as well as foreign literature search, it is possible to state that currently, no complex serious research exists on small or medium companies in confrontation with communication in social media in the Czech Republic environment. That is why this study was executed, in order to uncover possibilities

of commercial communication with consumers via social media. The whole study contains a large amount of new information; however, its biggest contribution rests in proposal of the new communication model. This new communication model that was developed based on the empirical research reflects Czech specifics in social media. In its relatively simple form, the model captures the whole process that consists of the continuous information circulation. The model is based on four basic phases, through which information passes from a sender to a recipient. Each of these phases is supported by research and specified in detail in the study.

The study's contribution for companies. Communication via social media is by its nature a complex concept. On one side of the market there are trading companies that try to address consumers through communication channels. The market in which they move continuously sharpens, and the competition gets more intense, leading to a stronger effort to communicate with the consumer. On the other side there are customers with their expectations, needs and requests which vary from individual to individual. They use more and more frequently new communication channels from the comfort of their home. In the last five years social media have been the most progressively developing among these media. The output for small or medium-sized businesses is the ability to use the research findings in order to reach consumers. The original intention was directed to help small and medium-sized companies, but the research has not shown differences between using the communication model by small and medium-sized businesses and businesses with more employees. For this reason, the model is usable across the entire spectrum of businesses. Based on results, companies can apply targeted marketing and adjust their communication mix to the target group. This study is derived from theoretical foundations; however, despite that, it represents a big opportunity for small and medium companies to address respondents via social media in practice. The compiled communication model should serve the companies as instructions how to address potential customers. The model can be utilized if companies already have certain experience, as well as if they are only considering to enter the social media environment.

Currently, social media are already the essential part of companies' communication mix. However, it is necessary to realize that they represent only a part of the modern communication. Companies must neither underestimate, nor overestimate this communication channel. However, if the company wants to be successful, it should include social media in its regular communication portfolio where they belong.

At present it is necessary to rank social media as a separate information channel to the traditional communication media, which are the radio, TV, prints, external media and the Internet. For many people, the term social media is represented by Facebook, which is clearly dominant

in the CR. However, under this name can be included many other resources:

- Blogs, video blogs, microblogs (Twitter).
- Social networks (Facebook, MySpace, LinkedIn, Google+).
- Wikis (Wikipedia, Google Knol).
- Social bookmark systems (Digg, Delicious, Jaggi).
- Shared Multimedia (YouTube, Flickr).
- Virtual worlds (Second Life, The Sims).
- Discussion forums, QaA portals (Yahoo! Answers).

It is then necessary to continue in the choice of instruments from the mentioned types of social media because they are also the first part of the set model. These tools are part of the second component of the presented model. After that there comes the creation of content supplemented by the current social aspects. The model has a great advantage in that when social media, the communication tools and content will change in the future, the model will always be functional since it is based on the constant circulation of information. The crucial aspect is the company's strategy to which all parts of the communication model are subject. When the strategy is changed, they can continuously change both a type of social media and communication tools and the content of the communication as it will follow.

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Abstract

MODEL OF COMMUNICATION USABLE FOR SMALL AND MEDIUM-SIZED COMPANIES FOR THE CONSUMER COMMUNICATION IN SOCIAL MEDIA

Otakar Ungerman, Světlana Myslivcová

The subject of this report rests in small and medium companies that use social media for communication with their consumers, which is without a doubt one of the important methods of the current modern marketing communication. Competition keeps growing on the current market, and small or medium companies have increasingly more difficult position in establishing themselves against the international chains. If such companies wish to succeed in this struggle, they must utilize all means leading to creation of long-term relationships with their customers. Social media represent one way of building such relationship, since it is activity, creativity, idea, or thought, and not financial means, what matters. However, there is still a question regarding how companies should utilize social media so that they satisfy individual wishes and needs of customers and stay on the market. Proposal of a certain communication method standard that would provide small and middle companies with a general instructions how to build a relationship with a customer can be the solution. Therefore, this study's objective rests in a proposal of a marketing communication model that respect specifics of small or medium companies and social media. The communication model was built especially on identification of dimensions that are the most important in a user's perception of the social medium. At first, this study summarizes existing knowledge on utilization of the social media, communication modeling, and the current relationship of a sender and a recipient toward social communication. These concepts were subjected to the comparative analysis and summarized in the final synthesis. For the purpose of achieving the study's objective, empirical evaluation of social media users had been carried out. Data was evaluated using one-dimension and multiple-dimension statistic analysis. A communication model that can be utilized by small or medium companies for communication with consumers using social media is proposed in the study's conclusion.

Key Words: *Marketing communication, social media, communication model, consumer satisfaction, factor analysis, communication tools, relationship building.*

JEL Classification: *M31.*

VYBRANÉ ASPEKTY EFEKTÍVNOSTI SLOVENSKÉHO ZDRAVOTNÍCTVA JEDNODŇOVÁ ZDRAVOTNÁ STAROSTLIVOSŤ A JEJ ROZVOJ V PODMIENKACH SLOVENSKEJ REPUBLIKY

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Vydavateľstvo: Technická univerzita v Košiciach, Košice, 2013

Zvyšovanie efektívnosti verejných výdavkov na zdravotníctvo vyžaduje potrebu riešenia viacerých problémov. Pre implementáciu odporúčaní renomovaných zahraničných inštitúcií pre Slovensko (napr. odporúčania OECD v oblasti redukcie klasických nemocničných lôžok), je potrebné každé rozhodnutie na úrovni štátu podporiť rozsiahlymi viacdimenzionálnymi analýzami. Len takýto postup v rámci rozhodovacieho procesu nám pomôže zabrániť znižovaniu kvality a dostupnosti zdravotnej starostlivosti, dôsledne ochráni samotného spotrebiteľa zdravotných služieb a v konečnom dôsledku zvýši aj prestíž Slovenskej republiky u racionálnejšie sa správajúceho externého zahraničného prostredia. V období prebiehajúcich diskusií o transformácii systému verejného zdravotného poistenia, odhaľovania rezerv v procese zvyšovania efektívnosti, ako aj optimalizácie liečebných a s nimi súvisiacich ekonomických procesov v zdravotníckych zariadeniach predstavuje recenzovaná publikácia vysoko aktuálny konštruktívny príspevok.

Jednou z možností úspor finančných prostriedkov zdravotných poisťovní je zavedenie jednodňovej zdravotnej starostlivosti (JZS) výhodnej aj pre pacientov. JZS funguje vo svete už viac ako tri desiatky rokov, pričom zaujímavý je jej podiel na celkových chirurgických výkonoch až do 90 %, kým na Slovensku je to iba okolo 7 %. Na Slovensku JZS našla podporu u zdravotných poisťovní, ako aj u MZ SR vo forme podpory konkrétnych cieľov Programových vyhlásení jednotlivých vlád, žiaľ za 15 rokov sa nám ju nepodarilo dostatočne rozvinúť. Existuje mnoho dôvodov, ktoré bránia jej širšiemu zavádzaniu a využívaniu, čím by sa mohli ušetriť značné finančné zdroje zdravotníckeho systému, ktoré by bolo možné využiť v urgentných oblastiach. Nedostatočnému rozvoju JZS bráni neadekvátne nastavený a ekonomicky demotivujúci systém. Na Slovensku úplne absentujú výskumné štúdie zamerané na rozvoj JZS, jej efektívnosť, rizikovosť, cenové stratégie zdravotných poisťovní, ako aj funkčnosť JZS. Bez týchto analýz nie je možné odhaľovať cesty zvyšovania efektívnosti zdravotníckeho systému a zabezpečovania spokojnosti všetkých aktérov systému zdravotníctva.

Vedecký, ekonomický i hospodárskopolitický prínos recenzovanej publikácie spočíva v tom, že fundovane prispieva k prekonaniu tejto medzery. Prezentované poznatky poskytujú metodologický rámec pre realizáciu nevyhnutných analýz pre systém slovenského zdravotníctva a pre tvorcov finančnej a zdravotnej politiky prináša konkrétne návrhy k plánovanej konštrukcii modelu finančno-ekonomického zhodnotenia procesu zavádzania a využívania JZS a kvantifikácie vyvolaných viacdimenzionálnych úspor v slovenskom zdravotníctve. Prínos publikácie je aj v tom, že umožní obohatiť aj pedagogický proces pre študentov medicíny aby si popri medicínskej osvojili aj ekonomickú stránku systému JZS.

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