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Differences between foreign and domestic firms in investment measurement and management

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Abstract

The paper focuses on models and methods of investment measurement and management. Aim of the study was to find out dominant investment tools linked with possible positive effects in business performance. The research tested the business entities in transitional economy of Slovakia in Central Eastern Europe. Statistical analysis of contingency as appropriate testing method for categorical variables was applied in the research. Results demonstrated statistically significant differences between the use of selected tools in foreign firms against local firms as well as higher performance in companies with partly or fully foreign ownership.

Keywords: Investment management, investment effectiveness measurement, business performance, foreign ownership.

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1. Introduction

Comprehensive approach, certain methods and models of investment measurement and management belong among determinants of business performance and development, contrary inadequate concepts may be the reason of insufficient performance of companies. According Rajnoha, Lesnikova and Koraus (2016), as businesses do not operate in a closed system of relations, but rather in a dynamically evolving environment, it is necessary to also look at the performance of the company in any other way and take account of its nature, the attention is given more complex systems to support business performance, with an emphasis and respect for the strategy and business objectives. The best-known worldwide and domestic experts in management agree on fact that each enterprise should have qualified strategy and created its effective way of realisation based on the latest management approach (Sujova, Rajnoha & Merkova, 2014). According Sujova and Marcinekova (2015), successful economic development requires, besides the application of traditional methods, also the application of new modern methods based on traditional systems of financial indicators and completed by time and qualitative indicators.

Theory fundamentals for an importance of investment project preparation, their content, structure, range or quality describes for example Bangs (1995) or Blackwell (1989). In evaluation of a particular investment project, we evaluate their suitability, efficiency and feasibility (Rajnoha, Jankovsky & Merkova, 2014). Preparation of investment projects is the main assumption for successful realisation and use of an investment, according Drábek and Polách (2008) we evaluate the impact of the investment project on total effectiveness, prosperity and financial stability of the company. Due to appropriate and precise investment project can companies react quickly and adequately to changes in surrounding conditions, increase the hope to succeed in given entrepreneurial activities and gives presumptions for improving long-term economic results of the enterprise. If local firms do not make any investment projects, or they make them in non-adequate way, it can be the factor of failure.

Valuation of investment economic effectiveness can be realised in several approaches, each company defining what concepts or tools are applied in own measurement and management system. The most frequently mentioned methods in theory (Levy & Sarnat, 1986; Khan, 1993; Brealey & Myers, 2003) are net present value and internal rate of return considering the discount rate. Discounted cash flow valuation is based on expected future cash flows and discount rates. While discounted cash flow valuation is only one of the three ways of approaching valuation, it is the foundation on which all other valuation approaches are built (Damodaran, 2012). Brealey and Myers (2003) also deal with often used indicators return on investment or return on equity (ROE), but these methods do not consider the time factor of money value. Among modern and appropriate indicators is mentioned cash flow return on investment based on discounted cash flows.

Recent research (Merkova, Rajnoha & Dobrovic, 2015) investigated models and methods of strategic business measurement and management and found their impact in business performance. The main conclusion statistically confirmed that better business performance is significantly dependent on financing from foreign capital. The best performing companies (the most typically reaching of ROE above 10%) are mainly or wholly financed from abroad, and vice versa, for purely domestic firms are characteristic lower performance with a value of ROE in the range of 0-2%. In next study (Merkova, 2015) was proven that use of investment controlling valuation has the significant impact in business performance growth of companies in Slovakia. Merkova, Drabek and Jelacic (2015) analysed important issues like development investment, investment direction and investment project preparation especially in wood processing industries in Slovakia. Relationship between selected management tools in strategic performance measurement systems and overall business performance measured by indicator ROE was tested by Rajnoha, Lesnikova and Krajcik (2017), in the most important findings are information and knowledge for the strategic transformation from traditional business performance measurement system to strategic and sustainable performance measurement system.

Following mentioned issues above, this paper focuses on models and methods of investment measurement and management. Aim of the study was to find out dominant investment concepts linked with possible positive effects in business performance. We investigated differences between used selected tools in foreign firms against local firms as well as differences between obtained performances in companies with partly or fully foreign ownership in comparison with local firms in Slovakia.

In the issue of investment project preparation, we defined the assumption that investment projects preparation is more typical for foreign firms than domestic firms, it has a significant impact on business performance and this tool is applied in companies that achieve a moderate or higher ROE. Results of the verification we present in the paper.

2. Material and methods

The research tested the business entities in transitional economy of Slovakia in Central Eastern Europe. To build data collection there was created on-line questionnaire through internet application (more in Questionnaire Survey, 2013 or Rajnoha et al., 2013). We maintain complete anonymity of participating firms. The size of research sample was 164 counts. In complex research we analysed all companies, we created samples according certain industries (engineering, automotive, wood processing etc.). Table 1 presents basic information about tested groups in the study.

Table 1. Tested groups.

Tested groups / Industry	Sample size
Sample of all tested companies	164 companies
Sample of wood processing industries	34 companies
Sample of automotive industry	16 companies
Sample of engineering industry	30 companies
Sample of other companies: All other industries except the wood processing, automotive and engineering	84 companies

Companies were initially analysed according the distribution of the achieved performance of the six particular groups (Groups 0–5, Group 0 – the worst performance with negative ROE, Group 5 – the highest performance with the ROE over 10%).

Statistical analysis of contingency as appropriate testing method for categorical variables (Pearson, 1904; Everitt, 1977; Panik, 2005) was applied in the research. We used two-dimensional inductive statistics and chi-squared test was calculated. Results of chi-squared tests describe selected statistics: Pearson’s chi-square and significance p-value, Pearson’s contingency coefficient (CC), adjusted contingency coefficient (Adj. CC) and degrees of freedom (df).

$$\text{Pearson's chi-square: } \chi^2 = \sum_{i=1}^k \left[\frac{(f_{o_i} - f_{e_i})^2}{f_{e_i}} \right]; \text{ while } \sum (f_o - f_e) = 0 \quad (1)$$

$$\text{Pearson's contingency coefficient, CC: } CC = \sqrt{\chi^2 / (\chi^2 + N)} \quad (2)$$

$$\text{Maximum contingency coefficient, } CC_{max}: CC_{max} = \sqrt{(q-1)/q} \quad (3)$$

$$\text{Adjusted contingency coefficient, Adj. CC: } Adj. CC = CC / CC_{max}; \text{ while } CC \leq CC_{max} \quad (4)$$

where:

f_{o_i} – observed frequency in a field of the table,

f_{e_i} – expected (theoretical) frequency in a field of the table,

k – number of cells in the table

N – sample size

q – number of rows or columns (in square tables)

For statistical analysis, numeric and graphical presentation of the research results, we used the program MS Office Excel and software Statistica12 from StatSoft, Inc.

Several hypotheses have been established in the study:

- H_1 : There is significant difference in investment projects preparation between foreign and domestic firms.
- H_2 : Investment projects preparation has an impact in business performance.
- H_3 : Companies applying investment projects achieve a moderate or higher value of ROE indicator.

For each hypothesis we have formulated null hypothesis H_0 an alternative hypothesis H_1 representing the opposite to the basic hypothesis. The decision to accept or reject the H_0 was carried out as follows:

- $\alpha < p$ H_0 cannot be rejected
- $\alpha \geq p$ H_0 is rejected in favor of H_1
- Significance level was set as $\alpha = 0.05$.

3. Results

The paper presents significant results in the issue of investment projects preparation. Significance is based on the results of statistical testing with p-value $p < 0.05$, considering formulated hypotheses in methodology.

We demonstrated dependence between use of this investment tool and company ownership. Detailed statistical results of chi-square test are presented in Table 2. Preparation of investment projects considering local or foreign firms is typical for the second mentioned group, against the local firms without extensive making of business or investment projects. This fact is explained by the residual frequencies presented in Table 3. Although most domestic enterprises prepare investment projects, it is not sufficient in relation to foreign companies and the relationship between investment projects and foreign capital is significant.

Table 2. Contingency: Foreign ownership vs. Investment project preparation – statistics

Foreign investment vs. Investment project preparation (statistics)	Chi-square	df	p-value
Pearson’s chi-square	5.804882	df = 1	$p = 0.01598$
M-L chi-square	6.635459	df = 1	$p = 0.01000$
Contingency coefficient (CC)	0.18		
Adjusted contingency coefficient (Adj. CC)	0.26		

Table 3. Contingency: Foreign ownership x Investment project preparation – frequencies

Investment project preparation	Domestic ownership	Foreign ownership	Row total
Observed frequencies			
Without investment projects	32	4	36
Preparation of investment projects	88	40	128
Total	120	44	164
Expected frequencies			
Without investment projects	26.3415	9.65854	36.00
Preparation of investment projects	93.6585	34.34146	128.00

Total	120.0000	44.00000	164.00
Residual frequencies			
Without investment projects	5.65854	-5.65854	0.00
Preparation of investment projects	-5.65854	5.65854	0.00
Total	0.00000	0.00000	0.00

We tried to find some differences in the emphasis in preparation of investment projects especially in separate industries. From the statistical results (Tables 4 and 5) it can be stated that preparation of investment projects is characteristic for the category of engineering and automotive industries, while the WPI industry and other sectors do not consider the preparation of investment projects as principal.

Table 4. Contingency: Industry vs. Investment project preparation – statistics

Foreign investment vs. investment project preparation (statistics)	Chi-square	df	p-value
Pearson’s chi-square	7.12318	df = 3	$p = 0.06807$
M-L chi-square	8.26091	df = 3	$p = 0.04092$
Contingency coefficient (CC)	0.20402		
Adjusted contingency coefficient (Adj. CC)	0.26429		

Table 5. Contingency: industry vs. investment project preparation – frequencies

Investment project preparation	Other	Wood processing	Automotive	Engineering	Row total
Observed frequencies					
Without investment projects	24	8	2	2	36
Preparation of investment projects	60	26	14	28	128
Total	84	34	16	30	164
Expected Frequencies					
Without investment projects	18.43902	7.46341	3.51220	6.58537	36.00
Preparation of investment projects	65.56098	26.53659	12.48780	23.41463	128.00
Total	84.00000	34.00000	16.00000	30.00000	164.00
Residual frequencies					
Without investment projects	5.56098	0.536585	-1.51220	-4.58537	0.00
Preparation of investment projects	-5.56098	-0.536585	1.51220	4.58537	0.00
Total	0.00000	0.000000	0.00000	0.00000	0.00

In relation to the achieved performance in these sectors (Rajnoha et al., 2013), which follows the relationship of industry and preparation of investment projects, this means higher performance in the engineering and automotive industries, while lower performance in wood processing and other industries). It is possible to express the statement that preparation of investment projects affects the performance of enterprises. Unfortunately, the direct evidence about the relationship between preparation of investment projects and achieved business performance could not be statistically proven.

4. Discussion

It is necessary to mention the fact that 22% of surveyed enterprises still do not prepare investment projects. Considering the structure of investment projects, the financial and economic effectiveness analysis as a part of the project is important for 46% of companies, from which it is possible to note the relatively low importance of financial and economic analysis in the investment project. This result can be affected by the fact that businesses consider this part to be important, but they do not have sufficient or appropriate processing capacities, likely methodological procedures, qualified workforce, data availability, etc. are missing. The analysis also shows that 41% of enterprises consider as important to characterise the production program and 36% of enterprises to define the objectives of the enterprise. Related, market-oriented important parts of the project were signed market analysis, competition and marketing strategy. 18% of enterprises consider important risk analysis. The smallest importance (4%) had the part related to the localisation of the business, which seems to indicate that the placement is a long-term fixed and therefore the set factor and enterprises focus on more suggestible parameters. There is obvious but negative fact that the personal plan was included among categories with low importance, only 10% of companies see the personal plan as important part of investment project. Businesses therefore do not consider the issue of human resources – qualified labor, wage costs to be important although the total labor costs often form a dominant cost item and the quality of work can be a determinant factor of the business performance.

Some sophisticated practices, techniques, concepts or methods in investment management are not used in domestic firms, whose achieve worse performance. There are several reasons for absence of some modern and useful knowledge fundamentals in local firms. The most important is lack of capital to buy or form own know-how. But it is possible to mention the typical sign of local firms – indifference and aversion to use new and unfamiliar tools, they do not understand those. If company doesn't trust them, it doesn't expect possible future effects and performance improve. Just foreign investors bring and implement tools using in investment decision-making, measurement and management, what cause better business performance. Local firms benefit from entry of foreign capital and improve own knowledge base what is connected with sophisticated production, higher value added and economic growth.

Limitations are regional. Findings of our research can benefit businesses in Slovak economy, in terms of investment project preparation the recommendation is directed primarily to domestic firms that use mentioned conception in lower level than foreign firms.

5. Conclusion

The study described significant differences between the use of selected tools in foreign firms against local firms as well as higher performance in companies with partly or fully foreign ownership.

We have made decisions on the hypotheses formulated at the beginning of the study and from presented research results based on statistical testing as well as from discussion we can highlight several conclusions:

- H_1 : We reject null hypothesis H_0 in favor of alternative one H_1 . There is significant difference in investment projects preparation between foreign and domestic firms.
- H_2 : We do not reject null hypothesis H_0 . Dependence of business performance on investment projects preparation was not statistically proven.
- H_3 : We do not reject null hypothesis H_0 . Significant impact of investment projects preparation in business performance was not demonstrated, consequently we cannot say about achieved level of ROE indicator.

According residuals in testing of the first hypothesis we know that investment projects preparation is more typical for foreign firms. Moreover, preparation of investment projects is characteristic for the

category of engineering and automotive industries, while the wood processing and other industries do not consider the preparation of investment projects as principal. The same trend we can see in achieved performance in separate categories of industry: Engineering and automotive with investment projects and higher performance, in contrast with absence of investment projects and lower performance in wood processing industries.

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