2022
Vol.26 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Sedliačiková M., Moresová M., Stasiak-Betlejewska R., Drábek J., Schmidtová J.

THE USE OF CONTROLLING AS A TOOL OF COMPETITIVENESS IN FAMILY AND NON-FAMILY BUSINESSES IN TRANSITION ECONOMIES

Sedliačiková M., Moresová M., Stasiak-Betlejewska R., Drábek J., Schmidtová J.[*]

Abstract: Controlling is considered a tool that increases the quality of corporate management. At present, it is very important to perceive controlling not only as a quick control tool but especially as a tool that helps an enterprise to achieve its objectives, to meet its vision, to adopt adequate strategies, thereby also directly improving the economic results and the long-term competitiveness of the enterprise. The aim of the study is to compare the use of controlling, such as a tool of competitiveness in family and non-family businesses in transition economies. The issue was mapped in the territory of the Visegrad Four (V4) by means of an empirical survey by the method of a questionnaire. The sample consisted of 405 family and non-family businesses from Slovakia, Poland, Czech Republic, and Hungary. The hypotheses were tested using the Test of the difference between two proportions. At the same time, due to the better interpretation of the achieved results, the statistical method of the Interval estimate of the population proportion has been applied. The results have shown that there are significant differences in the use of controlling tools in family and non-family businesses. The major differences have been found out in the area of financial controlling, namely the application of profitability and liquidity indicators, and investment controlling in using net present value.

Key words: controlling, competitiveness, family business, non-family business, transition economy.

DOI: 10.17512/pjms.2022.26.1.16

Article history:
Received June 22, 2022; *Revised* August 03 28, 2022*; Accepted* September 06, 2022

[*] **Sedliačiková Mariana**, prof. Ing. PhD., Technical University in Zvolen, Faculty of Wood sciences and technology; ✉ corresponding author: sedliacikova@tuzvo.sk,
ORCID: 0000-0002-4460-2818
Moresová Mária, Ing. PhD. et PhD., Technical University in Zvolen, Faculty of Wood Sciences and Technology; ✉ e-mail: maria.moresova@tuzvo.sk,
ORCID: 0000-0001-6815-0724
Stasiak-Betlejewska Renata, Ing. PhD., Czestochowa University of Technology, Poland, Faculty of Management; ✉ e-mail: renatastasiak@wp.pl,
ORCID: 0000-0001-8713-237X
Drábek Josef, doc. Ing. CSc., Technical University in Zvolen, Faculty of Wood sciences and technology; ✉ e-mail: josef.drabek@tuzvo.sk,
ORCID: 0000-0001-6855-6919
Schmidtová Jarmila, Mgr. PhD., Technical University in Zvolen, Faculty of Wood sciences and technology; ✉ e-mail: jarmila.schmidtova@tuzvo.sk,
ORCID: 0000-0003-3985-9616

Introduction

Due to globalization trends, the growth of complexity and dynamics of the business environment, competition and global demand, as well as the development of information and communication technologies, the corporate management system is facing new challenges. Better and faster decision-making is essential for the success of enterprises, whether family-owned or not, in the current turbulent business environment, which means more efficient operation, increase of competitiveness and further development (Musa et al., 2020; Malega et al., 2019; Hvolková et al., 2019; Rausch et al., 2013; Ahlrichs, 2012). Rausch et al. (2013) state that controlling is determined to carry out these tasks, as a supporting tool for the corporate management.

The family business (FB) has a long-year tradition in market economies. More than two-thirds of all enterprises are family businesses. Their existence and origin date back to both the distant past in Western Europe as well as to the present (Mandl, 2008; Ediriweera, 2015; Peráček et al., 2020; Linhartova, V. 2021). On the contrary, in all transition economies of Central and Eastern Europe, where the private business sector started to develop only after 1989, research into the family business and the history of this business was long in the background. In Visegrad Four (V4), this specific business segment has got increased attention only in the last 10 years. Until now, however, there is no official distinction between family businesses and non-family businesses through legislative regulation (Peráček et al., 2020). Foreign research (Mandl, 2008; Michiels et al., 2017) confirm the differences that distinguish family businesses from non-family ones. The only exception from the V4 countries is the Czech Republic, which has defined family businesses in its legislation. The basis of the definition of family businesses in the Czech Republic has been proposed by the Czech Association of Small and Medium-sized enterprises and Crafts of the CR. The proposition was primarily based on the standard formulated by the European Family business Federation (Peráček et al., 2020; Meier, 2020).

All research about the use of controlling and its individual tools has so far been focused on businesses in general, without seeking an answer to the question: *"What is the level of use of controlling in Visegrad family businesses compared to non-family ones?"*

As the authors Ahlrichs (2012), Osmanagić-Bedenik (2015) and Písař et al. (2019) emphasize, the level of application of controlling is also influenced by the size of the enterprise. It is essential that business entities have management systems that take into account the specific features of the particular enterprise. Only such a system gives managers sufficient space for manoeuvring and serves as a tool for increasing management efficiency through the processing of complex information.

The objective of the quantitative research is to enrich the current discussion of scientific findings in the field of controlling use as a competitiveness tool, especially for family and non-family businesses in the Visegrad transition economy. The study presents the results, which provide their generalization to the whole basic set, i.e., all

family and non-family businesses operating in the Visegrad business environment (Andrejovska and Konecna, 2020).
Based on the results of the research, three main contributions are expected in the field of theory of the topic. Firstly, the study extends the existing theoretical knowledge of the issue of controlling use and its individual tools in the areas of management, financing and succession of family businesses. These tools are very important competitive advantages of controlling (Krastev, 2019; Laval et al., 2018; Rajiani et al., 2018; Osmanagić-Bedenik, 2015; Simkova et al., 2022). As pointed out by the authors (Písař et al., 2019; Krastev, 2019), controlling as a management support tool, in the case of proper application in the enterprise, improves its efficiency, helps to identify key weaknesses, which have a particular impact on the financial sector, through a system of managing deviations. Last but not least, controlling as a strategic tool can directly point to the necessity of planning succession and of educating a new owner, who is often also the executive manager of a family business. The second contribution is a new view to the issue of controlling and identification of the differences in the use of its individual tools in family and non-family businesses in the V4. Identifying specific problems gives space for solving them. As Berens et al. (2007) and Krastev (2019) emphasize, controlling, as a management tool, represents a competitive advantage and directly helps to achieve business objectives, mainly by coordinating all measures beyond the operational limits, involves innovative developments and is designed to help sustain a business in the long term. It gives the possibility to solve specific problems of a particular company. The third contribution is that the study reveals the current problems of four of the transition economies, namely Slovakia, Poland, Czech Republic and Hungary, as well as the development and approach to the family business as such. Research shows the need to pay attention to the family business issue in the V4. In Western Europe as well as throughout the world, the development of family business was the result of practical requirements, which came mainly from family business owners (Kumar et al., 2016; Schmidts et al., 2015; Stojanovic et al., 2020; Peráček et al., 2020).

Literature Review

Individual world countries but also communities such as the European Union deal currently with the issue of family business. Family businesses, whether given special attention or not, are present in every economy. The lack of development of family business in Slovakia has its roots in its historical development. Until 1993, Slovakia does not have its history as an autonomous state. Family business had its tradition in Hungary, Austria-Hungary or the Czechoslovak Republic. After 1993, there were problems linked to the transformation of the economy into market mechanisms such as economic crime, an insufficiently prepared legal environment, an inefficient financial sector and, last but not least, a low labor moral. Together with the loss of sales in the countries of the former Eastern Bloc, the lack of competitiveness of products and obsolete technology, this caused the end of the former famous family

businesses. The development of the market economy has given room for a new generation of family businesses. As the authors (Peráček et al., 2020; Malega et al., 2019), agree, the main problem of family business was (and still remains) its absent definition for the needs of the practice. It was only after Slovakia joined the European Union in 2004 that the issue of family business started to be discussed more intensively. Nevertheless, there is currently no legislation of family business in Slovakia and the implemented programmes are on an insufficient level.
In contrast to Slovakia, family business in the Czech Republic was successfully legislatively defined in 2020. A family business is a family business corporation or a family trade (Meier, 2020). As Meier (2020) states, the management of Czech family businesses is currently facing the first "post-revolution" exchange of generations. Most Czech entrepreneurs who started their business after 1989 must decide on how to deal with their businesses and property. Whether they leave the management of their businesses to the children, hand them over to the professional management or sell them. In this context, the Ministry of Industry and Trade is currently considering support for the transfer of family businesses to the existing employees, the so-called management by-out through the preferential guarantees in the 2015-2023 Warranty Program.
In *Hungary*, as Mandl (2008) presents, after World War II, at the time of the USSR's influence, companies were nationalized. After the political and economic changes of 1989, the number of private companies increased significantly. On the other hand, to date, there is no official definition of FB in Hungary. In general, a family business is considered to be a business of an individual (one person) that does business with family members (this group is not statistically monitored). According to estimates (Peráček et al., 2020; Mandl, 2008), there are 400,000 family businesses in Hungary, which together employ more than one million people.
Polish FBs face legal obstacles that prevent them from freely developing. The concept of a family business in the Polish legal system is not yet defined. Even in the literature, there is no definition of these companies that would be accepted by most researchers. The Supreme Audit Office in Poland points out that it is necessary to implement steps into legislation that will directly support family businesses (Wróblewska-Kazakin, 2014).
In the developed countries of Western Europe, controlling has become a common part of corporate management. From the manager's point of view, this means being informed of everything relevant to achieving the company's objectives, but also the ability to determine the direction in which the enterprise should head to achieve the set objectives (Krastev, 2019; Sedliačiková et al., 2019). Controlling is focused on the present and the future, while control is oriented toward the past. Control is one of the tasks of the controller, but it is only one of the tools of controlling, e.g., for comparison of target performance. The tasks of controlling are to support the corporate management by building an information base, planning and control. The core consists of a coordinated information system that corresponds to the target orientation of the enterprise. The corporate management can thus adapt to changes

in the business environment through the targeted implementation of measures and ensure successful management and competition of the company.
As claimed by Stańczyk et al. (2018) and Todorović-Dudić et al. (2017), the presence of a controller and manager in an enterprise inevitably leads to conflicts in the management of work. Therefore, optimal delimitation and a predefined division of tasks and responsibilities are necessary. In a family business, this may be even more difficult as family ties are transferred into the business, which also affects the management of the business itself. Family employees most often occupy, according to Hiebl et al. (2018) and Břečková et al. (2013) managerial positions, and at the same time, the controller should not be the director or the executive manager. The controller should be an independent person who will be respected by all company managers.
According to Sedliačiková et al. (2019), in terms of the dimension of time, controlling is divided into strategic and operational. *Strategic controlling* is oriented toward the future. It has a medium to long-term character. Its role is to ensure that measures are taken today to help ensure the enterprise's existence in the future. Strategic controlling means the systematic monitoring of future opportunities and threats. It uses tools such as revenue and cost plan, profit and loss account, calculation of planned costs, projected balance sheet, short-term profit calculation, ABC analysis, plan cash flow, critical point analysis, value analysis, make or buy decisions. The orientation of strategic controlling is mostly external, but it also reflects the necessary views into the internal environment of the enterprise. It takes into account development factors and trends that could potentially affect business activities and his competitiveness. The main goal of strategic business planning and controlling is the "sustainable" existence of the enterprise through maintaining the potential and creating new opportunities for success. Emerging strategic problems must be identified, analysed and evaluated as soon as possible so that the very existence of the enterprise is not endangered (Berens et al., 2007). *Operational controlling* is oriented on presence, the aspect of the future is given by a planning horizon, limited to short-term and medium-term results and their assessment. It deals mainly with information obtained at present or in the past. It is based on the current personnel, machine and capacity capabilities of the enterprise. Basic tools of operational controlling include: analysis of opportunities and threats, analysis of industry and competition, industry life cycle curve, SWOT analysis, analysis of age structure of the portfolio, experienced cost curve, benchmarking, GE matrix, BCG analysis and GAP analysis. Operational controlling is mainly oriented inside the enterprise and brings operational solutions. Opportunities and threats are transformed into costs and revenues as representatives of the immediate results of business activities. Operational controlling can be divided into three systems: cost, financial and investment controlling (Krastev, 2019; Ahlrichs, 2012).
The business family, as Solomon (2015) and Mandl (2008) claim, which has the vision to control and manage its FB into the future, should agree on the basic principles of common work and mutual relations between both family members and

the family business. However, as the research of Purg et al. (2016), Hiebl et al. (2018), Savolainen et al. (2013) prove, the family businesses most often refuse to entrust management to non-family employees. For this reason, there may be significant differences in the application of management support tools, where controlling also belongs. Based on the above mentioned, the hypotheses have been formulated:

H1: *There is a significant difference in the use of strategic controlling tools between family and non-family businesses.*

H2: *There is a significant difference in the use of operational controlling tools between family and non-family businesses.*

It is crucial for the existence of the FB to provide the necessary financial resources so that the enterprise can carry out its business activities. In the FB, as stated by Mandl (2008), Purg et al. (2016), Michiels et al. (2017), the funding is directed toward the use of the available resources. This situation is caused mainly due to the lack of capital in the FB. The situation of FB in terms of funding is complicated, according to Mandl (2008), Michiels et al. (2017), also because of the limited access to certain financial resources, in particular, due to the reluctance of the FB to use riskier forms of capital, and thus often the owner of the FB burdens with credit his personal property. The capital of family businesses, as presented by Hiebl et al. (2018), Kallmuenzer et al. (2018) and Michiels et al. (2017), comes mainly from the family budget and bank loans. External financing of the FB is often not used at all due to the risk that the founder will have to share control, management or decisions with a non-family entity. Due to the risk aversion and the conservative use of financial resources, it is very important for the FB to manage them effectively. According to Laval et al. (2018) and Krastev (2019), *financial controlling* facilitates the managers of enterprises to make the right managerial decisions in the area of the company`s profitability. The information system occupies a central place in financial controlling. It includes a system of indicators; the leading indicator being considered as an objective. The key tools of financial controlling include: financial control, profitability, liquidity, activity and debt indicators, cash flow, calculation of working capital, evaluation of the performance of the enterprise - EVA indicator, creditworthiness index, rapid test and others. The role of information systems in controlling is to link planning activities, control and analysis. The main role of financial controlling is considered to ensure and maintain constant payment readiness and financial balance with regard to profitability objectives (Krastev, 2019).

H3: *There is a significant difference in the use of financial controlling tools between family and non-family businesses.*

The aversion to the risk of family businesses is also transferred to the area of investment. As claimed by Kallmuenzer et al. (2018), Purg et al. (2016) and Solomon (2015), especially in times of crisis, it is essential for family businesses to obtain the resources for operation from family members. On the other hand, it is necessary to continue investing. Only thanks to efficient investments, it is possible to increase

incomes, which is often linked to direct cost reduction. Investment controlling can also be an auxiliary advisory tool for management in this area. *Investment controlling* can be characterized as the central part of corporate planning and corporate management, oriented on the result that works as a guide throughout the whole course of investments (Sedliačiková et al., 2019). The priority task of investment controlling is to support, initiate and coordinate such investment activities at individual levels of corporate management, which enable the achievement of a high degree of appreciation of invested investment capital and support the idea of sustainability and competitiveness. It uses basic tools such as: average annual costs, maturity of the investment, average return on the investment project, net present value, internal return percentage, discounted maturity period, profitability index, the final value method and the method of the commercial viability of the enterprise.
H4: *There is a significant difference in the use of investment controlling tools between family and non-family businesses.*
The last key area is cost controlling. Efficient cost management is an essential part of every family as well as non-family business. *Cost controlling* is focused on controlling cost, revenues and profit. It is mainly the economic management (value management), the essence of which lies in the calculation and cost system (Sedliačiková et al., 2020; Sedliačiková et al., 2019). The mutual synergy of tools used in cost controlling (e.g. calculations, budgeting, control, etc.) leads to the effective management of costs and profit (Berens et al., 2007). As the authors Sedliačiková et al. (2019), Berens et al. (2007) and Osmangić-Bedenik (2015) agree, the basic cost controlling indicators include: cost analysis, cost budgets, price calculations, cost calculation based on the calculation of planned incomplete costs, monitoring of deviations from the plan on the basis of a flexible budget. Given that costs have a major impact on the economic results and the financial health of each enterprise, it is essential to pay particular attention to this issue.
H5: *There is a significant difference in the use of cost controlling tool between family and non-family businesses.*

Research Methodology

The aim of the study is to compare the use of controlling, such as a tool of competitiveness in family and non-family businesses in transition economies.
To collect the necessary data, it was necessary to carry out a questionnaire survey. Since family businesses are not defined in the legal regulations in all countries V4, the definition of family businesses recommended for the member states by the European Commission (Mandl, 2008) has been used to identify them in the business environment: one family member or more established (acquired) an enterprise and has majority (or full) decision-making rights, the enterprise is owned by the spouse, parents, children or descendants of direct heirs, at least one member of the family (or a relative) is involved in the management or administration of the enterprise, in the case of joint-stock companies, one family shall hold at least 25% of the voting rights. The survey was carried out in practice in the first half of 2021.

Inner consistency of a questionnaire was evaluated by the Cronbach alpha coefficient (Cronbach, 1951):

$$\alpha = \frac{k}{k-1} \times \left(1 - \frac{\sum_{i=1}^{k} s_i^2}{s^2} \right) \tag{1}$$

where: k – is the number of test items; s_i^2 – is the sum of the item variance; s^2 – is the variance of the total score. The level of Cronbach alpha is 0.773, which means from the point of view of consistency, our questionnaire could be accepted (Cronbach, 1951).

The questionnaire was divided into two parts (A and B). In part A, the basic characteristics of the business (family/non-family and the V4 countries where the enterprise is located) have been identified. In part B, it has been determined whether family/non-family businesses know the concept of controlling or whether the enterprise uses controlling. Subsequently, it was examined in detail which specific tools of the individual controlling sub-systems (strategic, operational, financial, investment, cost) are used in the family/non-family businesses.

The basic set for the needs of the questionnaire survey was made up of all enterprises operating in the business environment in V4. The questionnaire was translated and send to relevant countries in the national language. According to the European Commission (2019a; 2019b; 2019c; 2019d), there were 3,817,382 enterprises operating in the V4 in 2019 (475,229 enterprises in Slovakia, 582,917 in Hungary, 1,026,907 in Czech Republic and 1,732,623 in Poland). These enterprises of the V4 countries belong to the basic file of a questionnaire survey. The selected file of enterprises (Bureau Van Dijk, 2021) was chosen on the basis of random stratified choice (Hong, 2017).

According to the methodology for determining the minimum size of the sample (Hong, 2017), as stated below, a minimum sample size of respondents can be determined to maintain the condition of generalizing the results.

$$\boldsymbol{n} \geq \frac{\boldsymbol{z}^{\mathbf{2}} \cdot \boldsymbol{p} \cdot (\mathbf{1}-\boldsymbol{p})}{\boldsymbol{e}^{\mathbf{2}}} \tag{2}$$

where: n – minimum number of respondents; z – reliability coefficient (at the reliability of 95 %, the variable z =1.96); p – an estimate of the population proportion (for unknown values, it is substituted for p 0.5); e – tolerable error level (e = 0.05). After the insertion of all necessary values into the formula, the minimum sample size was calculated:

$$n \geq \frac{z^2 .\ p\ .\ (1-p)}{e^2} \quad \rightarrow \quad n \geq \frac{1.96^2\ .\ 0.5\ .\ (1-\ 0.5)}{0.05^2} \quad \rightarrow \quad n \geq 384$$

From the above calculation, it can be concluded that the sample must consist of at least 384 respondents, i.e., family and non-family businesses. A total of 405 enterprises participated in the survey, i.e., the results of the survey can be generalized to the whole population– the survey fulfils the condition of the minimum size.

The methodology of the survey was divided into several parts. In the first part, it was necessary to process literary review from domestic and foreign authors based on analysis and synthesis of available secondary sources. In the second part, a questionnaire was proposed to obtain empirical data on the level of utilization of controlling and its tools in the V4 family and non-family businesses. The survey in the business environment was carried out using a method of a questionnaire inquiry. The results obtained served to verify the hypotheses. Their validity has been verified using selected mathematical and statistical methods such as the Test of the difference between two proportions and the Interval estimate of the population proportion (Hong, 2017). The results of the survey were processed and evaluated with statistical software STATISTICA 10. Testing was performed at the significance level $\alpha = 0.05$. In the last part of the survey, it was possible to identify the main differences in the level of use of controlling and its tools in family and non-family businesses operating in the territory of the V4. Scientific methods of summarization, comparison, analysis, synthesis and deduction have been applied.

Research Results

This part of the research paper presents the results of the questionnaire survey and the validation of the hypotheses aimed at comparing the level of use of controlling and its tools in family and non-family businesses in the V4.

A total of 405 respondents participated in the survey, 258 meeting the definition of family business (Mandl, 2008) and 147 were non-family businesses.

In the other part of the questionnaire, the objective of the study was the use of controlling and its individual tools in the V4 family and non-family businesses. As results show, 88% of FBs and 87% of non-family businesses are familiar with the term controlling. Apart from knowing the concept of controlling, up to 78% of the V4 family businesses and 76% of non-family businesses that took part in the survey, use also controlling as an auxiliary management tool.

Consequently, attention was paid to the study, what specific tools of strategic controlling the enterprises use. The H1 hypothesis was also linked to this question. Respondents expressed opinions about the utilization of these tools of strategic controlling: revenue and cost plan, profit and loss account, calculation of the planned costs, projected balance sheet, short-term profit calculation, ABC analysis, plan cash flow, critical point analysis, value analysis and make or buy decisions. The validity of hypothesis H1 was verified by the Test of the difference between two proportions. According to the results of the statistical test carried out (Table 1), the validity of the

H1 hypothesis is rejected, i.e., there is no significant difference in the use of the strategic controlling tools between family and non-family businesses.

Table 1. Test of the difference between two proportions to the H1 hypothesis

Use of strategic controlling tools	p_1	N_1	p_2	N_2	z-test	p-value
Revenue and cost plan	0.79	258	0.78	147	0.29	0.813
Profit and loss account	0.89	258	0.90	147	0.20	0.754
Calculation of the planned costs	0.77	258	0.70	147	1.48	0.120
Planned balance sheet	0.66	258	0.61	147	1.02	0.313
Calculation of short-term profit or loss	0.64	258	0.67	147	0.77	0.543
ABC analysis	0.35	258	0.36	147	0.16	0.840
Cash flow plan	0.57	258	0.64	147	1.30	0.168
Critical point analysis	0.32	258	0.35	147	0.66	0.537
Value analysis	0.38	258	0.37	147	0.11	0.842
Make or buy decisions	0.48	258	0.41	147	1.20	0.174

With the results of the interval estimate, it was possible to identify in detail which strategic controlling tools are most frequently used by enterprises and which are least used. Table 2 shows detailed results. The critical point analysis, ABC analysis and value analysis can be considered the least-used strategic controlling tools.

Table 2. Interval estimate of the population proportion of the strategic controlling tools

Level of use of strategic controlling tools	95% confidence interval for relative frequency in the population	
	Lower limit	**Upper limit**
Revenue and cost plan	75%	84%
Profit and loss account	85%	93%
Calculation of the planned costs	72%	82%
Planned balance sheet	61%	72%
Calculation of short-term profit or loss	58%	69%
ABC analysis	29%	41%
Cash flow plan	51%	63%
Critical point analysis	26%	38%
Value analysis	32%	44%
Make or buy decisions	42%	54%

The second question of this part of the survey examined the use of operational controlling tools in family and non-family businesses. Respondents expressed, whether they use these tools: analysis of opportunities and threats, analysis of industry and competition, industry life cycle curve, SWOT analysis, analysis of age structure of the portfolio, experienced cost curve, benchmarking, GE matrix, BCG matrix and GAP analysis. This data was used to verify the validity of the H2 hypothesis. The results of the test of the difference between two populations proportions have shown (Table 3) that there is no statistically relevant distinction between family and non-family businesses for either operational controlling tool. The H2 hypothesis has been rejected.

Table 3. Test of the difference between two proportions to the H2 hypothesis

Use of operational controlling tools	p_1	N_1	p_2	N_2	z-test	p-value
Analysis of opportunities and threats	0.64	258	0.60	147	0.80	0.424
Industry and competition analysis	0.76	258	0.71	147	1.11	0.267
The life cycle curve of the industry	0.53	258	0.43	147	1.94	0.053
SWOT analysis	0.65	258	0.58	147	1.40	0.161
Analysis of the age structure of the portfolio	0.37	258	0.36	147	0.20	0.841
Experienced cost curve	0.37	258	0.32	147	1.01	0.311
Benchmarking	0.40	258	0.37	147	0.60	0.552
GE matrix	0.28	258	0.25	147	0.65	0.513
BCG analysis	0.31	258	0.27	147	0.85	0.396
GAP analysis	0.40	258	0.38	147	0.40	0.692

As Table 4 presents, the most common operational controlling tools used by the V4 enterprises include analysis of industry and competition, SWOT analysis, analysis of opportunities and threats. The other examined tools (Table 4), in particular the GE matrix, BCG analysis, analysis of the age structure of the portfolio or the experienced cost curve, are not used by even half of the enterprises.

Table 4. Interval estimate of the population proportion of the operational controlling tools

Level of use of operational controlling tools	95% confidence interval for relative frequency in the population	
	Lower limit	Upper limit
Analysis of opportunities and threats	58%	70%
Analysis of industry and competition	71%	81%
The life cycle curve of the industry	47%	59%
SWOT analysis	59%	71%
Analysis of the age structure of the portfolio	31%	43%
Experienced cost curve	31%	43%
Benchmarking	34%	46%
GE matrix	23%	33%
BCG analysis	25%	37%
GAP analysis	34%	46%

Furthermore, attention was paid to identifying which financial controlling tools are used by family and non-family businesses. They could express their opinion about the following financial controlling tools: financial control, profitability indicators, liquidity indicators, activity indicators, debt indicators, Cash flow, calculation of working capital, business performance assessment - Economic value added (EVA) indicator, creditworthiness index, rapid test. The results showed that there is a significant difference in the use of profitability indicators (p = 0.005) and liquidity indicators (p = 0.034), between family and non-family businesses (Table 5). Considering the achieved results, it is possible to state that there is a significant difference in using financial controlling tools between family and non-family businesses. The H3 hypothesis has been confirmed.

Table 5. Test of the difference between two proportions to the H3 hypothesis

Use of financial controlling tools	p_1	N_1	p_2	N_2	z-test	p-value
Financial control	0.88	258	0.88	147	0.21	0.834
Profitability indicators	*0.76*	*258*	*0.63*	*147*	*2.78*	*0.005*
Liquidity indicators	*0.73*	*258*	*0.63*	*147*	*2.10*	*0.034*
Activity indicators	0.63	258	0.58	147	0.99	0.321
Debt indicators	0.59	258	0.54	147	0.98	0.328
Cash flow	0.68	258	0.69	147	0.19	0.835
Calculation of working capital	0.36	258	0.39	147	0.60	0.548
Business performance assessment — EVA indicator	0.47	258	0.44	147	0.58	0.560
The creditworthiness index	0.33	258	0.34	147	0.21	0.837
Rapid test	0.39	258	0.33	147	1.20	0.229

The results of the interval estimate confirmed that the majority of financial controlling tools are in practice used by more than half of the enterprises. The most commonly used tool is financial control, which is used by 84-92% of enterprises in the V4. The least-used indicators include the creditworthiness index, the calculation of working capital, the rapid test and the business performance assessment through the economic value-added indicator (EVA). Table 6 shows detailed results.

Table 6. Interval estimate of the population proportion of the financial controlling tools

Level of use of financial controlling tools	95% confidence interval for relative frequency in the population	
	Lower limit	**Upper limit**
Financial control	84%	92%
Profitability indicators	71%	81%
Liquidity indicators	68%	78%
Activity indicators	57%	69%
Debt indicators	53%	65%
Cash flow	62%	74%
Calculation of working capital	30%	42%
Business performance assessment — EVA indicator	41%	53%
The creditworthiness index	27%	39%
Rapid test	33%	45%

Enterprises that have applied controlling into management should also use the investment controlling tool. This issue was examined in the penultimate question. The achieved data was used to verify the validity of the H4 hypothesis. Respondents stated whether they use these investment controlling tools: average annual costs, maturity of the investment, average return on the investment project, net present value, internal rate of return, discounted maturity period, profitability index, the final value method and the method of the commercial viability of the enterprise. The results of the test of the difference between two proportions (Table 7) show that there is a significant difference in the use of net present value in family and non-family businesses ($p = 0.046$), i.e., the H4 hypothesis has been confirmed.

Table 7. Test of the difference between two proportions to the H4 hypothesis

Use of investment controlling tools	p_1	N_1	p_2	N_2	z-test	p-value
Average annual costs	0.84	258	0.78	147	1.51	0.132
Maturity of the investment	0.70	258	0.69	147	0.21	0.833
The average return on the investment project	0.64	258	0.62	147	0.40	0.688
Net present value	*0.66*	*258*	*0.56*	*147*	*2.00*	*0.046*
Internal rate of return	0.45	258	0.40	147	0.98	0.329
Discounted maturity period	0.32	258	0.31	147	0.08	0.835
Profitability index	0.36	258	0.35	147	0.20	0.840
Final value method	0.32	258	0.31	147	0.21	0.835
The method of commercial viability of the enterprise	0.38	258	0.30	147	1.62	0.104

The results of the interval estimate presented in Table 8 have shown the level of use of individual investment controlling tools. While companies pay most often attention to the calculation of the average annual costs and the maturity of the investment, only a few of them use indicators such as discounted maturity period, final value method or profitability index.

Table 8. Interval estimate of the population proportion of the investment controlling tools

Level of use of investment controlling tools	95% confidence interval for relative frequency in the population	
	Lower limit	Upper limit
Average annual costs	80%	88%
Maturity of the investment	64%	76%
The average return on the investment project	58%	70%
Net present value	60%	72%
Internal rate of return	39%	51%
Discounted maturity period	26%	37%
Profitability index	30%	42%
Final value method	26%	38%
The method of the commercial viability of the enterprise	32%	44%

The last question of the questionnaire survey examined which cost controlling tools are used by family and non-family businesses. The question provided these options: cost analysis, cost budgets, price calculations, cost calculation based on the calculation of planned incomplete costs, monitoring of deviations from the plan based on a flexible budget. The validity of the H5 hypothesis was verified through this question. The results of the test of the difference between two population proportions (Table 9) show that the H5 hypothesis is rejected (p is over 0.05), i.e., there is no significant difference in the use of cost controlling tools between family and non-family businesses.

Table 9. Test of the difference between two proportions to the H5 hypothesis

Use of cost controlling tools	p_1	N_1	p_2	N_2	z-test	p-value
Cost analysis	0.86	258	0.84	147	0.55	0.585
Cost budgets	0.82	258	0.76	147	1.45	0.148
Price calculations	0.92	258	0.86	147	1.92	0.055
Calculation of costs based on calculation of planned incomplete costs	0.55	258	0.49	147	1.16	0.245
Monitoring of deviations from the plan on the basis of a flexible budget	0.47	258	0.42	147	0.97	0.331

Almost all the V4 enterprises use price calculations, which are among the basic tools of cost controlling. This has been confirmed by the results of the interval estimate. On the other hand, the least enterprises monitor deviations from the plan based on a flexible budget. Table 10 shows detailed results.

Table 10. Interval estimate of the population proportion of the cost controlling tools

Level of use of cost controlling tools	95% confidence interval for relative frequency in the population	
	Lower limit	**Upper limit**
Cost analysis	82%	90%
Cost budgets	77%	87%
Price calculations	89%	95%
Calculation of costs based on the calculation of planned incomplete costs	49%	61%
Monitoring of deviations from the plan based on a flexible budget	41%	53%

Discussion

The presented quantitative research was aimed at comparing the use of controlling, such as a toll of competitiveness, in the V4 transition economy in family and non-family businesses. In the area of strategic and operational controlling, no significant differences between family and non-family businesses have been identified. According to Sedliačiková et al. (2019), Ahlrichs (2012) and Laval et al. (2018), the objective of controlling is to increase the efficiency and effectiveness of management and to increase competitiveness and the ability of the company to adapt to changes in both external and internal environments. Controlling can function effectively in an enterprise only if it is properly implemented. The authors Laval et al. (2018), Osmanagić-Bedenik (2015) and Berens et al. (2007) point out that it is essential to establish both strategic and operational controlling for its proper functioning. While strategic controlling supports strategic management of the enterprise based on planning, implementation and control, i.e., long-term sustainability of the enterprise, operational controlling is oriented on the present and on the impact of the current changes that have occurred. Authors Písař et al. (2020) and Laval et al. (2018) emphasize, that these tools are more important for the competitiveness of the enterprise. As Rausch et al. (2013) and Rautenstrauch et al. (2005) emphasize, a manager of an enterprise who relies exclusively on information obtained from the processing of operational data will take steps too late to adapt to ongoing changes in the environment, which will contribute to the jeopardizing the existence of an enterprise and his competitiveness. The importance of implementing strategic controlling in family businesses is particularly emphasized by the foreign authors Kallmuenzer et al. (2018), Laval et al. (2018) and Ediriweera (2015) because this group of enterprises often spends too much time on the internal structure and little time on the development of the sector or market and not on the position of the company on the market. Corporate financing is one of the most important areas of corporate management. In this area, significant differences have been identified in two financial controlling tools for family and non-family businesses – profitability and liquidity indicators. The authors Krastev (2019) and Ahlrichs (2012) present that the main task of financial management and thus of financial controlling is to provide liquidity, which is to ensure the ability of the enterprise to meet its current liabilities at any moment. The maintenance of this stable solvency and profitability must be respected concerning the financial balance of the family business. The maintenance of liquidity must be seen as a strict requirement for the required profitability, since solvency, as proof of insolvency alongside the indebtedness, can lead to the cessation of its existence, which makes the maintenance of liquidity a crucial role for corporate management. As the research of Hiebl et al. (2018), Kallmuenzer et al. (2018) and Michiels et al. (2017) show, the family businesses have often financial problems, especially because of the risk-aversion connected with the raising of financial resources. For these reasons, according to Krastev (2019) and Laval et al. (2018), they should apply the financial controlling for decision-making tasks in financial management, that includes corporate instruments and ensure their interconnection with other areas of the enterprise, which would effectively fulfil its coordinating function and create a financial management tool. The achieved results also support the results of foreign authors Kallmuenzer et al. (2018), Michiels et al. (2017) who point out the need to pay particular attention to the financial management of family businesses. Since any process in the enterprise is connected with the expenses or costs, it is necessary to apply cost controlling, too. As the authors Sedliačiková et al. (2020), Sedliačiková et al. (2019), Osmangić-Bedenik (2015) and Berens et al. (2007) agree, costs are used in enterprises to assess the effectiveness of business activity and to develop a business plan. At the same time, they have a significant impact on the economic outcome of each enterprise. By mutual synergies between the tools used in the cost controlling, it leads to efficient cost and result management. The information (outputs) serves for other subsystems, whether strategy-making or maintaining the optimal financial stability of the enterprise. Significant differences have also been identified in the area of the use of investment controlling in family and non-family businesses. Investments are also very closely linked to financing problems. Considering the high aversion of family businesses against risk, they are often concerned to invest more significantly. It is investment controlling that could be a possible solution to eliminate as much as possible the risk of investment. As the authors Sedliačiková et al. (2019), Kallmuenzer et al. (2018), Purg et al. (2016) and

Solomon (2015) agree, it is thus possible to identify the need for investment, the search for possible investment projects, the quantification of their parameters so that the value of the investment can be determined, the choice of a method that corresponds to the purpose and objectives of the investment, the establishment of evaluation criteria, the evaluation of the benefits of the investment, the provision of information for decision making and finding an optimal solution to the financial coverage of the investment. This process is necessary to ensure effectively and the existence of the enterprises and its competitiveness. Controlling and its individual tools bring a number of benefits to enterprises. This is also evidenced by the fact that it has been applied in practice to a high degree in family and non-family businesses in the V4 transition economy. The statistically significant differences identified in the area of controlling use between family and non-family businesses in the V4 need to be carefully examined and help family businesses, especially in the area of effective financial management and the use of liquidity and profitability indicators.

Conclusion

The presented results offer several contributions to the research of family business in the V4 as well as in the area of controlling. The study primarily contributes to the discussion on family businesses in transition economies, where they continue to receive insufficient attention. The achieved results are often generalized to all businesses that can be found in these economies and do not take into account the specificities of family business. The authors such as Mandl (2008), Schmidts et al. (2015), Kumar et al. (2016) and Michiels et al. (2017) still stress that family businesses have their unique characteristics that distinguish them from non-family businesses. The presented results of the comprehensive study, which deals with the issue of comparing the use of controlling, as a competitiveness tool, in V4 family and non-family businesses, clearly showed significant differences, especially in the area of financial and investment controlling. It was essential to carry out this research also because the foreign authors (Hiebl et al., 2018; Ediriweera, 2015; Solomon, 2015) examined the control of the enterprise in family businesses, nevertheless, the controlling was not the subject of interest in their published studies. As the authors Ahlrichs (2012), Osmanagić-Bedenik (2015) and Písař et al. (2019), emphasize, the control cannot be confused with the term controlling. Controlling is much more comprehensive than control or revision.

In addition to theoretical contributions, the study also focuses on its practical usability. By identifying the exact differences in the use of controlling by family and non-family businesses, the main research gaps have been determined that need be researched further in detail. On the other hand, in the area of strategic and operational controlling, the family businesses can also apply knowledge brought by the so far scientific research, for example, Sedliačiková et al. (2019); Písař et al. (2019); Laval et al. (2018); Todorović-Dudić et al. (2017); Osmangić-Bedenik (2015); Rausch et al. (2013); Ahlrichs (2012); Berens et al. (2007). Considering the current conditions, it is essential that family businesses use controlling to manage them more effectively.

Family businesses should implement effective information systems to help them use controlling and its tools. The cost-effective information system of controlling was presented by the authors Sedliačiková et al. (2019) and Sedliačiková et al. (2020). Concerning the identified differences in the use of controlling and its individual tools, it would be appropriate for V4 family businesses to implement such an information system into their management. At the same time, the study pointed out the key financial problems where the major differences in the use of controlling have been identified. It is necessary to focus attention on examining the application of financial controlling, its indicators and efficiency in V4 family businesses, which will help them to control and manage better the financial resources.
The study has several limitations. One of the limitations is the definition used to identify V4 family businesses. As mentioned above, since in V4 family businesses are not defined in legislation, the authors used the definition recommended by the European Commission (Mandl, 2008) for the needs of the research. If a different definition is used, this may bring different results. At the same time, when examining the use of controlling by family and non-family V4 businesses, no account was taken of factors such as the size of the enterprise, the length of operation on the market, the sector in which the enterprises operate and others. The results achieved cannot yet be generalized for all transition economies as a whole. Despite the presented limitations, the study has brought significant knowledge about the levels of use of controlling in family and non-family businesses.
This research and its findings provide the basis for future scientific research, which should be carried out in more detail by examining factors such as the size of the enterprise, the length of operation on the market, the sector in which the enterprises operate in relation to the use of controlling by family and non-family enterprises. Further research should also draw attention to more detailed and more focused analyses of the reasons for not using these proven controlling tools in the enterprises as key factors for the growth of the enterprise performance. At the same time, future research on this issue should be carried out in other transition economies to obtain detailed (more comprehensive) results that can be generalized to all transition economies.

Acknowledgements

The research was supported by Slovak Research and Development Agency, APVV-18-0520, APVV-18-0378, APVV-17-0456, APVV-17-0583, APVV-20-0004 and by funds of KEGA 005TU Z-4/2020, LignoPro – ITMS: 313011T720 as well as funding from the project VEGA 1/0161/21.

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WYKORZYSTANIE CONTROLINGU JAKO NARZĘDZIA KONKURENCYJNOŚCI W PRZEDSIĘBIORSTWACH RODZINNYCH I NIERODZINNYCH W GOSPODARKACH TRANSFORMUJĄCYCH

Streszczenie: Controlling uznawany jest za narzędzie, które podnosi jakość zarządzania przedsiębiorstwem. Obecnie bardzo ważne jest postrzeganie controllingu nie tylko jako narzędzia szybkiej kontroli, ale przede wszystkim jako narzędzia, które pomaga przedsiębiorstwu osiągać cele, realizować wizje, przyjmować odpowiednie strategie, przez co również bezpośrednio poprawiania wyniki ekonomiczne i długookresową konkurencyjność przedsiębiorstwa. Celem opracowania jest porównanie wykorzystania controllingu jako narzędzia konkurencyjności w firmach rodzinnych i nierodzinnych w gospodarkach przechodzących transformację. Zagadnienie zostało zmapowane na terenie krajów Grupy Wyszehradzkiej (V4) za pomocą badania empirycznego metodą kwestionariusza ankiety. Próba składała się z 405 firm rodzinnych i nierodzinnych ze Słowacji, Polski, Czech i Węgier. Hipotezy zweryfikowano za pomocą Testu różnicy między dwiema proporcjami. Jednocześnie, ze względu na lepszą interpretację uzyskanych wyników, zastosowano statystyczną metodę estymacji interwałowej proporcji populacji. Uzyskane wyniki ukazały, że istnieją istotne różnice w stosowaniu narzędzi controllingu w przedsiębiorstwach rodzinnych i nierodzinnych. Główne różnice stwierdzono w obszarze controllingu finansowego, a mianowicie w stosowaniu wskaźników rentowności i płynności oraz controllingu kontrolingu inwestycyjnego w stosowaniu wartości bieżącej netto.

Słowa kluczowe: controlling, konkurencyjność, przedsiębiorstwo rodzinne, przedsiębiorstwo nierodzinne, gospodarka transformacyjna.

在转型经济体中使用控制作为家族企业和非家族企业的竞争力工具

摘要：控制被认为是提高企业管理质量的工具。目前，非常重要的是，不仅要将控制视为**一种快速控制工具，更**应将其视为帮助企业实现目标、实现愿景、采取适当战略的工具，从而直接提高经济效益和绩效。企业的长期竞争力。该研究的目的是比较控制的使用，例如转型经济体中家族企业和非家族企业的竞争力工具。通过问卷调查的方法进行实证调查，该问题被绘制在维谢格拉德四国 (V4) **的**领土上。样本包括来自斯洛伐克、波兰、捷克共和国和匈牙利的 405 **家家族企**业和非家族企业。使用两个比例之间的差异检验来检验假设。同时，为了更好地解释所取得的结果，采用了人口比例区间估计的统计方法。结果表明，家族企业和非家族企业在控制工**具的使用上存在**显着差异。在财务控制方面发现了主要差异，即盈利能力和流动性指标的应用，以及使用净现值的投资控制

关键词：控制，竞争力，家族企业，非家族企业，转型经济