

“European SMEs’ value management based on controlling, financial analysis and ratios – empirical study”

AUTHORS

Přemysl Písař  <https://orcid.org/0000-0002-0374-4123>

 <https://publons.com/researcher/AAA-4481-2019>

ARTICLE INFO

Přemysl Písař (2019). European SMEs’ value management based on controlling, financial analysis and ratios – empirical study. *Investment Management and Financial Innovations*, 16(4), 277-289. doi:[10.21511/imfi.16\(4\).2019.24](https://doi.org/10.21511/imfi.16(4).2019.24)

DOI

[http://dx.doi.org/10.21511/imfi.16\(4\).2019.24](http://dx.doi.org/10.21511/imfi.16(4).2019.24)

RELEASED ON

Friday, 20 December 2019

RECEIVED ON

Wednesday, 06 November 2019

ACCEPTED ON

Friday, 29 November 2019

LICENSE



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

JOURNAL

"Investment Management and Financial Innovations"

ISSN PRINT

1810-4967

ISSN ONLINE

1812-9358

PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

57



NUMBER OF FIGURES

0



NUMBER OF TABLES

4

© The author(s) 2026. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Received on: 6th of November, 2019

Accepted on: 29th of November, 2019

© Přemysl Písař, 2019

Přemysl Písař, Ing., MBA Master of
Business Administration, Department
of Business Management, Faculty
of Economic Studies, University of
Finance and Administration, Czech
Republic.



This is an Open Access article,
distributed under the terms of the
[Creative Commons Attribution 4.0](https://creativecommons.org/licenses/by/4.0/)
International license, which permits
unrestricted re-use, distribution,
and reproduction in any medium,
provided the original work is properly
cited.

Přemysl Písař (Czech Republic)

EUROPEAN SMES' VALUE MANAGEMENT BASED ON CONTROLLING, FINANCIAL ANALYSIS AND RATIOS – EMPIRICAL STUDY

Abstract

Small and medium enterprises (SMEs) are a powerful economic force, significant employers, and creators of added value. In the European Union SMEs are the backbone of its economic and innovative potential, and for this reason, economic development and stability of SMEs are critical. The goal of this study is to apply modern controlling to the management of SME value growth using the tools and indicators of financial analysis. This study is based on a detailed analysis of 359 companies from the European Union in order to test 4 hypotheses. The data obtained were subjected to statistical analysis to identify the dependence between the controlling management of a company, tools of financial analysis, innovative potential, level of digitization, internal auditing, and HR communication tools used in the SME. The statistical analysis confirmed a close relationship between the studied variables and created a model for managing the company's value growth for the study sample of SMEs. Subsequent experimental testing was used to confirm these conclusions, and other important associations were found that are important for successful management of SMEs value growth. The findings obtained are applicable in practice and can be used for a deeper analysis of the issues in question.

Keywords

value, controlling, process, SMEs, financial analysis,
audit, information system

JEL Classification

C20, D22, D25, L21, L25

INTRODUCTION

The development of technology, globalization, hypercompetitive environment, and strong competition from large and multinational corporations are significant factors influencing the sector of small and medium enterprises (SMEs). And yet SMEs are a significant part of national economies. The development, growth, and stability of SMEs is therefore a key component for the stability and competitiveness of national economies and the cohesion of the EU. This research is focusing on use of financial analysis and controlling management system as tools for SMEs value management. The obtained data were analyzed using the statistical methods, and the results were verified using the experimental testing in the selected SMEs. This testing proves that controlling management system and financial analysis should be used for company's value growth and long-term stability. A sample of 359 SMEs from the EU was used to study these issues.

SMEs are an important part of the EU and national economies. Their financial stability and management of growth in the value of these enterprises is a crucial factor for increasing the competitiveness of SMEs, as well as for the cohesion of the European Union and its economy.

According to Belás et al. (2018) SMEs are the foundations of every economy. The importance of SMEs is perceived similarly by Koisoová et al. (2017), who consider SMEs as a necessary part of any economy and its stability. The contribution of SMEs for economies is further identified and developed by Prasetyo (2016) who states: "SMEs also contribute to the solution of economic and social state problems." Other authors also define SMEs as a fundamental factor in the development of an economy and coincide in their theses. SMEs are an essential aspect of every developed economy, and its EU SMEs play a significant role in its cohesion and competitiveness" state (Ključníkov & Belás, 2016; Rahman et al. 2016). Belás & Sopková (2016) verified these theses and mentioned, that without SMEs the state economy will be more sensitive for negative shock and seems its role as a stabilization element. Dúbravská et al. (2015) seem SMEs role not only as of the stabilization element but also a fundamental part of sociological development. Scholleová and Čámská (2015), Draskovic et al. (2017) are explaining the role of SMEs position as crucial for a stable economy and innovation potential.

The importance of SMEs is indisputably one of the fundamental factors in the development of national and multinational economies. And yet it remains in question as to how SMEs stability evolves in comparison with large and multinational corporations. Ayyagari et al. (2007) mentioned that SMEs play an essential role in most economies worldwide. Gama and Geraldes (2012) also discuss the importance of SMEs to the economy, stability, and cohesion of Europe. For instance, in the European Union, around 99 percent of the economic activities can be traced back to SMEs, which account for two-thirds of all jobs in the private sector. Lavia and Hiebl (2014) consider the flexibility of SMEs as one of their essential benefits compared to large corporations and state, that compared with larger firms SMEs are usually seen as having more straightforward internal organization, more flexible decision making and faster for changes adapting.

Hrašková and Bartošová (2014) placed the SMEs in the context of the contemporary globalized hyper-competitive environment and mentioned that the global economy is not only about opportunities, but also about treads and SMEs are an essential stabilization factor. As similarly stated, SMEs problematics was studied by Ključnikov and Belás (2016).

The classical approach to how to support the SMEs, their stability and long-term development is oriented for external influencing on the companies using the subventions, some stimulating institutions, forming the law environment, and others. There is also another way. This way is to be focused on the company's management, typical problems of SMEs and based on findings, searching for a solution. According to previous SMEs research project it was found, that planning, modern information system powered by modern controlling, precise financial management and people motivation for these activities (to accept that changes are necessary and important) are the important factors in SMEs stability and long-term development. The search for a solution inside a company is based on increasing the management system stability and long-term planning.

1. LITERATURE REVIEW

It is essential for the effective financial management and value growth of SMEs that a company management system is defined that will be effective for analyzing the historical data and comparing it to current results in contrast, these results will be usable for planning and achieving the future company value. Controlling can provide this very function. The use of controlling is described by Belás and Sopková (2016) as

business activities, which are significantly determined by the environment of the company, which forces it to use a particular method of behavior and to choose particular business goals and ways of achieving them.

This thesis is subsequently validated by Adamowicz and Machla (2016), Ivanová (2017), Draheim (2010), Weske (2012). The applicability of this claim is further validated by Svozilová (2011) who emphasizes the logical sequence of

analyses of financial data in controlling the processes and their subsequent use to achieving the established goals. The complexity importance of controlling for SMEs is also supported by Belás et al. (2015), Adamowicz and Machla (2016), Ivanová (2017), Kamps (2013), Laval (2018), Benedic (2015).

These conclusions are further validated and expanded by Písař and Havlíček (2018) who state that SMEs are limited by financial capital and there is a lack of solutions for closer cooperation between the SMEs in all the EU. Modern controlling, thus, allows crossing these borders and a company to remain flexible in the Industry 4.0 environment, which supports the stability, development, and value growth of the company as mentioned (Safar et al., 2018; Cao et al., 2017). The specific definition of the full use of controlling management for the value growth of the company may include the fact that SMEs specify the majority of their value goals with a certain degree of risk and uncertainty, as stated by Belás et al. (2018) and Fetišová (2012).

According to Řepa (2012), the process management of financial indicators, the increase in the company's value, and the maturity of its processes must be constantly developed. A report by McKinsey and Company (2017) informs of the importance of regular financial auditing and the development of processes that manage the growth of a company's value. Samuelsson et al. (2016) verified this thesis and notice: "Financial planning is evidently important for SMEs, and analysis of factors related to the use of planning is therefore of great interest and how they affect short-term and long-term planning in SMEs." Also, other authors state a similar conclusion and verified the importance of value management for SMEs long-term development and stability (Napp, 2011; Fetišová, 2012).

1.1. Objective, methodology, and data

This empirical study addresses the issue of managing the increased value of SMEs using the financial analysis. For this purpose, the relationship between the studied variables and SMEs value trends were examined. The method of applying

controlling management used as a management tool of the SMEs to support its competitiveness and innovation activities is described in the following text based on the analysis of data from 359 SMEs and experimental testing on that data.

This study aims to apply modern controlling to the management of SMEs value growth using the tools and indicators of financial analysis.

In order to fulfil the objectives of this study, the following hypotheses were formulated:

- H1: *Controlling management of the company with the use of internal auditing provides the SMEs with an effective tool for financial management and achievement of goals in the area of company's value growth.*
- H2: *Level of digitization, information system effectiveness, and level of HR communications have a significant influence on SMEs value growth management.*
- H3: *The use of the ROA and ROE indicators and methods of financial analysis for company value growth management are used by less than 50% of the SMEs studied.*
- H4: *Over 50% of SMEs do not regularly set or evaluate the achievement of goals related to increasing the value of the company.*

1.2. Data resources

The study sample was generated by random sampling from SMEs database ($n = 3780$), where 749 SMEs were addressed. The final study sample contained 359 SMEs from the Czech Republic. The study took place using the data for the period 2017–2019.

1.2.1. Data collection process and research variables

The data examined were obtained based on a personalized questionnaire in the SMEs. The questionnaire was completed with the participation of owners, registered agents, employers, and collaborators – typically 3 or more persons (cross-section of positions) on behalf of a com-

pany. The acquisition of data was structured according to the Likert scale. Cronbach's alpha was used to demonstrate the reliability of the data obtained, which acquires the values ranging from 0 to 1. A value of 0.7 and higher demonstrates a high level of data consistency and reliability. For the study, the variables were defined by calculating the Pearson correlation coefficient as those reflecting a minimum moderate level of dependence (0.4-0.7) in relation to the studied variable Financial analysis. All variables and their evaluation were set according to Likert scale of 5 levels, numeric scale divided into 5 levels, or a numeric value. All data are based on personal PAPI research, financial statements, and personal experimental testing. *Variables:* Financial analysis, Internal, Controlling management system, HR communication, Turnover, IS technology and Innovation plan.

1.2.2. Draft of SMEs controlling value management

The conclusions of experimental testing serve to design the optimized framework process for managing the company's value and concurrently define the areas of potential improvements to the existing value growth management of the company such that the findings achieved may be usable for integrating the academic and business spheres.

2. EMPIRICAL RESULTS AND DISCUSSION

The data were analyzed using the statistics program IBM SPSS ver. 25. A more detailed description of the process is specified in the software manual.

2.1. The research sample consistency, reliability verification and correlation analysis

The study sample $n = 359$ was tested in the first step in terms of the completeness of the tested variables. The sample scored 100% in the test of data completeness. In the subsequent step, the reliability of test data was validated using Cronbach's Alpha, where the value was 0.936 for $n = 7$ study

variables. Based on this result, the study data can be declared highly consistent and reliable, and the conclusions of the statistical analysis may be considered proven.

2.2. The research sample correlation analysis

The correlation analysis aimed to determine whether the variables mentioned in subsection 2.1.2 reflect at least moderately strong (or higher) correlation with Person correlation coefficient of 0.4-0.7. The more detailed process follows that described by Tran (2011). The sample was tested for the presence of harmful multicollinearity, which was not found.

2.3. Stepwise regression, forward selection

The explained variable Financial analysis, using the method of stepwise regression and the method of gradually including variables in the model (forward selection), work with all variables at once. A more detailed explanation was made by Darlington and Hayes (2017).

Table 1. Variables entered/removed^a

Source: Authors' data.

Model	Variables entered	Variables removed	Method
1	Internal audit	—	Stepwise*
2	Controlling management	—	Stepwise*
3	Turnover	—	Stepwise*
4	IS technology	—	Stepwise*
5	HR communication	—	Stepwise*
6	Innovation plan	—	Stepwise*

Note: a. Dependent variable: Financial analysis *(criteria: probability-of-F-to-enter ≤ 0.050 , probability-of-F-to-remove ≥ 0.100).

The forward selection of study variables is depicted in Table 1. The resulting model was compiled according to Table 2.

Table 2. Inclusion in the final model^a

Source: Authors' data.

	Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	(Constant)	.416	.104	–	3.989	.000
	Internal audit	1.079	.042	.807	25.777	.000
2	(Constant)	.011	.095		.119	.905
	Internal audit	.656	.050	.490	13.087	.000
	Controlling management	.628	.053	.447	11.945	.000
3	(Constant)	–.095	.091	–	–1.049	.295
	Internal audit	.570	.049	.426	11.595	.000
	Controlling management	.502	.053	.358	9.413	.000
	Turnover	.217	.033	.216	6.513	.000
4	(Constant)	–.110	.088		–1.255	.210
	Internal audit	.502	.049	.375	10.257	.000
	Controlling management	.390	.055	.278	7.041	.000
	Turnover	.180	.033	.180	5.503	.000
	IS technology	.243	.045	.198	5.440	.000
5	(Constant)	–.164	.086		–1.908	.057
	Internal audit	.462	.049	.345	9.515	.000
	Controlling management	.290	.058	.206	4.962	.000
	Turnover	.174	.032	.173	5.438	.000
	IS technology	.202	.044	.165	4.539	.000
	HR communication	.206	.046	.164	4.458	.000
6	(Constant)	–.175	.086		–2.042	.042
	Internal audit	.416	.052	.311	7.932	.000
	Controlling management	.220	.066	.156	3.326	.001
	Turnover	.169	.032	.168	5.288	.000
	IS technology	.191	.044	.156	4.299	.000
	HR communication	.202	.046	.161	4.411	.000
	Innovation plan	.139	.062	.104	2.242	.026

Note: ^a Dependent variable: Financial analysis.

2.4. Financial analysis model

Final model

$$\begin{aligned} \text{Financial analysis} = & -0.175 + \\ & +0.416 \cdot \text{Internal audit} + \\ & +0.220 \cdot \text{Controlling management} + \\ & +0.169 \cdot \text{Turnover} + \\ & +0.191 \cdot \text{IS technology} + \\ & +0.202 \cdot \text{HR communication} + \\ & +0.139 \cdot \text{Innovation plan}. \end{aligned}$$

Model interpretation, for example, the sample regression coefficient Internal audit = 0.416, indicates that if the value of the explanatory variable Internal audit grows by one degree, then provided that the values of all other explanatory variables do not change, this change will invoke an increase

in the value of the explained variable Financial analysis, averaging 0.416 in the units of the explained variable. If we are familiar with the model, we can use it for prediction and influencing the future trends of the variables. In this case, management of SMEs value.

In conclusion, from the individual *t*-tests of Table 2, it can be stated that the above model is at 5% significance level. Important findings can be drawn from the overall *F*-test, where all *n* = 6 variables were calculated statistically significant at 1% significance level.

Table 3 shows the increasing value of the coefficient of determination (*R*-squared) with the gradual inclusion of variables in the model.

The compiled *n* = 6 model with explanatory variables against the explained variable Financial

Table 3. Coefficient of determination value (*R*-squared) model summary

Source: Authors.

Model	R	R-squared	Adj. R-sq.	Std. err. est.	Change statistics				
					R-sq. change	F	df1	df2	Sig. F
1	.807 ^a	.650	.650	.860	.650	664.443	1	357	.000
2	.866 ^b	.750	.749	.728	.100	142.674	1	356	.000
3	.882 ^c	.777	.775	.689	.027	42.423	1	355	.000
4	.891 ^d	.794	.792	.662	.017	29.594	1	354	.000
5	.897 ^e	.805	.803	.645	.011	19.875	1	353	.000
6	.899 ^f	.808	.805	.642	.003	5.029	1	352	.026

Note: a. Internal audit, b. Internal audit, Controlling management, Turnover, IS technology, e. Internal audit, Controlling management, Turnover, IS technology, HR communication, f. Internal audit, Controlling management, Turnover, IS technology, HR communication, Innovation plan

analysis – sample coefficient of multiple determination $R^2 = 0.899f$ – reflects 80.8% variability of the explained variable clarified by the selected regression hyperplane. The sample coefficient of multiple determination $R = 0.899$ ranges closely (almost 1), at the level of a direct (positive) linear dependence of the explained variable on all six sample explanatory variables at once.

2.5. Statistical analysis results interpretation

Several of the formulated hypotheses may be evaluated based on the conclusions of the statistical analysis and frequency analysis of input data of studied variables.

H1: From the statistical analysis and compiled model, it can be seen that Controlling management 0.220 of the company with the use of Internal auditing 0.416 are fundamental factors for managing the growth of SMEs value. The practical application of this conclusion can be interpreted on a simple level to mean that Internal audit offers the current data with a high level of accuracy, and that these data are ultimately used by the controlling process for better prediction and achievement of set goals – namely, the growth of the value of the SMEs. Hypothesis H1 has been validated.

H2: Based on the formulated model, it is clear that the level of digitization and IS 0.191, along with the level of HR communications 0.202, are significant factors for managing the growth of SMEs value. The practical ap-

plication of this finding can be interpreted such that high-quality communication within the company supported by information systems is fundamental for achieving the set goals – that is, growth in the value of the SMEs. Hypothesis H2 has been validated.

2.6. Closer variables analysis and results interpretation

An interesting finding was provided by closer analysis of data in the area of the individual study variables. The study focused on an evaluation of data from the studied SMEs in terms of their use of individual tools of financial analysis and its evaluation criteria. A frequency analysis was used to evaluate the data; its purpose was to determine the use of individual tools concerning the size of the SMEs by number of employees. The conclusions of this test are summarized in Table 4, which also depicts the findings of the study of the dependent variable Financial analysis.

Hypothesis *H3* may be evaluated based on the conclusions of Table 2.

H3: It was determined that the use of the indicators ROA and ROE for managing the growth of company's value differs significantly depending on the size of the company and on the number of employees in the company. In the SMEs with up to 30 employees, the use of these indicators was significantly below 50%, however, SMEs with higher numbers of employees use the indicators of ROA and ROE to a higher degree.

Table 4. Use of the tools of financial analysis in the SMEs depending on the number of employees in the SMEs

Source: Authors.

Use of tools in %	Classification of SMEs by number of employees into the groups					
	0-5	0-15	16-30	31-50	50-100	100-250
ROS, ROCE	12%	11%	34%	67%	74%	74%
ROA, ROE	6%	8%	18%	39%	64%	79%
Vertical, horizontal financial analysis	No*	8%	14%	41%	62%	91%
EAT, EBIT	4%	9%	40%	38%	89%	92%
CF, DCF	11%	14%	29%	62%	67%	89%
EVA	No*	no*	5%	14%	19%	21%
WACC	No*	3%	8%	8%	13%	24%
IS, ERP	8%	12%	21%	42%	87%	94%

Note: * Not determined.

The conclusions of the study therefore point to an area of possible improvement in the management of company's value growth, particularly at SMEs with less than 30 employees. It was also determined that the use of indicators for managing the growth of the value of the company increases along with the number of employees in the company. No more detailed principles underlying this growth could be analyzed. Based on the above findings, hypothesis *H3* could not be substantiated.

H4: Based on detailed findings from the studied variable Internal audit in the studied SMEs, and their evaluation by frequency analysis, it was determined that merely 31% of SMEs conduct the audits focused on finance at least 2x per year, while 11% of the studied SMEs conduct the internal audits 4x or more per year. Hypothesis *H4* may be considered validated.

2.7. Controlling as SME value management – based on results experimental testing

The study sample for experimental testing was generated by a random selection from the original study $n = 39$. This experiment took place where the system of SMEs controlling management was implemented or modernized. This implementation and modernization used the findings obtained in the first phase of the study by detailed analysis of input data of tested variables.

2.7.1. SMEs controlling value management process

Experimental testing confirmed that companies with higher use of controlling in the area of management of SMEs value growth demonstrated higher values of the indicators ROA and ROE. Controlling management for these companies can be described as a set of overarching processes whose goal is to coordinate the analysis of historical data of the company, to compare it with current data, and concerning this, to formulate a prognosis and set the goals for value growth of the company. The controlling process assesses the process of achieving these set goals and, if a deviation is detected, the controlling initiates the search for a solution in order to eliminate the deviation and retroactively test it such that the set goal may be achieved: growth in the value of the company.

3. DISCUSSION

Upon the detailed analysis of data obtained by analyzing the variables and experimental testing, other interesting findings were obtained.

3.1. Modern SMEs controlling

Research into modern controlling management of a company and management of the growth in the company's while using value the tools of financial analysis must be integrated in the wider multidisciplinary context of management, HR manage-

ment, and auditing, and embedded in the existing economic/political environment. Analysis of the data obtained by this study places the demands for multidisciplinary knowledge, and it is essential for its interpretation to confront these results with other theories of managing the increased value. The importance of multidisciplinary approaches within the SMEs has been confirmed by Petru et al. (2018), by Müller and Däschle (2018), and from the perspective of innovation activities and company auditing, by Jespersen et al. (2018).

The interest in research into financial management of SMEs is high and there are a range of different approaches (Abanis et al., 2013; Okafor, 2012; Uluyol, 2013). These findings validate and further expand on, for example: “other finance-related challenges, including the inefficiencies in the use of financial resources and mismanagement in working capital constructs, namely, cash, inventories, payables and receivables,” which is confirmed concerning the above by Uluyol (2013), Kaya and Alpkın (2012), Samuelsson et al. (2016). Lavia and Hiebl (2015) state with regard to the issues surrounding the use of financial indicators and accounting for SMEs growth and performance “for example, in their recent extensive review of the literature, concluded that management accounting often has a positive effect on SMEs performance.”

3.2. Modern SMEs financial controlling risk management

Financial risk management subsequently becomes another very important part of managing the increased company's value, and forms a part of modern controlling management. They consider the meaning of such company's management to be very important, as they can mitigate the effects of unfavorable economic circumstances on the SMEs. Corazza et al. (2016) state in relation to this that: “Credit risk research is an integral part of any credit process in financial institutions, and there are evident particularities in the SMEs lending process.

The importance of monitoring these processes is becoming increasingly apparent due to the financial crisis and increased capital requirements for banks.” These theses are supplemented and vali-

dated by Corazza et al. (2016), Yahaya et al. (2016), Psillaki and Eleftheriou (2014), Guzman (2015), Moro and Fink (2013), Dierkes et al. (2013), Ilouga and Sahut (2016), Li et al. (2016), Lavia and Hiebl (2015), Vojtović (2016) and others.

Kaya and Alpkın (2012) relatively clearly define that “other financial factors that affect the financial and overall performance of SMEs can be listed as lack of overall and financial planning, lack of feasibility analyses prior to making the important investment decisions, inadequate bookkeeping systems of financial records and lack of financial literacy of SME owners for understanding the financial reports.” An important factor is the application of controlling management and financial analyses in the SMEs for long-term stability and competitiveness (Fredriksson & Moro, 2014; Alkış & Temizkan, 2012; Shuying & Mei, 2014).

3.3. Controlling and Internal audit

Based on the analyzed data of the studied variables, it was determined that an important tool for the controlling management of a company is the use of Internal audit, which gives rise to optimized company processes, the majority of which were automated using the information system. This enabled, for example, automatic reporting of trends of financial analysis indicators and automatic detection of deviations from the established goals. This new system then reported the current status to responsible parties in an automated format – for example, in the form of email, or a mobile phone application. This often involved such indicators as ROS, ROA, ROE, turnover, cost and margin management, BEP, etc.

This led to responsible management monitoring and managing the specified indicators with precision. These conclusions have been confirmed by a range of other authors. For example, King et al. (2010) state that different problem studies found various specific controlling-oriented management on accounting practices, especially for its use for planning and budgeting. Information reliability and technology for its delivering are crucial for modern reporting. An interesting perspective on the implementation of controlling and internal audit is emphasized primarily by Karjalainen et al. (2018), or by N. Vitezić and V. Vitezić (2015).

The authors agree regarding the essence of the symbiosis of controlling and auditing in the SMEs management and state that these fields will have great importance for the SMEs and their competitiveness. The importance of auditing and its focus on financial stability and performance has been verified across disciplines by Belás et al. (2018), Kupec (2018), Řepa (2012), Laval (2018). The benefits of modern controlling and internal audit are then reflected in the activities of the SMEs, which do not refer solely to historical data, but manage to make the decisions dynamically, which also supports the theory of modern management by Draheim (2010), or by Moeller (2011).

3.4. Controlling and Turnover

A more detailed analysis of the variable Turnover indicates that with growth in revenue, the capability of the SMEs to manage their value growth also increases. It was not possible to identify whether revenue is the cause of growth in the value of the company or whether the opposite is the case. A possible interpretation of this finding may be the hypothesis that with an increase in company revenue, a company has more available resources for implementing the controlling management, which further helps the company increase its revenue. This is also supported by the conclusion of the correlation analysis of the variables Controlling management and Turnover, which shows a Pearson correlation coefficient with a value of 0.622, which is moderately strong. The variable ranked the highest was Controlling management at 83% for all the SMEs that also created the revenue of more than EUR 20,000. These SMEs were also ranked for the variable Financial analysis at the highest level of 66%.

One of the main tasks of controlling is the management of the ownership goals of the SMEs owners, namely increasing the value and performance of the company. Controlling then focuses on a comparison of planned values with the reality and eliminates the deviations that obstruct the achievement of ownership goals. Benedic (2015) also recommends setting up the controlling processes in this manner, as he sees controlling as a tool for taking on new challenges – therefore, a tool oriented on future results, increased revenue, market share, and company's value growth. These conclusions also verified Khudhaia et al. (2018).

3.5. Controlling, information system and digitalization

One of the significant factors of management of the value growth of the SMEs is a functioning information system or ERP (Enterprise Resource Planning), whose performance is used for controlling management and continuous digitization. These systems allow for the efficient collection and evaluation of data, the use of automatic relations of data exchange, reporting, forecasting, managerial accounting, and more. More advanced types of these systems are enriched with additional functionality, such as CRM, HR, project management, and more.

It was also determined that for 359 of the studied SMEs, only 22% performed an audit of the functionality of the information system at least 1x every 3 years, 64% had not yet performed the audit functionality of the information system, and an entire 87% of SMEs from the time of their founding continue to use the same information system. Among the SMEs operating for more than 15 years, 61% of them use an information system originally designed for the MS DOS or Windows 95 operating systems. An information system is typically not perceived in such SMEs as an investment, but is used solely as a cost, which leads to a lack of desire to replace the system with higher performance system. When analyzing the companies where at least one of the indicators ROA or ROE has a value higher than 50%, it was determined that 84% of these companies use modern ERP systems. These findings directly substantiate the meaning of a modern information system for management of the SMEs value growth. Belás et al. (2018) see this situation in a similar way.

3.6. Controlling and HR communication

The variables Controlling management and HR communication were subjected to correlation analysis and it was determined that they rate at a Pearson correlation coefficient of 0.732, which can be interpreted as a strong linear dependence. The quality of information exchange within a company, using a wide range of communication channels with an emphasis on the use of innovative methods, proved significant for management of the SMEs value growth.

The analysis showed that 76% of all the SMEs with revenues of over EUR 20,000 are rated with the highest level of the variable HR communication, and these SMEs also showed the highest level of the variable Financial analysis at 61%. Based on these findings, it is necessary to emphasize in the SMEs the importance of developing the variables Controlling and HR communication.

3.7. Controlling and Innovation plan

A regular search for opportunities to innovate is one of the most important elements lacking from the SMEs. As part of the study sample of 359 SMEs, only 27% of the companies regularly engage in an analysis of the search for innovation opportunities. This finding is a significant one, and points to a large room for improvement, as innovation activities are essential to the growth of the SMEs.

The use of controlling management allows for historical data to be regularly analyzed and compared with the current situation, enabling a more accu-

rate prognosis and innovative goals for the company. Modern controlling may then be viewed as an impetus for change and innovation. According to Máchová et al. (2015), continuity is an essential part of regular analysis and searching for innovation opportunities. These theses are in accordance with the basic principle of modern controlling (Müller & Däschle, 2018; Petrů et al., 2018; Mareš & Petrů, 2018).

4. RESEARCH LIMITATIONS

One of the chief limitations of this study is the high time demand for collection of data from the SMEs in the form of personal visits and the evaluation of data already collected. The time factor and demands of the study subsequently limit the size of the study sample when old, obsolete data must be excluded. Despite these limitations, it was possible to validate the high reliability of data acquired in the study sample and we can thereby consider the conclusions of the study to be representative.

CONCLUSION

SMEs and their growth and competitiveness should be in the interest of not only any government, competent institution, or owners, but also individual employees and involved parties. Compared to large and multinational companies, SMEs have a number of not only strengths but also threats. If we wish to find ways to support the SMEs, we must also focus on how the SMEs are managed, how their goals are demarcated and achieved, and how to support them in this conduct.

One of the possible ways is the use of controlling as a management tool of the company, which uses the tools of financial analysis and manages the growth in value of the company. The solution may be the modern concept of controlling combined with internal audit, financial analysis, high-performance information system, and the essential human factor. The results of the research proved that modern controlling is a universal tool, which should be simply used for company's value management at any of the SMEs. Based on experimental testing results, there were opened areas for advanced research such as changes management and processes maturity development, the importance of effective communication inside a company and how to effectively adapt new technologies in the SMEs.

ACKNOWLEDGMENT

The paper has been prepared within the project "Risk Management in Industry 4.0" (7427/2019/02 IGA VŠFS) using the objective oriented support for specific university research of the University of Finance and Administration.

REFERENCES

1. Abanis, T., Sunday, A., Burani, A., & Eliabu, B. (2013). Financial management practices in small and medium enterprises in selected districts in Western Uganda. *Research Journal of Finance and Accounting*, 4(2), 29-42. Retrieved from <https://www.iiste.org/Journals/index.php/RJFA/article/view/4430>
2. Adamowicz, M., & Machla, A. (2016). Small and medium enterprises and the support policy of local government. *Oeconomia Copernicana*, 7(3), 405-437. <http://dx.doi.org/10.12775/OeC.2016.024>
3. Alkış, H., & Temizkan, V. (2012). Kobi'lerin Yönetmel Sorunlarının Cözümünde Japon Yönetim Sisteminin Rolü. *Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 2(1). Retrieved from https://www.researchgate.net/publication/270301190_Kobi'lerin_Yo-netsel_Sorunlarinin_Cozumunde_Japon_Yonetim_Sisteminin_Rolu
4. Ayyagari, M., Beck, T., & Demircuc-Kunt, A. (2007). Small and medium enterprises across the globe. *Small Business Economics*, 29(4), 415-434. Retrieved from <https://link.springer.com/article/10.1007/s11187-006-9002-5>
5. Bedenic, N. O. (2015). The Challenge of Controlling. *International Journal of Industrial Engineering and Management (IJIEEM)*, 6(4), 153-163. Retrieved from https://www.researchgate.net/publication/293814491_The_Challenge_of_Controlling
6. Belás, J., & Sopková, G. (2016). Significant determinants of the competitive environment for SMEs in the context of financial and credit risks. *Journal of International Studies*, 9(2), 139-149. Retrieved from <http://bazekon.icm.edu.pl/bazekon/element/bwmeta1.element.ekon-element-000171437850>
7. Belás, J., Dvorský, J., Kubálek, J., & Smrčka, L. (2018). Important factors of financial risk in the SME segment. *Journal of International Studies*, 11(1), 80-92. <https://doi.org/10.14254/2071-8330.2018/11-1/6>
8. Belás, J., Smrčka, L., Gavurova, B., & Dvorsky, J. (2018). The impact of social and economic factors in the credit risk management of SME. *Technological and Economic Development of Economy*, 24(3), 1215-1230. <https://doi.org/10.3846/tede.2018.1968>
9. Cao, Y., Myers, L. A., Tsang, A., & Yang, Y. G. (2017). Management forecasts and the cost of equity capital: International evidence. *Review of Accounting Studies*, 22(2), 791-838. <http://dx.doi.org/10.1007/s11142-017-9391-5>
10. Corazza, M., Funari, S., & Gusso, R. (2016). Creditworthiness evaluation of Italian SMEs at the beginning of the 2007-2008 crisis: An MCDA approach. *The North American Journal of Economics and Finance*, 38, 1-26. <https://doi.org/10.1016/j.najef.2016.05.008>
11. Darlington, R. B., & Hayes, A. F. (2017). *Regression Analysis and Linear Models: Concepts, Applications, and Implementation*. New York: The Guilford Press. Retrieved from <https://www.amazon.com/Regression-Analysis-Linear-Models-Implementation/dp/1462521134>
12. Dierkes, M., Erner, C., Langer, T., & Norden, L. (2013). Business credit information sparing and default risk of private firms. *Journal of Banking & Finance*, 37(8), 2867-2878. <https://doi.org/10.1016/j.jbankfin.2013.03.018>
13. Draheim, D. (2010). *Business Process Technology: A Unified View on Business Processes* (306 p.). (Workflows and Enterprise Applications). Berlin: Springer.
14. Draskovic, V., Popov, E., & Peleckis, K. K. (2017). Modelling of Institutional Changes in Transition Countries – the Gap Between the Theory and Practice. *Montenegrin Journal of Economics*, 13(1), 125-140. <https://doi.org/10.14254/1800-5845/2017.13-1.9>
15. Dúbravská, M., Mura, L., Kotulič, R., & Novotný, J. (2015). Internationalization of Entrepreneurship – Motivating Factors: Case Study of the Slovak Republic. *Acta Polytechnica Hungarica*, 12(5), 121-133. Retrieved from https://www.researchgate.net/publication/283736594_Internationalization_of_entrepreneurship_-_Motivating_factors_Case_study_of_the_Slovak_Republic
16. Fetisovavá, E. (2012). *Actual problems of small medium enterprise finance*. Bratislava: Ekonóm.
17. Gama, A. P. M., & Geraldles, H. S. A. (2012). Credit risk assessment and the impact of the New Basel Capital Accord on small and medium-sized enterprises: an empirical analysis. *Management Research Review*, 35(8), 727-749. <https://doi.org/10.1108/01409171211247712>
18. Guzman, O. (2015). *Differences Between Business Risk & Financial Risk*. Retrieved from <http://small-business.chron.com/differences-between-business-risk-financial-risk-100.html>
19. Hikkerova, L., Ilouga, S. N., & Sahut, J. M. (2016). The entrepreneurship process and the model violation. *Journal of Business Research*, 69(5), 1868-1873. <http://dx.doi.org/10.1016/j.jbusres.2015.10.071>
20. Hrašková, D., & Bartošová, V. (2014). Kvalita podnikateľského prostredia a jej vplyv na konkurencieschopnosť podniku. *EMI*, 6(2), 43-51.
21. Jespersen, K., Rigamonti, D., Jensen, M. B., & Bysted, R. (2018). Analysis of SMEs partner proximity preferences for process innovation. *Small Business Economics*, 51(4), 879-904. <https://doi.org/10.1007/s11187-017-9969-0>
22. Kamps, T. (2013). *Systematic Chasing for Economic Success: An Innovation Management Approach* (120 p.). Hamburg: Anchor. Retrieved from https://books.google.com.ua/books/about/Systematic_Chasing_for_Economic_Success.html?id=3Di5BgAAQBAJ&redir_esc=y

23. Karjalainen, J., Niskanen, M., & Niskanen, J. (2018). The effect of audit partner gender on modified audit opinions. *International Journal of Auditing*, 22(3), 449-463. <https://doi.org/10.1111/ijau.12130>
24. Kaya, S., & Alpkın, L. (2012). Problems and Solution Proposals for SMEs in Turkey, EMAJ. *Emerging Markets Journal*, 2(2), 178-196. Retrieved from <https://emaj.pitt.edu/ojs/index.php/emaj/article/download/26/123>
25. Khudhaia, D. Z., Firas, K. A., Al-Zubaidia, & Ali, A. R. (2018). The effect of board characteristics and audit committee characteristics on audit quality. *Management Science Letters*, 9(2), 271-282. <http://dx.doi.org/10.5267/j.msl.2018.11.012>
26. Ključnikov, A., & Belás, J. (2016). Approaches of Czech entrepreneurs to debt financing and management of credit risk. Equilibrium. *Journal of Economics and Economic Policy*, 11(2), 343-365. <http://dx.doi.org/10.12775/EQUIL.2016.016>
27. Koiso, E., Habanik, J., Virglerova, Z., & Zoltan Rozsa, Z. (2017). SMEs Financing as an Important Factor of Business Environment in Slovak Republic Regions. *Montenegrin Journal of Economics*, 13(2), 129-140. <https://doi.org/10.14254/1800-5845/2017.13-2.8>
28. Kupec, V. (2018). Digital Possibilities of Internal Audit. *Acta VŠFS*, 11(1), 28-44. Retrieved from <https://web.b.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=1802792X&AN=1263597838h=SQ1Jz2XHql0u7fU5HyMmhrQU4qfcV2hVtmomcUnRhXojnNV%2bBw6qy9epVkjEzZbe2zgnBrmaGExW8w7b7mHw%3d%3d&crl=c&resultNs=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d1802792X%26AN%3d126359783>
29. Laval, V. (2018). *How to Increase the Value-added of Controlling* (215 p.). Berlin: Gruyter. Retrieved from <https://www.degruyter.com/viewbooktoc/product/498066>
30. Lavia, L. O., & Hiebl, M. R. W. (2015). Management accounting in small and medium-sized enterprises: current knowledge and avenues for further research. *Journal of Management Accounting Research*, 27(1), 81-119. Retrieved from https://www.researchgate.net/publication/264985396_Management_Accounting_in_Small_and_Medium-Sized_Enterprises_Current_Knowledge_and_Avenues_for_Further_Research
31. Li, K., Niskanen, J., Kolehmainen, M., & Niskanen, M. (2016). Financial innovation: Credit default hybrid model for SME lending. *Expert Systems with Applications*, 61, 343-355. <https://doi.org/10.1016/j.eswa.2016.05.029>
32. Máchová, R., Mura, L., Korcsmáros, E., Seres, H. E., Buleka, J., & Havričková, K. (2015). *Inovačné podnikanie a hodnotenie inovačného potenciálu podnikateľských sietí* (219 p.). Brno: Tribun EU. Retrieved from https://sekarl.euba.sk/arl-eu/sk/detail-eu_un_cat-0213832-Inovacne-podnikanie-a-hodnotenie-inovacneho-potencialu-podnikatelskych-sietí/
33. Mareš, D., & Petru, N. (2018). Stabilization factors of family enterprises in the context of macroeconomic performance. *European Research Studies Journal*, 21(1), 206-220. Retrieved from https://www.researchgate.net/publication/324923933_Stabilization_factors_of_family_enterprises_in_the_context_of_macro-economic_performance
34. McKinsey Digital (2017). *Digital Czech Republic: How we grow* (120 p.). Praha. Retrieved from <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/digital-czech-republic-how-we-grow> (accessed on December 14, 2019).
35. Moeller, R. R. (2011). *COSO Enterprise Risk Management: Establishing Effective Governance, Risk, and Compliance* (2nd ed.) (384 p.). Chichester: John Wiley & Sons. Retrieved from <https://www.wiley.com/en-us/COSO+Enterprise+Risk+Management%3A+Establishing+Effective+Governance%2C+Risk%2C+and+Compliance+Processes%2C+2nd+Edition-p-9780470912881>
36. Moro, A., & Fink, M. (2013). Loan managers' trust and credit access for SMEs. *Journal of Banking & Finance*, 37(3), 927-936. <http://dx.doi.org/10.1016/j.jbankfin.2012.10.023>
37. Müller, J. M., & Däschle, S. (2018). Business Model Innovation of Industry 4.0 Solution Providers Towards Customer Process Innovation. *Processes*, 6, 260.
38. Napp, A. K. (2011). *Financial risk management in SME. The use of financial analysis for identifying, analysing and monitoring internal financial risk* (Master Thesis). Retrieved from http://pure.au.dk/portal-asbstudent/files/39817962/Thesis_ANapp.pdf
39. Okafor, R. G. (2012). Financial management practices of small firms in Nigeria: emerging tasks for the accountant. *European Journal of Business and Management*, 4(19), 159-169. Retrieved from <https://www.semanticscholar.org/paper/Financial-Management-Practices-of-Small-Firms-in-Okafor/5c0d478fe9df3f7a9e24898c438c4b0757f72316>
40. Petrů, N., Havlíček, K., & Tomášková, A. (2018). Comparison of Marketing Vitality of Family and Non Family Companies doing Business in the Czech Republic. *Economics and Sociology*, 11(2), 138-156. <https://doi.org/10.14254/2071-789X.2018/11-2/10>
41. Písař, P. (2018). Controlling as a tool for SME process auditing. In *26th Eurasia Business and Economics Society Conference* (526 p.). Prague. Retrieved from <https://www.semanticscholar.org/paper/CONTROLLING-AS-A-TOOL-FOR-SME-PROCESS-AUDITING-P%3C%ADsa%C5%99/74933234c7f5f2ee4f47640ac5a1cb15dc1c8100>
42. Písař, P., & Havlíček, K. (2018). *Advanced Controlling and*

- Information Systems Methods as a Tool for Cohesion and Competitiveness of the European Union. In *Proceedings of the 4th International Conference on European Integration 2018, Ostrava* (1172 p.). Retrieved from <https://is.vsfs.cz/repo/6837/>
43. Prasetyo, H. A. (2016). What driver international competitiveness? An empirical test in emerging Indonesian market. *Journal of Competitiveness*, 8(4). <http://dx.doi.org/10.7441/joc.2016.04.08>
 44. Psillaki, M., & Eleftheriou, K. (2014). Trade credit, bank credit, and flight to quality: Evidence from French SMEs. *Journal of Small Business Management*, 53(4), 1219-1240. <https://doi.org/10.1111/jsbm.12106>
 45. Rahman, A. R., Civelek, M. C., & Kozubikova, L. K. (2016). Proactiveness, competitive aggressiveness and autonomy: a comparative study from the Czech Republic. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 11(3), 631-650. <http://dx.doi.org/10.12775/EQUIL.2016.028>
 46. Řepa, V. (2012). *Podnikové procesy – procesní řízení a modelování* (2nd ed.) (304 p.). Praha: Grada. Retrieved from https://books.google.com.ua/books/about/Podnikov%C3%A9_procesy_procesn%C3%AD_%C5%99%C3%ADzen%C3%AD_a.html?hl=cs&id=HnX3rF2mCcC&redir_esc=y
 47. Safar, L., Sopko, J., Bednar, S., & Poklemba, R. (2018). Concept of SME business model for industry 4.0 environment. *TEM Journal*, 7(3), 626-637. <http://dx.doi.org/10.18421/TEM73-20>
 48. Samuelsson, J., Andersén, J., Ljungkvist, T., & Jansson, C. (2016). Formal accounting planning in SMEs. *Journal of Small Business and Enterprise Development*, 23(3), 691-702. <https://doi.org/10.1108/JSBED-12-2015-0167>
 49. Scholleová, H., & Čámská, D. (2015). Measurable Assumptions Innovative Behaviour of Firms: The Area of Financial Assumptions. In Oliman Khalid S. (Ed.), *Proceedings of the 25th International Business Information Association Conference. Innovation Vision 2020: From Regional Development Sustainability to Global Economic Growth* (pp. 1933-1942). Retrieved from <https://ibima.org/accepted-paper/measurable-assumptions-innovative-behaviour-firms-area-financial-assumptions/>
 50. Shuying, Z., & Mei, Z. (2014). Theory of SMEs financial risk prevention and control, International Conference on Education. *Management and Computing Technology*, 514-517. <https://doi.org/10.2991/icemct-14.2014.126>
 51. Svozilová, A. (2011). *Zlepšování podnikových procesů* (232 p.). Praha: Grada. Retrieved from <https://www.grada.cz/zlepsovani-podnikovych-procesu-6859/>
 52. Tran, M. (2011). *Robustness of two formulas to correct pearson correlation for restriction of range* (pp. 1-2). (Georgia State University Digital Archive @ GSU). Retrieved from http://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1087&context=eps_diss (accessed on May 2, 2019).
 53. Uluyol, O. (2013). Küçük ve orta ölçekli işletmelerde (KOBİ) finansal yönetim uygulamaları. *American Journal of Infectious Diseases and Microbiology*, 1(4), 87-105. Retrieved from http://journal.mufad.org.tr/index.php?option=com_content&view=article&id=719%3Akucuk-ve-orta-olcekli-isletmelerde-kobi-finansal-yonetim-uygulamaları&catid=941%3Asayı-60-ekim-2013&Itemid=55&lang=tr
 54. Vitezić, N., & Vitezić, V. (2015). A Conceptual Model of Linkage Between Innovation Management and Controlling. The Sustainable Environment. *The Journal of Applied Business Research*, 31(1), 175-184. Retrieved from <https://clutejournals.com/index.php/JABR/article/view/8999>
 55. Vojtovič, S. (2016). The Impact of The Structural Funds on Competitiveness of Small and Medium-Sized Enterprises. *Journal of Competitiveness*, 8(4), 30-45. <http://dx.doi.org/10.7441/joc.2016.04.02>
 56. Weske, M. (2012). *Business Process Management: Concepts, Languages, Architectures* (2nd ed.) (404 p.). Berlin: Springer. Retrieved from <https://www.springer.com/gp/book/9783642286155>
 57. Yahaya, S. N., Mansor, N., & Bakar, M. H. (2016). Credit risk model: The conceptual framework of SME financing. *International Journal of Research and Reviews in Applied Sciences*, 26(2). Retrieved from www.arpapress.com/Volumes/Vol26Issue3/IJRRAS_26_3_02.pdf