

PERCEPTION OF ESSENCE OF CONTROLLING AND ITS USE IN MANUFACTURING ENTERPRISES IN TIME OF CRISIS: DOES CONTROLLING FULFILL ITS ESSENCE?

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Abstract. The use of controlling in the business sphere is relatively broad and its essence can be perceived diversely by enterprises of different sectors and sizes. The aim of the research is to identify the current state of the use of controlling in Slovak manufacturing enterprises with an assessment of the perception of its essence in terms of capital structure and business performance measured by the Return on Sales (ROS). Total of 347 enterprises were asked by means of stratified sampling in 2020. Goodness-of-fit test was used when examining the representativeness of the research sample and for individual hypotheses the two-sample test of relative frequencies, relative frequency test, 95% interval estimates of relative frequencies, contingency and Pearson's chi-square test were applied. Testing confirmed the existence of statistically significant correlation between the capital structure of manufacturing enterprises and the level of wider perception and practical use of the essence of controlling in relation to the performance measured by ROS. In conclusion is demonstrated that the potential of controlling in enterprises is not fully used, especially in the form of comprehensive secondary coordination of management and the possible directions of using it are outlined, with a positive impact on business performance.

Keywords: controlling, controlling activities, benefits, manufacturing enterprises, perception, Return on Sales.

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Introduction

Controlling has entered the European terminology from Anglo-American management science and connects several ideas how to define it. In principle, it can be derived from the base of the word “to control”, which, in a broader sense, means mainly certain form of control, regulation, guidelines and also management. Control and the associated level of regulation are an important element of management in the current situation, influenced by the global COVID-19 pandemic. Codagnone et al. (2020), Čabinová et al. (2021), Ahmed et al. (2020) state that economic downturn is evident in almost every country and pandemic has negatively influenced all areas of human life as well as economic performance. The impact of COVID-19 on changes in firm value, and firm-level performance was researched by Bose et al. (2021), Ali et al. (2020), Baker et al. (2020). According to a study by the Ministry of Finance of the Slovak Republic elaborated by Plutzer (2021), Slovak industry recorded a historical decline in activity during the first wave of the corona crisis. Manufacturing production in April 2020 was lower by 42% year-on-year, representing the worst decline in the history of independent Slovakia and the EU. It is evident that the pandemic resulted into a time of crisis in which control of the cost consumption as well control of the whole system of corporate management is a very important element in setting up businesses in changed conditions.

One of the most significant experts for controlling issues, Rolf Eschenbach (2004), defined the essence of controlling as the management of a company as a system and at the same time maintaining control over this system. Within this context, Eschenbach refers to the so-called controlling coordination. It is a primary coordination that helps to coordinate the activities of the whole transformation process, but in particular secondary coordination. This coordination ensures the recording and collection of information for decision-making, its use for management in a specifically set planning system, and also subsequent control. Pavlovska and Kuzmina-Merlino (2013) state that controlling in practice demonstrates its different understanding in terms of definition as well as the scope of activities. Controlling as a useful tool was defined as a system to coordinate management and control. American approach of controlling was focused mainly on its financial aspects. In controlling was promoted a typical accounting approach focused on the use of financial and accounting information systems with use of cost accounting and budgets. German viewpoint was mostly oriented on costs issues. It follows from the above that the approaches for definition of the essence of controlling are different. Studies (Tworek & Sałamacha, 2019; Stańczyk & Stuss, 2018; Bin-Nashwan et al., 2017; Lopez-Valeiras et al., 2015; Eschenbach, 2004) provide detailed characteristics of controlling, its tasks, possible competencies, and significance in the management system.

The use of controlling in enterprises is relatively broad and its essence can be perceived in different ways. The aim of the paper is to examine the current state of use of controlling in the Slovak manufacturing enterprises in time of crisis, with an assessment of the perception of its essence in terms of capital structure and business performance measured by Return on Sales (ROS). The contribution of the study is not only to gain knowledge about the use of controlling in the business sphere, but also the perception of the essence of the term linked to financial results, which is considered to be unique in the subject under examination.

The paper is organized as follows. Section 1 presents the theoretical background of the controlling essence and its particular activities. Based on this part, research hypotheses are

mentioned. Section 2 contains main purpose of the paper, methodology and data. Section 3 outlines principal result of research based on statistical processing. Finally, Section 4 brings view of the research results also from other authors and their studies. Conclusion of the paper briefly presents the most important results about controlling and its perception.

1. Literature review

In terms of practical perception of the essence of this approach, controlling is often understood as a control in the final stage of the management system. However, it is only a different name for standard control of business activities. This conception of controlling does not represent any change in the system management of the enterprise. Todorović et al. (2017) claim that controlling is the process of defining objectives, planning and management control so that every decision maker can act in accordance with agreed objectives to enable its management to manage its business performance. Fecková Škrabuľáková et al. (2019) also argument similarly in their study. Moreover, they also state that a suitable system of planning, information and control providing the support of the organisational creativity within the management is implemented there, also bridging the gaps in the organisational structure. Studies realized in Polish companies show that the controlling more often uses the traditional tools in the form of budgets and financial assessment indicators (Konsek-Ciechońska, 2017). Controlling is “an innovative system applicable in competitive and dynamic business conditions integrating planning, control, information provision, accounting and analysing activities, supporting management in achieving strategic and operational goals and ensuring creation of the enterprise’s value in the long run” (Tamulevičienė & Androniceanu, 2020).

Similarly, Tworek et al. (2019) and Mocanu (2014) also state in their studies that controlling is an important management-support method, which is one of the most widely used management methods on the one hand, but is associated with a relatively large number of polemic related to its different perception in and a various countries. Controlling in some European countries is combined with management systems and is perceived as a “managerial control” (Strauß & Zecher, 2013) or as “management control and accounting” (Otley et al., 2013). The concept of controlling in its modern understanding was created in German countries and is perceived as a subsystem of organisational management support (Horvath, 2006). Similarly, it is also characterize as a support for planning and coordinating subsystems (Janka & Günther, 2020), or as a coordination of the management system for solving different types of decision-making tasks (Weber & Schaffer, 2019; Zeman et al., 2018). Figure 1 presents an overview of the perception of the term controlling from Anglo-American countries and German-speaking countries.

Controlling and management control systems developed slightly differently in both cases, resulting in a number of similar characteristics but also differences.

In German-speaking countries, the main essence of controlling is the costs and decision-making process which provides management support and coordination of other subsystems. It is remarkable that it was in the German-speaking countries in which the design and creation of accounting systems and range of task was done more in depth. On the contrary, controlling in Anglo-American countries was perceived rather from the point of view of a

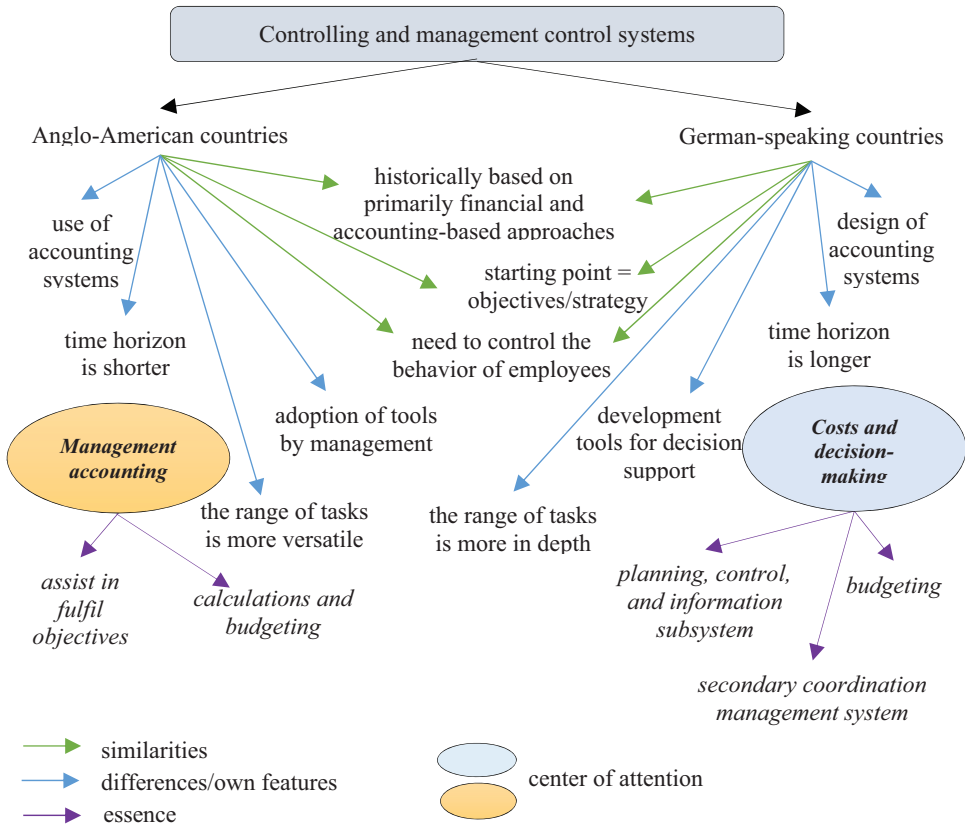


Figure 1. The basis of the term controlling in Anglo-American and German-speaking countries (source: own processing according to Guenther, 2013; White & Cokins, 2015)

management approach (without actual creation of accounting systems, etc.), while management accounting and budgeting can be considered as a basis. The concept of the essence of controlling perceived in this way serves mainly as information support for decision-making. In the center of the German approach to controlling (costs and decision-making), it can be talked about a deeper range of content, where, apart from budgeting, the essence of controlling is perceived in terms of secondary coordination of individual subsystems.

The paper is based on the German conception of controlling. Based on the theoretical background as well as on the fact that no similar results were found in the analyses carried out in relation to controlling, hypotheses (H1–H3) and the following research question (RQ) were formulated: *What is the current use of controlling in manufacturing enterprises and the perception of its essence?* From the research carried out on this issue, the research of Šteker (2012) is the closest, which suggests that controlling is often perceived very simplified, only as a tool to quantify deviations from the norms of plans or budgets. However, it can be also partly relied on some recent research from various countries. An example is the result of the study about use controlling in Croatian companies that indicate that controlling is most often used and understood as the essence of management. From companies' perspective, controlling is most

important as a place of planning and analysis and then an important source of information (Bedenik & Bach, 2019). The example of companies from other country is Ukraine. The companies in Ukraine mainly use operational approaches to controlling, such as common cost accounting systems complemented by a certain strategic approach to controlling (Reta et al., 2018). The theoretical background analysis did not identify similar results from studies in industrially comparable countries such as Czech Republic, Poland or Slovenia.

When looking at the essence of the controlling in perception of Anglo-American or German-speaking countries, it was inclined to the controlling of German-speaking countries in the researched enterprises (Figure 1) and the **H1** hypothesis was formulated, which assumes that *the essence of controlling is understood in manufacturing enterprises mainly in the form of cost consumption control and plan control in comparison with the reality.*

Several factors may influence the use and perception of the essence of controlling. The results of an analysis of EU enterprises show that ownership form is a significant factor within the differences in businesses performance (Fitza & Tihanyi, 2017). The influence of ownership structure form is discussed in several research areas in management theory. For example, the bank sector and its performance (Mishra & Ramana, 2018); corporate social responsibility field (Dewi & Wirawati, 2021; Voinea et al., 2019); field of Industry 4.0 (Rossini et al., 2019). Based on this, it was assumed in the area of controlling *that there is a difference between enterprises with different capital structure and the perception of the essence of controlling* (hypothesis **H2**).

Available research studies in the field of controlling currently deal with many areas. Analysis of the controlling application in logistic processes was carried out by Behúnová et al. (2020) and Ulewicz et al. (2014), Dobrovič et al. (2019), who studied this issue in relation to quality controlling. The area of quality controlling was also dealt in the work of Shen and Chen (2020), Bieńkowska (2021) and Baldi (2020). Interesting are also studies that point to the potential of human resource controlling. Influence of professional direction path in the human resource controlling concept was studied by Nowak et al. (2020) Benčíková et al. (2021) and Slinták (2015). Moreover, Hankir (2021) presented the assessment of online human resources control effectiveness within the improving employees' performance, during the pandemic COVID-19.

Investment controlling as a system of methods and tools supporting investment management has its real and adequate application in any business (Voronzhak et al., 2018).

Several researches emphasize the importance of financial controlling and its impact on business performance and efficiency (Kozarevic & Vehabovic, 2020; Khudyakova et al., 2019) or the influence of controlling function (i.e., controlling department) to business performance (Vuko & Ojvan, 2013). The use of controlling and marketing in the environment of family businesses in relation to firm performance was discussed by Bieńkowska (2020), Schäffer and Weber (2019), Mura (2020).

The benefits from well-established and applied controlling can be both financial and non-financial. Controlling is able to activate measurable benefits appreciated by entrepreneurs in an organisation. These include ensuring of management continuity and stimulating the development of the enterprise, increasing the efficiency and competitiveness of the enterprise and, in particular, optimised (maximised) financial results. According to Jánská et al. (2017)

the potential financial benefits from controlling include, in particular, profit growth, increase of the enterprise value, but also the effectiveness of the return on business investments. The research results of SMEs in Federal State of Bavaria marked that financial controlling has a crucial role in relation to fulfilling of companies' business objectives and its further successful presence. Moreover, it significantly affects the overall transparency of corporate activities (Kozarevic & Vehabovic, 2020). The research of Kral (2018) indicated that the controlling operational system represents a tool that allow improvement of the businesses processes effectiveness, mainly in recognition of potential possibilities. In the present study, the financial effect of the use of controlling in enterprises will be analysed, while assuming in the hypothesis **H3** that enterprises that do not sufficiently use the essence of controlling reach a lower Return on Sales level.

From non-financial point of view, according to Bieńkowska and Zabłocka-Kluczka (2016) controlling can be understood as a method of fostering establishment of trust, both within the organization and towards the environment. Building trust, based on the data transparency, is currently a frequently used argument for ensuring reliability and information quality.

2. Methodology and data

The research intention is to identify the actual state of controlling activities use in the manufacturing enterprises and subsequent evaluation of perception of its nature in terms of selected variables and relation to their performance. The major research method was primary quantitative research using a questionnaire.

A questionnaire survey was carried out in the last years 2020–2021. The research was carried out on a sample of small (10 to 49 employees), medium-sized (50 to 249 employees) and large manufacturing enterprises (250 and more employees) of all industries in the Slovak Republic. The information database for the purpose of identifying the size of population of manufacturing enterprises was the register of the Statistical Office of the Slovak Republic for the year 2020. The determination of size categories of enterprises was based on the European Commission Directive No. 2003/361/EC (2003). According to the Statistical Office of the Slovak Republic, 2504 companies met this condition at the time of the research activities.

To determine the necessary sample size, a formula for a population of the finite size according Yamane Taro (in Richterová et al., 2000) was followed.

$$n = \frac{N}{1 + N \cdot E^2}. \quad (1)$$

With a population size of 2504 units and the selected error $E = 0.05$ was solved for n

$$n = \frac{2504}{1 + 2504 \cdot 0.05^2} = 345. \quad (2)$$

To get a research sample that is truly representative of the population, stratified sampling was applied.

The link of complete questionnaire was distributed by individual e-mail contacts to 2504 CEOs, or the economic managers of manufacturing enterprises with location in Slovakia. In general, costing and controlling solutions are slightly different in manufacturing companies

with a high level of technology and automation than in the service or trading sectors. This was the reason why the objects of the research were manufacturing enterprises. The following industries, according to NACE codes (European Industry-standard classification system, section C Manufacturing), were selected through the stratified sampling (Table 1). The rate of returned questionnaires presented 14.57% (365 enterprises). Finally, to correct the completeness of the data obtained, the research sample was set at the level of 347 manufacturing enterprises. In the paper, we focused on these questions of questionnaire: (1) the classification enterprises according to NACE codes (European Industry-standard classification system, section C Manufacturing) into industries; (2) company size; (3) capital structure; (4) performance indicator – the range of ROS; (5) using of controlling in general; (6) using of controlling approaches and practical activities.

Based on the representation of individual industries in the population of our interest the proper proportion of each strata in the sample was checked using goodness-of-fit test. The test statistic that measures the differences between observed (f_o) and expected frequencies (f_e) can be approximated by the chi-square distribution (Kohler, 1988):

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}, \quad (3)$$

with degrees of freedom $df = k - 1$, where k is the number of categories.

In primary data processing the tools of descriptive statistics as frequency and contingency table, area chart and 3D bar chart were applied. In data analysis selected methods of statistical inference were used. Interval estimates of the population proportions and hypotheses testing (test about a population proportion and test about the difference between two population proportions) were performed.

Confidence interval for a population proportion

An interval estimate of a population proportion π is constructed around a sample proportion p according to the formula (Lind, 2020):

$$p - z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{p(1-p)}{n}} < \pi < p + z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{p(1-p)}{n}}, \quad (4)$$

using 95% of confidence and sample size n .

Test involving one population proportion π

For the test purposes the null hypothesis is stated $H_0: \pi = 0.50$ against the alternate hypothesis $H_1: \pi \neq 0.50$. The test statistics z is formulated as follows (Lind, 2020):

$$z = \frac{p - \pi_0}{\sqrt{\frac{p(1-p)}{n}}}. \quad (5)$$

where p is the sample proportion, n is sample size, and π_0 is tested value of the population proportion.

Test of the difference between two population proportions π_1 and π_2

Two opposing hypotheses are formulated. The null hypothesis is that there is no difference between two population proportions. The alternate hypothesis is that the two proportions are not equal.

$$H0: \pi_1 - \pi_2 = 0;$$

$$H1: \pi_1 - \pi_2 \neq 0.$$

The test criterion is based on the z statistics (Kohler, 1988):

$$|z| = \sqrt{\frac{n_1 n_2}{n_1 + n_2}} \cdot \frac{|p_1 - p_2|}{\sqrt{p(1-p)}}, \tag{6}$$

where $p = (p_1 \cdot n_1 + p_2 \cdot n_2) / (n_1 + n_2)$, p_1 and p_2 are the sample proportions, and n_1, n_2 are the sample sizes.

Traditionally, the 0.05 level of significance was selected for making decisions. All analyses were carried out using statistical software STATISTICA 12. The output results were edited in MS Excel 2019.

3. Results of research

The issue of controlling, as described in the part Literature review, is not processed in detail at national or international level. It is for this reason that the authors are interested in examining the essence of controlling, so far in the environment of Slovak manufacturing enterprises.

Table 1. Representation of manufacturing sectors in the research sample

Sector	NACE 10, 11	NACE 13	NACE 15	NACE 16	NACE 17	NACE 20	NACE 21	NACE 22
Percentage representation	12.68	6.92	2.31	5.48	2.31	2.02	1.44	8.93
Sector	NACE 23	NACE 24, 25	NACE 26	NACE 27	NACE 28	NACE 29	NACE 31	NACE 5, 7, 8, 9, 18, 19, 32
Percentage representation	4.32	23.34	2.59	5.48	7.49	5.48	4.03	5.19

The sample was tested for representativeness according to manufacturing sectors (Table 1). Based on the results of the goodness-of-fit test ($\chi^2 = 5.89; df = 15; p = 0.982$), the distribution of enterprises by manufacturing sectors in the research sample does not differ significantly from that in the population of manufacturing enterprises in Slovakia.

At first, it was necessary to identify the practical use of controlling in enterprises, which presents the partial part of the research question. At present, enterprises are forced to save their business resources and seek reserves more than ever. It is questionable whether enterprises also use the potential of controlling management approach within their partial

activities when looking for savings. Table 2 shows the distribution of the researched enterprises on the basis of the use of controlling, while it can be concluded that 48.41% of enterprises use controlling in manufacturing practice, and 51.59% of manufacturing enterprises stated they did not use controlling.

Table 2. Frequency table – distribution of enterprises in terms of the use of controlling

Controlling	Absolute frequency	Relative frequency
Used	168	48.41%
Not used	179	51.59%
Total	347	100.00%

Based on the above results, it was necessary to verify whether it could be claimed that the share of manufacturing enterprises in Slovakia using controlling is 50%. On the basis of the results from testing, presented in Table 3, it can be confirmed that the share of manufacturing enterprises in Slovakia using and not using the controlling principles is balanced ($p = 0.555$). Research results have also confirmed that the use of controlling activities is more frequent for large and, partially, medium-sized manufacturing enterprises, while sectors with higher added value prevailed within the classification of sectors: manufacture of computer products (NACE 26), manufacture of motor vehicles (NACE 29), manufacture of machinery and equipment (NACE 28), manufacture of paper and paper products (NACE 17) and other manufacturing (NACE 32). Low rate of controlling use was identified in sectors: manufacture of leather and related products (NACE 15), manufacture of other non-metallic mineral products (NACE 23), manufacture of basic pharmaceutical products (NACE 21).

Table 3. Results of test about a population proportion

p – point estimate of proportion	n – sample size	u -test	p -value
48.41%	347	-0.59	0.555

As mentioned, controlling is understood by business practice in various ways. It can be said that, the content framework of the essence of controlling consists of approaches that lead to the detection of the causes of inefficiencies, solving of serious problems with production or sale, or the detection and identification of unnecessary activities in an enterprise. These are approaches that form the basis for management by deviations. It is mainly about the practical use of the following activities: dominant activity for identifying deviations is the drawing up and checking of the plan compared to reality; the very important activity is the subsequent control of cost consumption, quality control, pricing, or budgeting. A more detailed view of the use of controlling and the perception of its essence was obtained by analysing the individual controlling activities, while the hypothesis H1 was verified, in which it was assumed that *the essence of controlling was understood in manufacturing enterprises mainly in the form of cost consumption control and plan control in comparison with the reality*. Table 4 shows how the surveyed enterprises which use the controlling apply its respective activities.

In addition to the observed frequencies (p), the table concludes with 95% interval estimates of shares which, with the chosen reliability coefficient, indicate how the individual activities are used in the population of Slovak manufacturing enterprises. The most frequent activity that enterprises carry out under the term controlling was the control of the cost consumption – between 72% and 84% of enterprises. Another activity was drawing up and control of the plan in comparison with the reality. This so-called deviation management is used from 60% to 74% of enterprises applying controlling. The least frequent activity falling within the controlling was benchmarking. This approach is used by enterprises between 7% and 17%. On the basis of the above, the hypothesis H1 can be confirmed.

Table 4. Interval estimates of proportions enterprises using controlling activities

Controlling Activities	p – point estimate of proportion	n – sample size	95% confidence interval	
			lower limit	upper limit
4a drawing and control of the plan	66.67%	168	60%	74%
4b quality control	29.17%	168	22%	36%
4c cost consumption control	78.00%	168	72%	84%
4d pricing	60.12%	168	53%	68%
4e benchmarking	11.90%	168	7%	17%
4f budgeting	53.57%	168	46%	61%

In the case that an enterprise uses only one or none of the activities within its approach to controlling, it is referred to as the not fully used essence of controlling. On the contrary, if an enterprise uses two or more of the above mentioned controlling activities (Table 4), it fills the essence of controlling to a wider extent. This assumption is preserved at the testing the H2 hypothesis, in which it was assumed *there is a difference between enterprises with different capital structure within the perception of the essence of controlling*.

Based on the sample survey, the significance of the difference between the share of enterprises applying a broader controlling essence in the population of Slovak manufacturing enterprises with a predominance of domestic (indexed by one) and foreign capital (indexed by two) was tested. The results of the H2 hypothesis testing (Table 5) showed a significant difference ($p = 0.000$). The broader essence of controlling is more often applied in foreign investment enterprises – as is also shown by the 95% interval estimate presented in Table 6.

Table 5. Results of test about the difference between two population proportions (enterprises using controlling with dominance of domestic capital – no. 1 and foreign capital – no. 2)

p_1 – point estimate of population proportion no. 1	n_1 – sample size no. 1	p_2 – point estimate of population proportion no. 2	n_2 – sample size no. 2	u -test	p -value
30.37%	191	59.62%	156	-5.90	0.000

While in enterprises with a predominance of domestic capital, it is estimated the proportion of those that make full use of controlling at 24% to 37%, in foreign investment enterprises, the interval estimate is from 52% to 67%. On the basis of the above, the hypothesis H2 was confirmed.

Table 6. Interval estimates of proportions enterprises making full use of the essence of controlling in the population with dominance of domestic capital – no. 1 and foreign capital – no. 2)

95% confidence interval for population no. 1		95% confidence interval for population no. 2	
lower limit	upper limit	lower limit	upper limit
24%	37%	52%	67%

The last hypothesis (H3) concerned the potential effect of using the essence of the controlling, where it was assumed that enterprises that do not sufficiently use the essence of controlling reach a lower ROS level. In Table 7, a two-dimensional distribution of surveyed enterprises is illustrated, based on two characteristics – a wider use of the essence of controlling and the ROS level, reported in the range of more than 5%, from 2.6% to 5%, up to 2.5% or at the level of negative value.

Table 7. Contingency table – observed frequencies for various combinations of essence of controlling and level of ROS

Essence of controlling	Level of ROS				Total
	Negative value	Up to 2.5%	From 2.6% to 5%	More than 5%	
It is not fully used	25	138	26	7	196
	7.20%	39.77%	7.49%	2.02%	56.48%
Used in a wider range	23	38	58	32	151
	6.63%	10.95%	16.71%	9.22%	43.52%
Total	48	176	84	39	347
	13.83%	50.72%	24.21%	11.24%	100.00%

The existence of dependence between the use of the essence of controlling and the achieved ROS level was tested using the Pearson’s Chi-square test. A significant correlation ($p = 0.000$) between the tested variables has been determined (Table 8). Based on the value of the contingency coefficient and the Cramer’s V, the observed correlation is rated as medium strong.

Table 8. Results of Pearson chi-square test

Chi-square test statistic	degree of freedom	p -value	contingency coefficient	Cramer’s V
80.64	3	0.000	0.43	0.48

In view of the absolutely highest residual frequencies (Table 9), it is possible to generalize the statement at the significant correlation that enterprises which do not use the essence of controlling achieve ROS of up to 2.5%, while those applying controlling to a wider range, achieve ROS of over 2.5%, even more than 5% (Figure 2).

Table 9. Contingency table – residual frequencies for various combinations of essence of controlling and the level of ROS

Essence of controlling	ROS			
	Negative value	Up to 2.5%	From 2.6% to 5%	More than 5%
It is not fully used	-2.11	38.59	-21.45	-15.03
Used in a wider range	2.11	-38.59	21.45	15.03

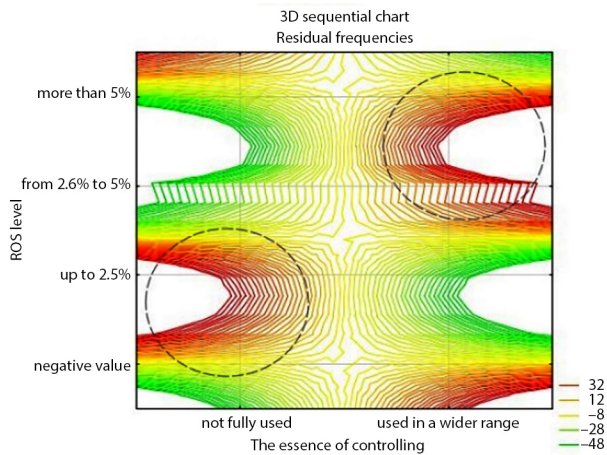


Figure 2. The essence of controlling and the level of ROS

Within the individual manufacturing sectors, the ROS level of more than 5% achieve NACE 29, 21 and 20. At the above average ROS level of 2.6% to 5% were classified NACE 26 and NACE 27. On the other hand, the negative ROS level was mostly declared by the sectors of NACE 13, 14 and 22). On the basis of the above, the hypothesis H3 was confirmed.

4. Discussion

Controlling is linked to many areas in an enterprise, while its essence is perceived differently and individually. From control of cost consumption, comparing the plan and the reality, calculations, or budgets up to a comprehensive form of consultancy and future-oriented management. The results of the survey showed the use and perception of controlling, in particular in the form of cost consumption control, application of calculations and budgets. According to Nowak (2016a), cost control offers a substantial improvement in operational efficiency in enterprises. The results of Nowak (2016b) in another study indicate that the analysis of deviations may be another important tool for controlling costs and managing

the business results. Despite the fact that enterprises in Slovak conditions use benchmarking to a lesser extent, it is beneficial that enterprises also use the method of benchmarking to improve their performance. Amann et al. (2020) claim that controlling essentially consists of verification of compliance with the establishment of the plans, instructions, and principles. Its essence is, therefore, the control. Control is an essential function of every manager who is performing the functions like planning, organising, staffing, and directing. In fact, it is a follow up action to other functions of management. This statement was verified in various studies which point to the fundamental dimension of controlling in the cost reporting and subsequent control (Amann et al., 2020; Kovaleva et al., 2018).

If controlling is considered not only as a tool increasing the level of information for decision-making and providing a more detailed overview of the cost consumption compared to returns, but also an approach to a higher level of coordination of control and forecasting, the enterprises with foreign capital structure tend to perceive the essence of controlling in this context. The fact is that among the Slovak manufacturing enterprises, the companies with foreign capital are more successful in the most sectors. Companies with foreign capital structure brought the verified know-how in the sphere of management and marketing. This fact was confirmed by the authors in their studies (Zandi et al., 2020; Dokulil et al., 2020; Wnuk-Pel & Christauskas, 2018; Belas et al., 2018, 2020; Smékalová et al., 2014).

The results of studies examining the impact of controlling on the financial performance of the company (Bieńkowska et al., 2019; Tworek et al., 2019; Sedliačiková et al., 2019; Eschenbach, 2004) but also its own practical knowledge of the effects of controlling implementation show that a positive relationship of controlling/financial benefits is not only highly expectable but also real. It is also possible to analyse that the assumed impact of the pandemic crisis on performance at the level of the expected decrease in sales volume by the results of the current survey. Interestingly, the biggest decrease in case of manufacturing enterprises (more than 20%) was expected in the manufacture of textiles and wearing apparel sectors (NACE 13, 14) and manufacture of wood (NACE 16). The decrease between 15% to 20% is recorded in the sector of manufacture and processing of metals (NACE 24). The smallest decrease (up to 5%) in the sectors of manufacture of food, beverages, manufacture of paper and paper products, manufacture of chemicals and manufacture of machinery and equipment (NACE 10, 11, 17, 20 and 28) (Statistical Office of the Slovak Republic, 2020).

In terms of sales, manufacture of basic pharmaceutical products, manufacture of chemicals and food performed the best during the crisis. However, the measures taken to stop the spread of the disease, the associated lockdowns and the fall in external demand hit other industries to a large extent, in particular the manufacture of computer and optical products and the automotive industry. Sales in the automotive industry decreased year-on-year in April by up to 77.1% (Plutzer, 2021). Due to pandemic crisis, industry and supply chain perspective experienced interruption of raw material and spare parts, setbacks in logistics and demand fluctuation (Cai & Luo, 2020). During the first wave, the automotive industry belonged to the industries hit hardest by the coronavirus (Dvorský et al., 2021). Manufacturing industry was affected by short-term supply shortages, but most manufacturing sectors recovered relatively quickly in the third quarter of 2020. But what the pandemic accelerated was the increase in digital transformation (De Vet et al., 2021). Agility also appears in the area of controlling. The

demands on controlling in enterprises are changing. It is not enough to use past analysis to draw conclusions but controlling shall fulfil an advisory function for the management of the company. If controllers adopt the agile methods and also the way of thinking, they will be able to cope more flexibly and better with the conditions of the changing business environment and thus contribute to the company's success. (Lehmann et al., 2021).

Based on the summary of the survey results, it can be concluded that the perception of the essence of controlling is relatively limited in the environment of Slovak manufacturing enterprises at the level of a certain form of reporting and advisory function of providing information for short-term decision-making. Its use is oriented on the form of control of the cost records, the setting of a fixed budget and subsequent control in comparison of the plan-reality. This is an essential prerequisite for the possibility of establishing deviations, but it does not include the principle of using a flexible plan as a basic building element of deviation management system. Unused potential of controlling is mainly in the use of benchmarking principles, the flexible setting of calculations and creation of budgets. The essence of benchmarking as a strategic management tool is based on a process of continuous and systematic comparing products, processes, and methods of the company itself with those recognized as adequate benchmark. The aim is to define goals for continuous improving its own activities. Sutia et al. (2020) and Wettstein and Suggs (2016) dedicated to the study of the concept of benchmarking and the identification of benefits of benchmarking methods. The research results of these studies demonstrate that benchmarking in manufacturing companies brings a wide range of benefits such as: productivity, increasing positive customer satisfaction, gradual improvement of quality, process of continuous improvement, environmental aspect and overall production competitiveness. The substance of this calculation is to implement the breakdown of fixed and variable costs with degressive techniques of cost deduction and to determine possible levels of contribution margin. The issue of using variable costing in manufacturing industries at pricing or budgeting was presented in their studies by (Pavlatos, 2021; Geiszler et al., 2017; Becker et al., 2016). Such calculations can not only respond more flexibly in pricing and set preferences for the compared products more optimally, but also the variable costing meets more effectively internal requirements about allocation of cost because it provides better insight into cost relationship for decision. The approaches of the benchmarking, flexible budgeting and calculation can make decision-making processes more efficient, uncovering potential reserves in the form of future savings. In times of a crisis, they become an important tool for raising awareness and responding to changing market conditions and ensuring the agility of an enterprise. By using them, controlling is more broadly fulfilling the essence of its potential to increase the performance of an enterprise in any sector. However, it is only another step for the comprehensive use of controlling as an approach that, in the context of secondary coordination, links the processes of the information database, planning and control system.

Conclusions

The aim of the survey was to identify the current state of use of controlling in Slovak manufacturing enterprises. The application of statistical tools confirmed the significant correla-

tion between the capital structure of manufacturing enterprises and the level of broader perception and practical use of the essence of controlling and also between the performance measured by ROS. The use of controlling is more frequent at large and partially medium-sized enterprises while within the classification of sectors, the predominant were especially those with higher value added and foreign capital participation. The results have shown that the essence of controlling is limited in the environment of Slovak manufacturing enterprises to the level of advisory function of providing information for decision-making in a certain form of reporting. The principle of comprehensive secondary coordination of management is thus absent and there are considerable lacks within the potential that could the controlling with its essence bring about.

The limitations of research paper consist of carrying out in the environment only of Slovak manufacturing enterprises and therefore the results cannot be generalized for a wider global environment. Also, the essence of controlling was examined only from the perspective of the service function of advising in decision-making. However, the presented results create a space for their comparison with related research studies in the wider European Union business environment. The need to address controlling in the wider context of comparison of its use in the Visegrad region countries or central and eastern European countries (mainly in countries Czech Republic, Slovenia and Poland) is the aim of further research. The future aim of the research is mainly to focus on the coordination function of controlling in the way of creating an information database and using reporting sheets as alternatives to future development, linked to the agility of the enterprise. This will allow to predict the performance of the enterprise in changed circumstances on the basis of a methodology of quantifying and evaluating deviations. The need to explore and raise awareness of controlling issues has been highlighted by the pandemic crisis, due to the continuing problems and uncertainty of entrepreneurs, as demonstrated by savings, postponing investments as well as reassessing employment in enterprises.

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Author contributions

MP, SH, PL and JS conceived the study and were responsible for the design and development of the data analysis. MP, PL and JS were responsible for data collection and analysis. MP, PL and JS were responsible for data interpretation. MP, PL and JS wrote the first draft of the article.

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