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### PROFIT MANAGEMENT AS AN INSTRUMENT FOR SMEs DEVELOPING: THE CASE FOR SLOVAKIA

**Abstract.** *The goal of the business should reflect its efforts to achieve a certain future state. Classical economic theories emphasize the achievement of profit as a fundamental goal of business. Modern theories consider gaining profit as one of the basic motivating factors. In practice, we distinguish several profit categories that are described in our contribution. The effort of businesses is detection of indicators that help enterprises to generate profit. In our contribution, we focused on the analysis of the profitability of small and medium-sized enterprises as well as on the identification of indicators that significantly influence the rate of profit. In our research we worked with a sample of 9,500 Slovak small and medium-sized enterprises. It was primarily a limited liability company with domestic ownership. We mainly focused on this type of businesses because many authors emphasize the irreplaceable role of small and medium-sized enterprises in countries' economies. Small and medium-sized enterprises play a very important role not only in Slovakia but also in the global economy. They significantly influence the creation of hundreds of jobs, regional development or a high percentage of GDP. Approximately 98% of enterprises in the Slovak Republic fall into the category of small and medium-sized enterprises. For their functioning, it is very important to have the capital that they inevitably need, either for the start of business as such, for development. However, these type of businesses does not always have easy access to financing, especially in the case of bank loan financing. Profit for SMEs is a very important internal source of funding. The aim of our paper is profit analysis and identification of the main profit-taking indicators. The analysis of the profitability was conducted by using methods of descriptive statistics. Based on the studied literature, we selected individual profit categories as basic indicators of profitability as well as selected indicators of profitability that are defined below. Pearson's correlation coefficient and the one-way ANOVA were used to examine the relationship between the selected indicators and achieved profit. Graphs and charts are used to clear the processing of the results of our research.*

**Keywords:** ANOVA, cash management, earnings before interest and taxes, earnings before interest, taxes, depreciation and amortization, net operating profit after tax, earnings before interest after taxes, Pearson correlation coefficient.

**Introduction.** Many authors (Limaj and Bernroider, 2019; Jamali, 2017; Soto-Acosta, 2016) emphasize the irreplaceable role of SMEs in countries' economies. Approximately 98% of enterprises in the Slovak Republic fall into the category of small and medium-sized enterprises. Information about small and medium-sized enterprises can be obtained from the Report on the state of the SMEs, which is annually processed by the Slovak Business Agency. The latest information is from 2017. Slovak Business Agency is still working on the 2018 report at the time of processing our article. Year-on-year (2016 – 2017) the number of SMEs in the Slovak Republic increased by 1.8%. The number of SMEs in 2017 was 567,131. From a regional point of view, SMEs were mainly concentrated in the Bratislava Region, where more than one fifth (22.3%) of the total number of active SMEs operated. The second-highest proportion of the number of SMEs has reached the Zilina Region (13.4%). The lowest number of SMEs operated in the Trenčín Region (9.6%). In a year-on-year comparison, the number of SMEs in all regions of the Slovak

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Republic increased – most in the Bratislava Region. (Slovak Business Agency, 2017)

According to the Slovak Statistical Office data, year-on-year the gross domestic product increased by 3.4% in 2017. Achieved economic growth was slightly higher compared to the previous year 2016 (3.3%). The dynamic growth of Slovak economy was positively influenced by growth in external and domestic demand. The volume of exports of goods and services increased by 4.3% year-on-year mainly due to stronger external demand. Achieved economic growth had a positive impact on the labour market situation. The increase in employment was naturally reflected in a decline in the unemployment rate, which decreased by 1.6 percentage points to 8.1%. The economic and financial indicators of SMEs also showed a positive trend in 2017. The results of all chosen macroeconomic indicators can be seen in table 2. Table 1 shows only results of SMEs – legal persons.

**Table 1. Chosen economic and financial indicators SMEs**

Indicator	Units	2016	2017	
Gross Production	million EUR	54,876.1	58,784.6	↑
Added Value	million EUR	19,999.3	21,774.6	↑
Employment	person	1,368,782	1,387,848	↑
Export	million EUR	17,957.7	17,978.1	↑
Import	million EUR	25,554.7	26,622.0	↑
Interest Rate for SMEs	%	3.1	3.0	↓
Late Payment B2B	days	19	19	=

Source: Slovak Business Agency, 2017.

Indicators of gross production and added value have an increasing trend over the years 2008-2017. In 2017, the share of SMEs – legal persons in gross production in the non-financial corporate sector reached 44.3%, which is 0.5 percentage points more than in 2016. The share of SMEs – legal persons in the added value created in the non-financial corporate sector increased by 0.9 percentage points to 53.6%. In terms of employment, SMEs in Slovakia are irreplaceable. In 2017 they had 73.8% share of employment in the business economy and 59.1% in the economy. Compared to 2016, the share of SMEs in employment in the corporate economy decreased by 0.3 percentage point – mainly due to more dynamic growth in employment for large enterprises. In the framework of export-import activities, Slovak small and medium-sized enterprises focus mainly on imports. The volume of imports of SMEs over the period under review exceeded the export volume of SMEs. (Slovak Business Agency, 2017)

Based on the above mentioned, can be said that small and medium-sized enterprises have an irreplaceable position in the Slovak economy. This is what has led us to focus on this sector in our article as an exploration object.

**Literature Review.** The interest in small and medium-sized enterprises (SMEs) has been developing worldwide since the early 1980s, mainly in the US and the UK. Significant characteristics were attributed to SMEs in the countries' economies. In this way, the importance of SMEs has grown steadily in the view of the fact that they are regarded as the driving force of any market economy. That is why public interest and also governments are increasingly focusing on businesses of this type. The basis for theoretical procedures in the field of SMEs research was The Bolton report in 1971, according to which:

- SMEs have a relatively small market share, so they cannot influence the market in any significant way;
- SMEs do not have a formal management structure, they are managed by owners, owners' families or by co-ownership;
- SMEs are independent enterprises, do not form a part of another larger enterprise (Strazovska et

al., 2007; Valaskova et al., 2019);

- The first separate definition of small and medium-sized enterprises in the legislation of the Slovak Republic comes from Act no. 100/1995 of 3rd May 1995 on State aid to small and medium-sized enterprises, according to which;

- a small entrepreneur is defined as a natural person doing business and residing in the territory of the Slovak Republic or a legal entity operating in the territory of the Slovak Republic if it employs no more than 24 employees;

- a medium-sized entrepreneur is defined as a natural person doing business and residing in the territory of the Slovak Republic or a legal entity operating in the territory of the Slovak Republic if it employs no more than 500 employees. (Act no. 100/1995 on State aid to small and medium-sized enterprises as amended).

In the previous definition, mainly quantitative criteria were used to define SMEs. SMEs can be defined not only on the basis of quantitative but also on qualitative features. A specific qualitative feature for distinguishing small and medium-sized enterprises from large enterprises is the close link between the enterprise and the owner. This link can be defined by two principles:

- the personal principle means that the entrepreneur holds the most important place in the business decision-making process, he or she is in direct contact with customers, employees and suppliers, and has an overview of the technical, administrative and organizational processes in the enterprise;

- the principle of unity is focused on the unity of management and capital and means that both the entrepreneur and the owner is one person. (Gaganis et al, 2019; Cornille et al, 2019; Emerling and Wojcik-Jurkiewicz, 2018).

In the Slovak Republic, the importance of small and medium-sized enterprises have begun considering after 1990 in the connection with the privatization and transformation of the economy. The reason for the break-up of large state-owned enterprises and the subsequent creation of a larger number of SMEs was the first wave of privatization. As a part of the restructuring, the property was returned to the hands of its citizens. Also, the liberalization of trade relations has supported the emergence of SMEs with foreign ownership.

Since 1st January 2005, we adopted European Commission Recommendation No. 2003/361/ EC to define SMEs. The definition can be seen in the following table 2. (European Commission Recommendation No. 2003/361/ EC).

**Table 2. Classification of SMEs**

Classification	Staff number	Annual turnover		The balance sheet total
Medium-sized company	< 250	≤ 50 mil. EUR	or	≤ 43 mil. EUR
Small company	< 50	≤ 10 mil. EUR		≤ 10 mil. EUR
Micro	< 10	≤ 2 mil. EUR		≤ 2 mil. EUR

Source: European Commission Recommendation No. 2003/361/ EC.

The goal of the business should reflect its efforts to achieve certain future state. Zang et al (2018) state that entrepreneurship is an activity aimed at achieving business goals. Classical economic theories emphasize the achievement of profit as a fundamental goal of a business. (Agarwal et al, 2018; Sion, 2018; Pawliczek and Zimmermannova, 2018; Menger, 2016) Entrepreneurship is defined in the legislation of the Slovak Republic as a continual activity performed independently by the entrepreneur in his own name and on his own responsibility for profit. (Commercial Code no. 513/1991 Coll. as amended) Modern theories consider achieving profit as one of the basic motivating factors, but not as the main goal of business. (Jin Yeub and Myungkyu, 2019) Nevertheless, based on survey results profit-making remains an important success factor for not only small and medium-sized enterprises. (Olah et al, 2019; Dvorsky

et al., 2018; Robson, 2019, Nadanyiova, 2014, Stefanikova and Masarova, 2014) In our contribution, we focused on the analysis of the profitability of small and medium-sized enterprises as well as on the identification of indicators that significantly influence the rate of profit. The aim of our paper is profit analysis and identification of the main profit-taking indicators. The analysis of the profitability was conducted by using methods of descriptive statistics. Based on the studied literature, we selected individual profit categories as basic indicators of profitability as well as selected indicators of profitability that are defined below.

In practice, we distinguish the following profit categories (Stoklasova, 2018, Hahnel, 2019):

- Operating income – is an accounting figure that measures the amount of profit realized from a business's operations, after deducting operating expenses such as wages, depreciation, and cost of sold goods. (Van den Berg et al, 2018)
- Net operating profit after taxes (NOPAT) – is a company's potential cash earnings if its capitalization were unleveraged if it had no debt. NOPAT is a more accurate look at operating efficiency for leveraged companies, and it does not include the tax savings many companies get because of existing debt. It is possible to calculate it as profit after tax plus interest after tax. (Hahnel, 2019)
- Financial income – is the difference between financial revenues and financial cost.
- Operating income – is the difference between operating revenues and operating cost.
- Earnings before taxes (EBT) – is the difference between revenues (financial plus operating) and cost (financial plus operating).
- Net income – EAT – earnings after taxes.
- Earnings before interest and taxes – (EBIT) the sum of profit/loss (EBT) and interests.
- Earnings before interest, taxes, depreciation and amortization – (EBITDA) the sum of EBIT and depreciation of tangible and intangible assets.
- Earnings before depreciation and amortization – (EBDA) the sum of EBT and depreciation of tangible and intangible assets.
- Earnings before depreciation, amortization and taxes – (EBDAT).
- Earnings before taxes and stock options – (EBTSO).
- Earnings before taxes, depreciation, amortization and stock options – (EBITDASO).
- Earnings before taxes, depreciation, amortization and rents – (EBTDAR).
- Earnings before interest, taxes and cost on research with long-term character – (EBITR).

Profit is an important part of ratio indicators, mainly profitability indicators. Profit and profitability are referred to in many papers as the most important aspects of strategic and tactical decision making. (Kollar et al, 2015) In practice, most commonly known profitability indicators are ROA (Return on Assets), ROE (Return on Equity), ROI (Return on Investment) and ROS (Return on Sales).

**Methodology and research methods.** The aim of our contribution is the profit analysis of SMEs and identification main indicators of profit creation in this sector. For this purpose, data from 9,500 financial statements of SMEs were collected. We conducted the research with data from two years 2017, 2018. We focused mainly on a limited liability company with domestic ownership. Profitability analysis was performed by using selected indicators. The individual indicators, as well as the way of its calculation, are shown in table 3.

The first part of our work was profit analysis based on selected indicators, which we calculated for companies from the database. The values of some indicators showed a striking deviation from others. Such values are called outliers, and it is recommended to exclude them from the database because they can falsify the results of other analyses. There are several methods for determining outliers in a sample. In our contribution we focused on IQR (interquartile range) method of outlier detection developed by John Tukey. (Al Sayed et al, 2018) Tukey set the so-called borders. Outliers are values below  $Q_1 - 1.5(IQR)$

or above  $Q_3 + 1.5(IQR)$ . When a dataset has outliers, variability is often summarized by a statistic called the interquartile range (IQR), which is the difference between the first and third quartiles (upper and lower quartile). The first (upper) quartile, denoted  $Q_1$ , is the value in the data set that holds 25% of the values below it. The third (lower) quartile, denoted  $Q_3$ , is the value in the data set that holds 25% of the values above it. The interquartile range is defined as follows  $IQR = Q_3 - Q_1$ .

Table 3. Chosen indicators and its calculation

Indicators	Calculation
NOPAT	EAT + Interest after Taxes*
Financial income	Financial Revenues – Financial Cost
Operating income	Operating Revenues – Operating Cost
EAT	Financial Income + Operating Income – Taxes
EBT	Financial Income + Operating Income
EBIT	EBT + Interest
EBIT DA	EBIT + Amortization
ROA	EAT/Average Total Assets
ROE	EAT/Equity
ROI	EAT/Investment Cost
ROS	EAT/Net Sales

\* 21% – corporate income tax rate was used in 2017, 2018.

Source: Own processing.

The graphical representation of this method is a boxplot. We have tested outliers for every single indicator separately. Figure 1 shows an example of boxplot for chosen indicator – Return on Sales.

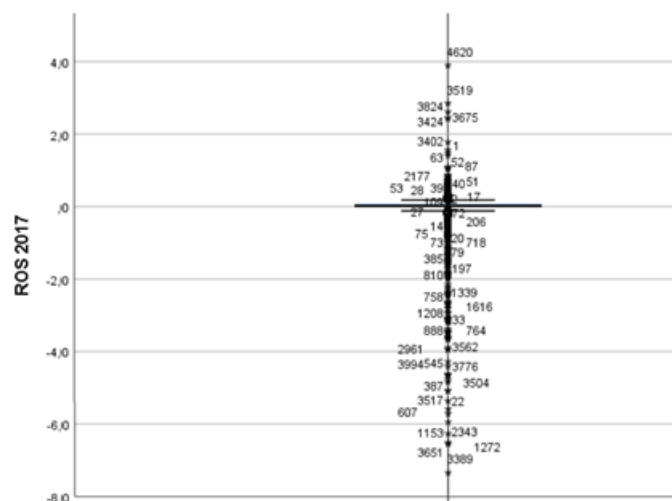


Figure 1. Box Plot – Return on Sales

Sources: Own processing.

Overall, the Tukey method excluded 2,385 enterprises, which in some of the calculated indicators showed extreme value. Furthermore, we have been working with a sample of 7,115 SMEs. Brief characteristics of the database are found in Tables 4 and 5.

**Table 4. Regional representation of enterprises in the database**

Region	Number of enterprises (absolute value)	Number of enterprises in %
Bratislava	1,366	19.20
Trnava	754	10.60
Trenčín	825	11.60
Nitra	982	13.80
Zilina	455	6.40
Banská Bystrica	1,053	14.80
Presov	783	11.00
Kosice	897	12.60
Sum	7,115	100.00

Source: Own processing.

Table 5 shows the five most represented economic sectors in terms of a number of enterprises. We do not further specify the other sectors and summarize the number of enterprises that are in them in the «other».

**Table 5. Economic sector representation of enterprises in the database**

Economic sector	Number of enterprises (absolute value)	Number of enterprises in %
Wholesale and retail trade, repair of motor vehicles and motorcycles	1,779	25.00
Construction	1,437	20.20
Industrial production	1,181	16.60
Accommodation and catering services	982	13.80
Information and communication	783	11.00
Other	953	13.40
Sum	7,115	100.00

Source: Own processing.

The analysis of the profitability was conducted by using methods of descriptive statistics.

At the end of the practical part of our contribution, we focused on testing hypothesis. The next hypothesis was defined.

H 1: There is a statically significant relation between profit indicator EAT and region, where the enterprise does business.

H 2: There is a statically significant relation between profit indicator EAT and sector, in which enterprise does business.

H 3: There is a statically significant relation between profit indicator EAT and classification of the enterprise (micro, small and medium-sized).

H 4: There is a statically significant relation between profit indicator EAT and cost of capital.

H 5: There is a statically significant relation between profit indicator EAT and total assets.

H 6: There is a statically significant relation between profit indicator EAT and average collection time. To confirm the existence of statistical dependence in hypothesis (1 – 3) the one way ANOVA test was used.

$$SST = SSB + SSE \quad (1)$$

$$\sum_{i=1}^n (x_i - \bar{x})^2 = \sum_{j=1}^k (\bar{x}_j - \bar{x})^2 n_j + \sum_{i=1}^{n_j} \sum_{j=1}^k (x_i - \bar{x}_j)^2 \quad (2)$$

where  $x_i$  –  $i$ -th value of interval variable,  $n$  – sample size,  $\bar{x}$  – mean,  $n_j$  – the frequency of the  $j$ -th group,  $k$  – the number of nominal variable groups,  $\bar{x}_j$  – mean  $j$ -th group.

The estimate of intergroup (MSB) and intragroup (MSE) variance can then be expressed as the ratio between the sum of squares and the corresponding number of degrees of freedom.

$$MSB = \frac{SSB}{k-1} \quad (3)$$

$$MSE = \frac{SSE}{n-k} \quad (4)$$

By using a test statistic that has Fisher's F-distribution with degrees of freedom  $v_1 = k - 1$  and  $v_2 = n - k$  which equals the share of intergroup and intragroup variance  $F = \frac{MSB}{MSE}$ , we decide about not reject or reject the null hypothesis. (O'Hagan et al, 2007)

The second possible decision criterion is the achieved  $p$  – value, which we compare with the chosen level of significance. We decided to work with the  $p$  – value calculation. This was determined by using statistical analysis software in Excel XLSTAT. If the  $p$  – value at the selected significance level  $\alpha = 0.05$  is less than 0.05, this means that the differences in the sample averages are too large to be random, we reject  $H_0$  and do not reject  $H_1$ , which state of the existence of a statistically significant relationship between the analyzed variables. (Sharif et al, 2017)

To confirm the existence of statistical dependence in hypothesis (4 – 6) we tested the significance of the correlation coefficient. The test statistic has a Student t-distribution with  $(n - 2)$  degrees of freedom.

$$T = r \cdot \sqrt{\frac{n-2}{1-r^2}} \quad (5)$$

where  $n$  – sample size,  $r$  – Pearson correlation coefficient.

If  $T$  is less than the critical value from the table of Student distribution at alpha (we set alpha at 0.05) level with  $(n - 2)$  degrees of freedom, we can assume that there is a statistically significant relationship between the surveyed indicators. (Rimarcik, 2007).

The strength of this dependence is expressed by Pearson correlation coefficient. In interpreting the results Cohen's interpretive of Pearson correlation coefficient was used as follow:  $0 < |r| \leq 0.1$  trivial dependence,  $0.1 \leq |r| \leq 0.3$  small dependence,  $0.3 < |r| \leq 0.5$  moderate dependence,  $0.5 < |r| \leq 0.7$  large dependence,  $0.7 < |r| \leq 0.9$  very large dependence,  $0.9 < |r| \leq 1$  nearly perfect correlation. (Cohen, 2003)

**Results.** Descriptive statistic was used for profitability analysis of SMEs. We set main indicators of profitability, namely NOPAT, financial and operating income, EAT, EBT, EBIT, EBIT DA, ROA, ROE, ROI, ROS. Demonstration of calculated values of profitability analysis can be seen in tables 6 and table 7.

**Table 6. Demonstration of calculated values of profit indicators (in thousands of EUR) for enterprises in the dataset**

SME	EAT	EBT	EBIT	EBIT DA	NOPAT
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	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
1	2.65	0.48	3.13	0.94	3.13	0.94	3.13	0.94	2.53	0.78
2	25.86	47.34	32.56	63.07	32.61	63.56	53.08	69.45	26.42	51.49

Source: Own processing.

**Table 7. Demonstration of calculated values of return indicators (in %) for enterprises in the dataset**

SME	ROA		ROE		ROI		ROS	
	2018	2017	2018	2017	2018	2017	2018	2017
1	11.13	4.61	14.23	3.89	5.00	4.22	35.13	10.94
2	20.72	34.84	32.12	84.64	13.56	9.63	11.71	17.76

Source: Own processing.

Based on calculated values we can state that profit distinction to financial and operating income is not effective, because there is only a small proportion of SMEs that achieved financial income. In the following calculation we do not focused on financial and operating income. Following tables 8 and 9 show results of descriptive statistic.

**Table 8. Descriptive statistic of profit indicators for enterprises in the dataset**

	EAT		EBT		EBIT		EBIT DA		NOPAT	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Arithm. Mean	62485.41	55024.96	78701.41	68329.42	84787.50	74016.84	122385.58	110188.98	68677.88	59953.64
Median	13305.63	11057.00	17498.50	14227.25	20893.86	17636.25	36138.38	32120.00	16924.00	19168.25
Upper Quartile	88179.29	89817.38	90787.35	91057.19	97007.50	97397.48	152301.29	141400.75	64276.10	76491.95
Lower Quartile	3598.22	3147.97	5097.88	4440.66	6074.44	5255.59	10837.84	9546.69	4920.30	4257.03
Stand. Dev.	19655.02	17755.45	23155.47	21074.32	24095.38	21772.43	29184.24	26494.32	19482.26	17588.67
Coef. of Variation	3.13	3.23	2.94	3.09	2.84	2.93	2.38	2.40	2.84	2.93

Source: Own processing.

The average values of selected profit indicators increased year on year. The most significant increase can be seen in the indicator EBT – 15.18%. The latest corporate income tax adjustment is from 2017. There was no change in this amount in analysed years 2017 and 2018. Therefore, the amount of corporate income tax could not affect the change in EBIT. The average value of EAT indicator increased by 13.56%. The least significant increase can be seen in the indicator EBIT DA, only 11.07%, which may be related to the unchanged depreciation policy. The average value of depreciation (added to EBIT in calculation EBIT DA) increased by 1.8% year-on-year.

The arithmetic means, as an indicator of descriptive statistic, is very sensitive to extreme values. "Outliers" were identified by Tukey method and excluded. Nevertheless, there are higher or lower values that can distort results. In these cases, it is appropriate to use a median to determine the mean location in the set. Median refers the value in the middle of our dataset. In the case of EBT can be stated that half of SMEs achieved EBT indicator higher than 17,498.50 EUR in 2018 and half of SMEs achieved EBT indicator lower than 17,498.50 EUR.

Upper quartile and lower quartile can be defined as the other indicators of location. Again, on the example of EBT, we can illustrate the results. The upper quartile of EBT is 60,787.35 EUR in 2018. It means that only 25% SMEs achieved EBT higher than 60,787.35 EUR in 2018, remaining 75% SMEs



achieved EBT lower than upper quartile value. The lower quartile of EBT is 5,097.88 EUR in 2018. It means that 75% SMEs achieved EBT higher than 5,097.88 EUR, remaining 25% SMEs achieved EBT lower than lower quartile value. The standard deviation measures the amount of variation of a set of data values. A low standard deviation indicates that the data points tend to be close to the mean of the set, while a high standard deviation indicates that the data points are spread out over a wider range of values. The lower its value is, the more likely we can assume the occurrence of values at the level of the arithmetic mean. To risk measure coefficient of variation is also used. The greatest deviation from the mean value can be expected in case of EAT indicator. Table 9 shows the results of the same methods of descriptive statistics in the case of chosen return indicators.

**Table 9. Descriptive statistic of return indicators (in %) for enterprises in the dataset**

	ROA		ROE		ROI		ROS	
	2018	2017	2018	2017	2018	2017	2018	2017
<b>Arithmetic Mean</b>	16.54	17.39	33.36	24.12	48.35	50.15	35.15	31.04
<b>Median</b>	9.22	8.37	16.72	16.18	50.69	37.08	26.36	23.52
<b>Upper Quartile</b>	20.53	20.18	35.31	35.75	49.14	52.95	84.4	79.57
<b>Lower Quartile</b>	3.27	2.96	5.45	4.05	3.35	2.89	8.14	7.03
<b>Standard Deviation</b>	41.92	62.75	881.57	763.74	618.23	696.35	671.01	651.57
<b>Coefficient of Variation</b>	2.53	3.61	26.43	31.66	12.79	13.89	19.09	20.99

Source: Own processing.

In the following part of the contribution, the hypothesis was tested using tests described in methodology part.

**Table 10. Results – Testing hypothesis**

<b>There is a statically significant relation between profit indicator EAT and region, where the enterprise does business</b>		
alpha	p-hodnota	Result
0.05	0.0743	The statically significant relation is <b>not confirmed</b>
<b>There is a statically significant relation between profit indicator EAT and sector, in which enterprise does business</b>		
alpha	p-hodnota	Result
0.05	0.0008	The statically significant relation is <b>confirmed</b>
<b>There is a statically significant relation between profit indicator EAT and classification of enterprise (micro, small and medium-sized)</b>		
alpha	p-hodnota	Result
0.05	< 0.0001	The statically significant relation is <b>confirmed</b>
<b>There is a statically significant relation between profit indicator EAT and cost of capital</b>		
Test Statistics Value	Critical Value	Result
61.63	1.96	The statically significant relation is <b>confirmed</b>
<b>There is a statically significant relation between profit indicator EAT and total assets</b>		
Test Statistics Value	Critical Value	Result
21.78	1.96	The statically significant relation is <b>confirmed</b>
<b>There is a statically significant relation between profit indicator EAT and average collection time</b>		
Test Statistics Value	Critical Value	Result
42.50	1.96	The statically significant relation is <b>confirmed</b>

Source: Own processing.

To confirm the existence of statistical dependence in hypothesis (1 – 3) the one way ANOVA test was used. P-value was determined by using statistical analysis software in Excel XLSTAT. The statistically significant relation was confirmed in hypothesis 2 and 3. We can state that there is statistically significant relationship between EAT and sector, in which enterprise does business and also between EAT and type of enterprise based on enterprise size. Table 5 shows five most represented sectors in our dataset. We calculated median value of EAT indicators in these sectors. We can state that the highest median value was calculated in industrial production 15,555.26 EUR. On the other hand the lower median value was calculated in accommodation and catering services, only 9,683.22 EUR. As we expected a higher median value of EAT indicator was calculated in medium-sized companies (19,556.63 EUR) than in small (7,963.47 EUR) or micro-companies (2,153.85 EUR).

We chose indicators that can also have influence EAT value, namely cost of capital, total assets and average collection time. We used the following formula for the cost of capital calculation.

$$WACC = \frac{E}{V} \cdot R_e + \frac{D}{V} \cdot R_d \cdot (1 - T) \quad (6)$$

where  $E$  – firm's equity,  $D$  – firm's debt,  $V$  – the total value of capital (equity plus debt),  $E/V$  – percentage of capital that is equity,  $D/V$  – percentage of capital that is debt,  $R_e$  – cost of equity (This indicator was calculated using modular method (described in more detail (Grombirova and Kubickova, 2015)),  $R_d$  – cost of debt (average interest rate on business loans in 2018),  $T$  – tax rate (21%).

Late payments are a current issue. Based on result of Intrum Justitia (2016, 2017, 2018) research, late payments can significant influence profit of company. In some cases, it can be also a reason of failure of company. This was the reason why we also focused on average collection time indicator.

To confirm the existence of statistical dependence in hypothesis (4– 7) we tested the significance of the correlation coefficient. Function T.INV.2T in Excel was used to determine the critical value of Student distribution with at alpha (we set alpha at 0.05) level with (7.155-2) degrees of freedom. By comparing the critical value with the test statistics value, we make decision about the null hypothesis. To calculate the test statistics value formula  $T = r \cdot \sqrt{\frac{n-2}{1-r^2}}$  was used. This formula is described in methodology of contribution. We can state the existence of statistically significant relation between EAT and all chosen indicators. In all cases, we also calculated Pearson correlation coefficient: There is large negative linear correlation between EAT and cost of capital (-0.59). There is moderate negative linear correlation between EAT and average collection time (-0.45). There is trivial positive linear correlation between EAT and total assets (0.25).

**Conclusions.** SMEs can drive the economy. However, they need to be profitable. The aim of our paper is profit analysis and identification of the main profit taking indicators. Profit for SMEs is a very important internal source of funding. By using statistic we confirmed the existence of statistically significant relation between profit indicator EAT and the sector, in which enterprise does business; classification of enterprise (micro, small and medium-sized), cost of capital, total assets and average collection time. There is not statistically significant relation between profit indicator EAT and the region, where enterprise does business. Identification of indicators of profit increasing can be really helpful for businesses. It can help a company to identify which indicators are generating a profit for it and therefore to focus on achieving better results. Using appropriate statistical tools, the obtained results could be further used to create a regression model for managing SMEs profit in the Slovak Republic.

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**Управління прибутком як інструмент забезпечення розвитку малого і середнього підприємництва: приклад Словаччини**

*Ця стаття узагальнює аргументи та контраргументи в межах наукової дискусії щодо розвитку механізму управління прибутком малих і середніх підприємств. Проаналізовано сучасні концепції управління прибутком та особливості обліково-аналітичного забезпечення управління прибутком малих і середніх підприємств. Обґрунтовано важливість прибутку, як основного мотивуючого фактору діяльності малих і середніх підприємств. Основною метою проведеного дослідження є аналіз прибутковості малих та середніх підприємств, встановлення необхідних умов ефективного управління прибутком. Об'єктом дослідження обрано 9500 малих та середніх підприємств Словаччини, переважно в формі товариств з обмеженою відповідальністю. Актуальність вирішення даної наукової проблеми полягає в тому, що малі та середні підприємства відіграють важливу роль в розвитку національної та міжнародної економіки. Встановлено, що майже 98% підприємств Словаччійської Республіки належать до категорії малих та середніх підприємств забезпечуючи раціональне використання наявних ресурсів країни, збільшення зайнятості та обсягів виробництва. Методичним інструментарієм проведеного дослідження стали метод ANOVA та розрахунку міри кореляційних зв'язків (на основі коефіцієнта кореляції Пірсона), періодом дослідження обрано 2017-2018 роки. Результати емпіричного аналізу засвідчили наявність статистично значущої залежності між показником прибутку EAT та сектором, в якому підприємство веде бізнес, класифікаційною ознакою підприємства, обсягом вартістю капіталу, загальних активів, а також відсутність статистично значущої залежності між показником прибутку EAT та регіоном, де підприємство веде свою діяльність. Результати проведеного дослідження можуть бути корисними для малого і середнього підприємництва в частині управління прибутком підприємства в процесі його формування, розподілу і використання.*

Ключові слова: коефіцієнт кореляції Пірсона, модель ANOVA, прибуток до вирахування витрат за відсотками, сплати податків та амортизаційних відрахувань, прибуток до вирахування відсотків за позиковими коштами і сплати податків, рентабельність, управління.

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