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Evaluation of sectors' performance according to EVA: The case of the Czech Republic

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Abstract

This paper is dedicated to a financial performance analysis. Its aim is to analyse the financial performance of sectors of the Czech economy using economic value added (EVA) and, based on the results, to propose a pyramidal decomposition to quantify the indicators affecting EVA. The analysis considers the period from 2012 to 2019. Based on our findings, we identify the main divisions influencing the manufacturing sector and, respectively, the Czech economy. First, EVA is used to evaluate the financial performance of sectors of the Czech economy. The sectors are sorted according to the mean value of EVA. From our previous research, it is known that the manufacturing sector is the main driving force of the Czech economy. Then, the method of pyramidal decomposition is applied and the main component indicators affecting the EVA of the manufacturing sector are distinguished. The integral method is used to quantify the influence of the component indicators on EVA.

Keywords

Economic value added, financial performance, pyramidal decomposition

JEL classification: G30, G32

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1. Introduction

The evaluation of financial performance belongs to the key activities of each company while evaluating its current state and comparing it with its financial and strategic goals. A company's financial performance is a random process that can be divided into individual indicators. It can also be evaluated using accounting, economic or market indicators.

In the past, traditional indicators, such as profitability ratios, were used to analyse financial performance. These indicators are based on accounting information (see Dluhošová, 2010; Mařík, 2005; Vernimmen, 2005). Financial indicators are commonly used in corporate performance analysis, but they can hardly be used as a complex measurement tool. One of their biggest problems is dimensional evaluation. It is not possible to show a proper picture of the corporate performance to the management and shareholders of a company based on financial indicators (Abdoli et al., 2011). According to other researchers, such as Edvinsson (1997), Ehrbar (1998) and Sveiby (2001), traditional measures of corporate performance based on the accounting principles of determining income may be unsuitable for the new economic world, where competitive advantages are driven by intellectual capital. The use of traditional measures may lead investors and other stakeholders to make problematic decisions when allocating their resources (Firrer and Williams, 2003).

Because of the increasing pressure on companies to deliver value to their shareholders, there has been renewed emphasis on devising measures of corporate financial performance. The empirical literature to date has suggested that there is no single accounting-based measure upon which changes in shareholder wealth can be reliably explained (see Chen and Dodd, 1997; Rogerson, 1997).

The accounting profit measures, such as earnings per share, return on equity, return on assets or return on investment, are among the most commonly used performance measures, but they are often criticized for not taking the total cost of the capital into account and for being influenced by the accounting conventions (Chen and Dodd, 1997).

Many studies have sought an answer to the question of how a company's financial performance should be evaluated. In the past, various authors used accounting measures of a company's financial performance, such as ROE (Pavelková, 2009; Richtarová, 2010; Strnadová and Karas, 2014).

In contrast to accounting indicators, modern indicators, such as economic value added, have been promoted as a measure of a company's real profitability. Economic value added is the only performance measure that is directly related to the intrinsic value of stock. For empirical testing, see Biddle, Bowen and Wallace (1997), Chen and Dodd (1997) or Rogerson (1997). Economic value added is presented as a new technology of management that helps companies to enhance their shareholder value creation (see Copeland, 1994; Ehrbar, 1998; Rappaport, 1986).

Nowadays, many researchers use modern indicators to analyse companies' financial performance (see Dluhošová, 2004; Mařík, 2005). The most widely used modern indicator, economic value added, is based on the concept of economic profit. The evolution of economic profit has historical roots. For instance, Marshall defined economic profit in 1890. Based on Marshall's statement, economic profit is radically different from the accounting measures of profit in use today, such as EBIT or net operating income (Grant, 2003). When the economic profit is positive, it means that the company earns more than the weighted average cost of the capital, which also means that some wealth is created for the shareholders.

According to Grant (2003), the theory of economic value added rests on two principles. A company is not profitable unless it earns a return on the invested capital that exceeds the opportunity cost of the capital, and wealth is created when the company management makes a positive NPV investment decision for the shareholders.

On the other hand, according to these studies, the financial performance of a company is analysed generally. It is very important to identify the main influencing factors and to quantify the impact of the component indicators. That is why it is appropriate to apply the method of pyramidal decomposition together with the analysis of deviation to measure financial performance.

Decomposition analysis helps to analyse the factors affecting selected key measures and to quantify their impact on the key measures. The method of pyramidal decomposition is usually used to quantify the impact of the component indicator on the change in the base indicator (Gurný, Richtarová and Čulík, 2017). This method also allows studies to identify the interactions and relationships among the component indicators.

Du Pont analysis, as a common method of pyramidal decomposition, is one of the forms of financial statement analysis that decomposes financial indicators into their component indicators. The concept of the Du Pont model was first designed in 1918 by F. Donaldson Brown. He recognized that a mathematical relationship existed between commonly computed indicators, the net profit, the total asset turnover and the ROA. This was the original Du Pont model (Doorasamy, 2016). In the 1970s, the focus shifted from the ROA to the ROE, which led to the first modification of the original Du Pont model (Gitman, 1998). The modified Du Pont model became a standard for all financial indicator analysis (Brigham and Houston, 2001; Zalai, 2002). It is possible to apply Du Pont analysis to other financial indicators, such as economic value added (Gurný, Richtarová and Čulík, 2017; Richtarová, 2016).

Pyramidal decomposition is an important part of financial analysis, especially when analysing a company's profitability for shareholders; for example, the Du Pont analysis of the return on equity (ROE) decomposes the ROE into other indicators, referred to as component indicators. While a change in any of the component indicators shows an obvious change in the decomposed indicator, the observed change is given by the change in all the component indicators simultaneously, and the question is which indicator represents the main reason for such a change.

The methods of financial performance analysis are usually applied to companies, but these companies are analysed separately, regardless of the sector in which they operate. Most authors have addressed the issue of company performance valuation, but only a few publications have considered industry performance valuation; see Borovcová and Richtarová (2020) and Dluhošová, Ptáčková and Richtarová (2018), whose conclusions we will extend in this article.

The aim of this paper is to analyse the financial performance of sectors of the Czech economy using EVA and, based on the results, to propose a pyramidal decomposition to quantify the indicators affecting EVA. The analysis focuses on the period 2012 to 2019. Based on our findings, we identify the main divisions influencing the manufacturing sector and, respectively, the Czech economy.

The paper is structured as follows. First, economic value added is characterized as a financial performance measure. Then, the pyramidal decomposition of EVA is proposed. To undertake an in-depth analysis of the component indicators' impact on the base indicator, the analysis of deviations is applied. In this paper, the integral method is used to quantify the impact of the component indicators on the base indicator. Finally, the results of the financial performance analysis are summarized and discussed.

2. Evaluation of financial performance

The methodological part of the paper is divided into two subchapters. In the first part, economic added value is used as a measure for evaluating the financial performance of selected sectors of the Czech economy. The second part focuses on the pyramidal decomposition and the analysis of deviations. Then, pyramidal decomposition of economic value added is proposed and the integral method is described as one of the methods for the analysis of deviations that serves to quantify the influence of the component financial indicators.

2.1 Economic value added (EVA)

There are many ways in which economic value added can be expressed. According to Grant (2003), there is an accounting way and a finance way of defining economic value added. From a finance perspective, economic value added is defined in terms of how it relates to the company's market value added. In this context, a company's market value added or net present value is equal to the present value of its expected future economic value added.

Economic value added is based on the concept of economic profit. When the economic profit is positive, the company earns more than the weighted average cost of capital, which also means that some wealth is created for the shareholders.

One way of defining economic value added describes it as the difference between a company's net operating profit after taxes (NOPAT) and its weighted average cost of capital. Brigham (2001) also calculated economic value added using the following basic formula:

$$EVA = NOPAT - WACC \cdot C, \tag{1}$$

where NOPAT is the company's net operating profit after taxes, WACC is the weighted average cost of capital and C is the capital.

According to Ehrbar (1998), Mařík (2005) and Vernimmen (2005), economic value added can also be expressed as follows:

$$EVA = (ROE - R_E) \cdot E, \tag{2}$$

where *ROE* is the return on equity, R_E is the cost of equity and *E* is the equity. In this case, the difference between *ROE* and R_E is called the spread. The spread is a very important parameter influencing EVA. If the spread is positive, it means that the industry or company earns more than the cost of the equity. This expression of economic value added is used to evaluate the financial performance of individual sectors of the Czech economy.

2.2 Description of the pyramidal decomposition of economic value added and the analysis of deviations

The pyramidal decomposition helps to identify the relationships between financial indicators and to quantify the impact of the component indicators on the base indicator (Dluhošová, 2010). There are many ways to decompose economic value added into its component financial indicators.

For the analysis of economic value added, we propose the following pyramidal decomposition (see Figure 1). The first level of the decomposition is based on the value of equity and the spread. The spread is determined as the difference between the return on equity and the cost of capital. At the lower levels of the decomposition, attention is paid to a deeper analysis of the return on equity. Selected financial indicators analyse the net profit generation, return on assets and financial leverage. The main components of the decomposition are highlighted.

For an in-depth analysis of the impact of the component indicators on the base indicator, it is useful to apply the analysis of deviations. Through this analysis, it is possible to quantify the impact of the changes in the component indicators on the base indicator (Zmeškal, 2013). Using pyramidal decomposition together with the analysis of deviation helps not only to identify the relationships between the financial indicators but also to quantify the impact of the selected indicators on the base indicator.

Generally, any base indicator x can be expressed as a function of the component indicators a_i, that is,

$$x = f(a_1, a_2 \dots a_n). \tag{3}$$

The change in the base indicator can be determined as the sum of the influences of the component indicators,

$$\Delta y_x = \sum_i \Delta x_{a_i}, \tag{4}$$

where x is the base indicator, Δy_x is the change in the base indicator, a_i is the i-th component indicator and Δx_{ai} is the impact of the i-th component indicator on the change in the base indicator.

Among the indicators, it is possible to distinguish between two operations – the additive relationship and the multiplicative relationship (Zmeškal, 2013).

The **additive relationship** can be expressed as

$$x = \sum_i a_i = a_1 + a_2 + \dots + a_n. \tag{5}$$

The quantification of the impact under the additive relationship is generally applicable, and the total impact is divided in proportion to the changes in the component indicator as follows:

$$\Delta x_{a_i} = \frac{\Delta a_i}{\sum_i \Delta a_i} \cdot \Delta y_x, \tag{6}$$

where $\Delta a_i = a_{i,1} - a_{i,0}$, $a_{i,0}$ is the value of the i-th component indicator at the beginning of the analysed period and $a_{i,1}$ is the value of the i-th component indicator at the end of the analysed period.

The **multiplicative relationship** can be expressed as follows:

$$x = \prod_i a_1 = a_1 \cdot a_2 \cdot \dots \cdot a_n. \tag{7}$$

According to the way in which the multiplicative relationship is handled, we can distinguish five basic methods: a method of gradual changes, a decomposition method with a residue, a logarithmic method, a functional method and an integral method (Zmeškal, 2015).

In this paper, the integral method is used to quantify the impact of the component indicators on the base indicator. While, in the past, the influence of the component indicators on the base indicator was calculated according to the logarithmic or functional method (Dluhošová, 2004; Richtarová, 2007), nowadays, the integral method is more often applied (see Dluhošová and Zmeškal, 2014; Gurný, Richtarová and Čulík, 2017). The advantage of this method is that it can reflect simultaneous changes in all the analysed indicators. There are no problems of the indicator ranking and arising of residues. The problem of negative values of the indicators, one of the disadvantages of the logarithmic method, does not occur. It is also possible to analyse non-linear operations, and the interpretation can be easier and clearer (Zmeškal, 2013).

According to Dluhošová and Zmeškal (2014), the procedure of the integral method is analogical to that of the logarithmic method; the only difference is that the linear component of the Taylor series approximation is applied, and the resulting influence quantification for any component indicator is expressed as

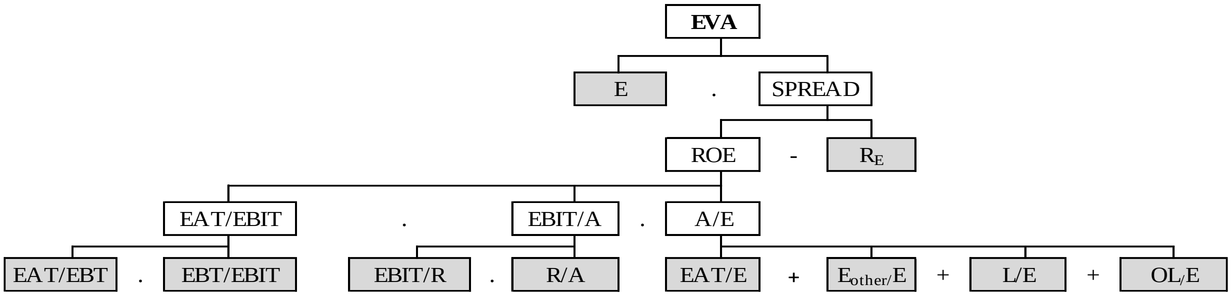

Figure 1 Economic value added – pyramidal decomposition

Notation used: E – equity, EAT – earnings after tax, EBIT – earnings before interest and tax, EBT – earnings before tax, A – assets, R – revenues, E_{other} – other equity (E-EAT), L – liabilities, OL – other liabilities and R_E – cost of equity, which are determined according to a build-up model from the Ministry of Industry and Trade of the Czech Republic.

$$\Delta x_{a_i} = \frac{R_{a_i}}{R_{x'}} \cdot \Delta y_x, \tag{7}$$

where $R_{a_i} = \frac{\Delta a_i}{a_{i,0}}$ and $R_{x'} = \sum_{i=1}^{N} R_{a_i}$.

3. Application

The application section of this paper is divided into four parts. After introducing the input data, the EVA analysis of the sectors of the Czech ecqonomy is performed. According to the mean values of EVA, the four sectors with the highest positive and negative EVA are identified. Then, the pyramidal decomposition method is applied and the main factors influencing EVA are found. The next part is dedicated to the analysis of the manufacturing sector as the most important sector for the Czech economy.

3.1 Input data

The historical data of economic value added and its development in the selected sectors of the Czech Republic are available on the website of the Ministry of Industry and Trade of the Czech Republic. Table 1 in the appendix shows the development of EVA in the selected sectors of the Czech Republic in the period 2012–2019. Annual data are used for the analysis. The individual sectors are marked according to the CZ_NACE classification. These are **A**: Agriculture, Forestry and Fishing; **B**: Mining and quarrying; **C**: Manufacturing; **D**: Electricity, Gas, Steam and Air Conditioning Supply; **E**: Water Supply; Sewerage, Waste Management and Remediation Activities; **F**: Construction; **G**: Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; **H**: Transportation and Storage; **I**: Accommodation and Food Service Activities; **J**: Information and Communication; **L**: Real Estate Activities; **M**: Professional, Scientific and Technical Activities; and **N**: Administrative and Support Service Activities.

3.2 Analysis of individual sectors' economic value added

This part is dedicated to the EVA analysis of the sectors of the Czech economy. Table 1 in the appendix shows the EVA values of the sectors for the analysed period 2012–2019. Most sectors, such as sectors B, E, F, H and L, generated negative EVA values. On the contrary, sectors C and J showed positive economic value added throughout the period under review. Since 2016, the economic value added of sector J has been increasing, and the highest value was reached in 2019. This sector includes the production and distribution of information and cultural products and the provision of means for the transmission or distribution of these products, as well as data or communication, IT activities and data processing and other information service activities. Sector C (Manufacturing) created the highest economic value added between 2015 and 2017. It can be described as the driving force of the Czech economy.

For the analysis, the mean value of EVA for all the sectors is determined. Based on the results, the sectors are ranked; see Figure 2. For a deeper analysis, the four sectors with the highest positive EVA and the four sectors with the highest negative EVA are selected.

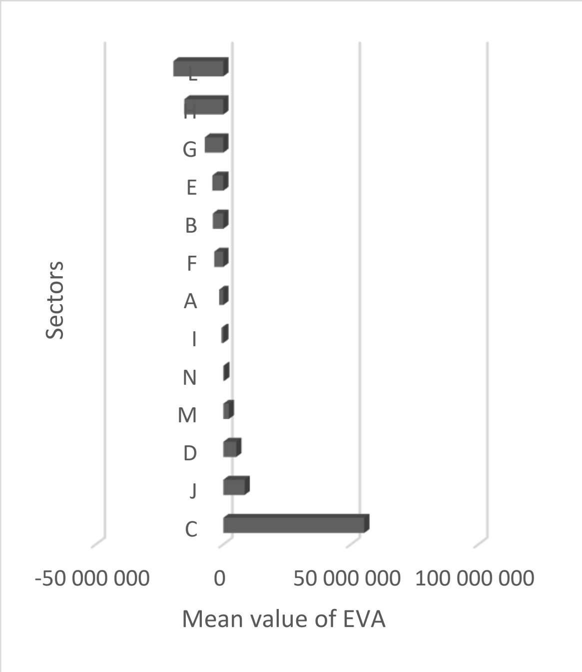

Figure 2 Mean values of EVA (thousand CZK)

The sectors with the highest negative mean value of EVA include sectors L, H, G and E. This is because of their low value of equity and the negative value of spread. The return on equity was much lower than the cost of the capital. By contrast, the sectors with the highest positive mean values of EVA are C, J, D and M.

Figure 3 shows the development of the economic value added of sectors C, D, J and M as the sectors that generated the highest positive mean value of EVA. Sector C (Manufacturing) generated the positive economic value added throughout the analysed period. EVA followed an upward trend from 2013 to 2015 and has been declining since then. The decline of EVA is due to a lower return on equity caused by a reduction in the net profit, mainly the operating profit. On the contrary, sector D (Electricity, Gas, Steam and Air Conditioning Supply) generated the highest EVA in the first year of the analysed period. In the following years, the EAT decreased significantly (by more than 50% between 2013 and 2014), which led to a significant reduction in the ROE, resulting in a negative spread value. Since 2016, there has been an increase in external resources. The higher leverage has had a positive impact on EVA, which reached positive values in 2019. Sector J (Information and Communication) generated a positive EVA throughout the analysed period, despite the decline between 2012 and 2014, and it has increased steadily since 2015. This increase in EVA was due to the higher net profit, which had a positive impact on the return on equity. In 2012, sector M (Professional, Scientific and Technical Activities) generated the highest negative EVA. Since that year, the net profit and return on equity have increased, exerting a positive effect on EVA. In 2017–2018, the resulting EVA was affected by a significant decrease in the net profit due to a decline in sales. In 2019, sector M had already generated a positive EVA because the net profit increased and thus the return on the equity exceeded the cost of the capital employed.

Figure 4 shows the development of the EVA of the sectors, including sectors E, G, H and L as the sectors that generated the highest negative mean value of EVA.

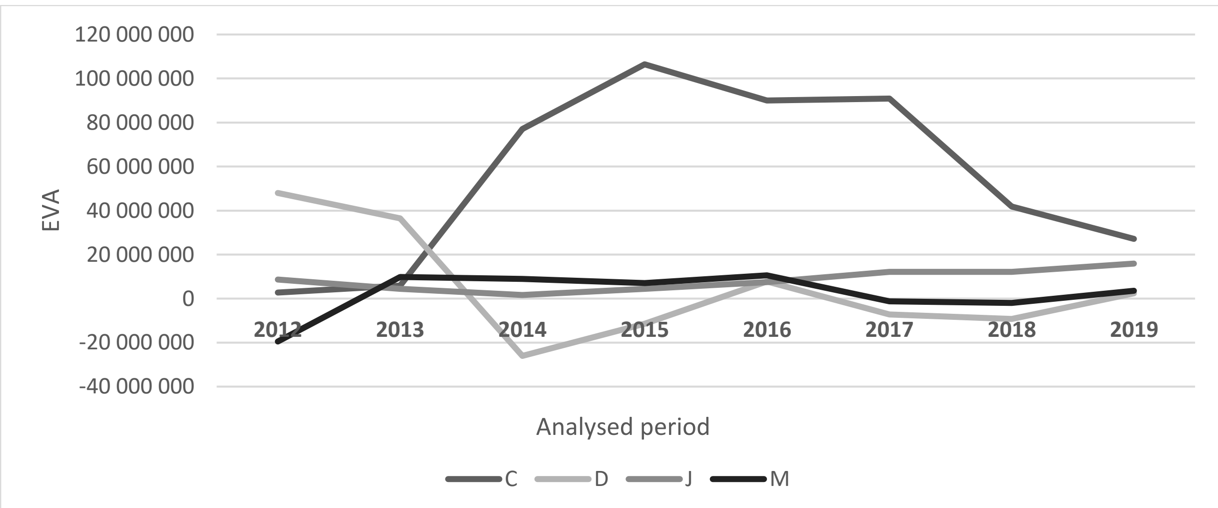

Figure 3 EVA– selected sectors with the highest positive mean values of EVA (thousand CZK)

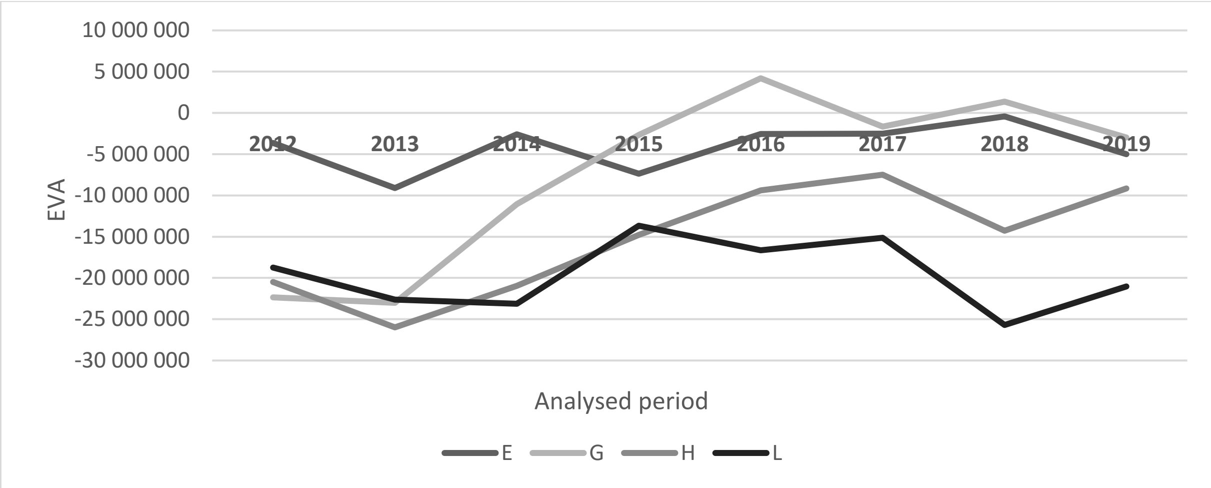

Figure 4 EVA– selected sectors with the highest negative mean value of EVA (thousand CZK)

Sectors E (Water Supply; Sewerage, Waste Management and Remediation Activities), F (Construction), H (Transportation and Storage) and L (Real Estate Activities) generated a negative value of EVA during the analysed period. It was affected by a negative value of the spread. Only sector G (Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles) was able to generate a positive EVA in the years 2016 and 2018, when the return on the equity was higher than the cost of equity.

Industrial production plays an important role in evaluating the performance of the Czech economy. According to CZ-NACE, activities classified into sectors B (Mining and Quarrying), C (Manufacturing), D (Production and Distribution of Electricity, Gas, Heat and Air Conditioning) and E (Water Supply; Activities Related to Wastewater, Waste and Remediation) are considered as industrial. The analysis showed that sectors C and D generated a positive mean value of EVA and sectors B and E, on the contrary, produced negative values.

Figure 5 shows the development of EVA for the industry as a whole and for the sectors that are part of it. The manufacturing sector (C) has the largest share in the resulting economic value added of industry.

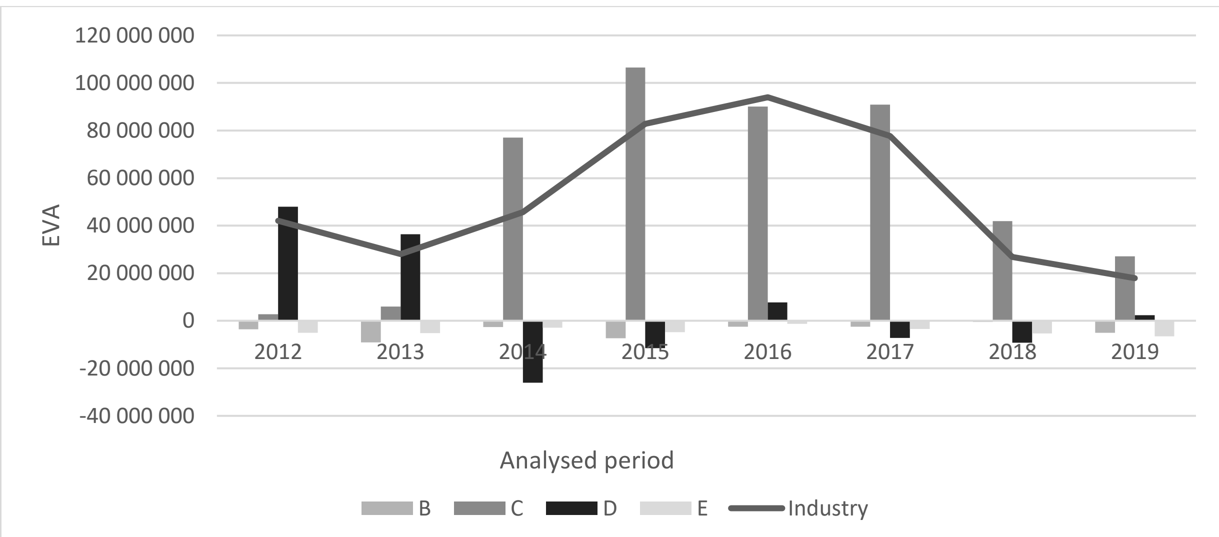

Figure 5 EVA– sectors of industry (thousand CZK)

Table 2 First level of decomposition of EVA – selected sectors (thousand CZK)

Indicators	C	D	J	M	E	G	H	L
Δ EVA	24 396 253	-45 574 482	7 213 430	23 057 030	-1 529 667	19 350 701	11 302 654	-2 326 717
Δ E	22 758 122	-45 033 439	6 824 913	16 246 398	729 194	28 686 715	14 047 142	2 305 399
Δ SPREAD	1 638 131	-541 042	388 517	6 810 632	622 472	-9 336 014	-2 744 488	-4 632 117

3.3 Pyramidal decomposition of EVA of sectors C and D

The pyramidal decomposition method is used to perform a deeper analysis of the factors influencing the economic value added of the selected sectors. The pyramidal decomposition is performed as shown in Figure 1. The integral method is used to quantify the effects according to formula (7). Table 2 shows the change in EVA, equity and spread in the selected sectors between 2012 and 2019.

The first level of this decomposition quantifies the impact of the equity and spread on the economic value added. The largest increase in the economic value added between 2012 and 2019 occurred in sector C, when it increased from CZK 2.73 billion to CZK 27.13 billion, a total increase of CZK 24.4 billion. The growing trend of economic value added was influenced by the rising equity and spread values. Equity grew faster than loans and liabilities. The growing spread signals a greater appreciation of equity than the costs incurred. Sector C (Manufacturing) was able to increase its net profit during the analysed period, which had a positive effect on the final value of EVA.

On the other hand, the largest decline was recorded in sector D (Electricity, Gas, Steam and Air Conditioning), in which the economic value added fell by CZK 45.58 billion, from CZK 47.98 billion to CZK 2.4 billion. The reason for this decrease was a lower value of generated profit caused by a decrease in sales. In the years 2014 to 2018, it reached a number of negative values, when the cost of the capital exceeded the return on this capital, which caused a decrease in EVA. In 2019, the sector had already created positive economic value added through greater strengthening of equity.

For a deeper analysis of financial performance, the pyramidal decomposition method was applied to all the sectors listed in Table 2. The influence of the component indicators is shown in Figure 6 and Figure 7 in the appendix. The pyramidal decomposition revealed that the order and magnitude of the influences are changing. A positive influence means that, if the influence of the component indicator increases, then the EVA value increases. On the other hand, a negative influence results in a decrease.

As sectors C and D significantly affect the performance of industry, Table 3 shows the influences of the selected component indicators on the EVA indicators. The pyramidal decomposition revealed that the order and magnitude of the influences of the component indicators of sectors C and D are changing.

The pyramidal decomposition of EVA revealed that, in sector C, the value of equity had the greatest positive effect on the change in EVA. The cost of equity is another indicator that had a positive effect on the change in EVA, and the EAT/EBT indicator was the indicator with the third-largest influence, but this indicator had the opposite effect as it reduced EVA.

Table 3 Component indicators of EVA – sectors C and D (thousand CZK)

	C		D	
Indicators	Influence	Order of influences	Influence	Order of influences
R_E	1 769 182	2 (+)	30 828	7 (+)
EAT/EBT	-355 804	3 (-)	32 429	6 (+)
EBT/EBIT	244 861	4 (+)	712	10(+)
EBIT/R	-8 737	7 (-)	-3 025	9 (-)
R/A	-28 533	5 (-)	-26 141	8 (-)
EAT/E	446	8 (+)	547 032	3 (+)
Other E/E	-446	9 (-)	-547 032	4 (-)
L/E	17 569	6 (+)	-931 871	2 (-)
Other L/E	-406	10 (-)	356 026	5 (+)
E	22 758 122	1 (+)	-45 033 439	1 (-)

In sector D, two indicators had the largest negative impact on the EVA indicator: the value of equity and the share of liabilities in the equity. Both indicators reduced the value of EVA in the period under review. On the contrary, the EAT/E indicator had a positive impact.

The analysis showed that, in both sectors, four component indicators had a positive effect on the economic value added, the cost of capital, the EBT/EBIT indicator and the EAT/E indicator and the share of the other components of equity in the overall equity. Three factors had the opposite effect on the value of EVA in sectors C and D. The indicator of liabilities in the equity caused a decrease in the economic value added in sector D and an increase in sector C. The EAT/EBT indicator and the share of other liabilities in the equity increased the EVA indicators in sector D and conversely reduced the value of EVA in sector C.

The analysis of deviations revealed that seven component indicators had the same impact on the economic value added in both sectors. Only three indicators had the opposite effect. Equity had the biggest influence on the change in EVA, which increased in sector C and decreased in sector D (see Table 3).

3.4 Main factors influencing the EVA of manufacturing

According to our analysis, one of the most important sectors of the Czech economy is the manufacturing sector. The manufacturing sector contains 24 divisions, which have CZ_NACE code numbers. An EVA analysis of each division in the period 2008–2017 can be found in the study by Richtarová and Ptáčková (2019). In this paper, the analysed period was changed to 2012–2019. First, the economic value added was calculated for all the divisions of sector C. Then, the divisions were classified according to the mean values of EVA.

The divisions with the largest negative mean values of EVA include division 24 (Manufacture of Basic Metals, Metallurgy; Casting of Metals), 10 (Manufacture of Food Products) and 26 (Manufacture of Computer, Electronic and Optical Products). These negative values of EVA were caused by the low value of equity and the negative value of the spread. The return on capital was much lower than the cost of capital. In contrast, the divisions with the highest positive mean values of EVA are 22 (Manufacture of Rubber and Plastic Products), 27 (Manufacture of Electrical Equipment) and 29 (Manufacture of Motor Vehicles (Except Motorcycles), Trailers and Semi-trailers).

For a deeper analysis of the economic value added of sector C, the pyramidal decomposition was used, as shown in Figure 1. The three divisions with the highest mean value of EVA were selected. Table 4 contains these selected divisions' EVA in the analysed period.

Divisions 22 and 29 created positive economic value added during the analysed period. Only in division 27 did the economic value added reach negative values, which occurred in the years 2018 and 2019. These negative values were due to a lower return on capital and a rising cost of capital. The reason for the decreasing ROE was mainly the significant decrease in the operating profit. The economic value added of divisions 22 and 27 decreased during the analysed period, while the EVA indicator for division 29 increased.

Figure 8 shows the values of deviation of the component indicators of the selected divisions' EVA (29, 22 and 27) of sector C (Manufacturing), which had the highest positive economic value added in the period 2012–2019.

Table 4 EVA – selected divisions of sector C (thousand CZK)

	2012	2013	2014	2015	2016	2017	2018	2019
C	2 731 592	5 940 525	77 086 034	106 443 249	90 018 849	90 941 304	41 855 681	27 127 845
22	8 482 070	10 663 137	15 285 525	19 632 581	19 964 189	12 810 204	4 293 218	5 665 939
27	3 537 431	4 711 551	8 124 412	10 255 171	8 073 676	3 556 955	-1 452 854	-1 216 991
29	9 720 537	4 686 415	26 214 400	42 528 321	38 436 256	36 398 356	19 857 102	22 170 441

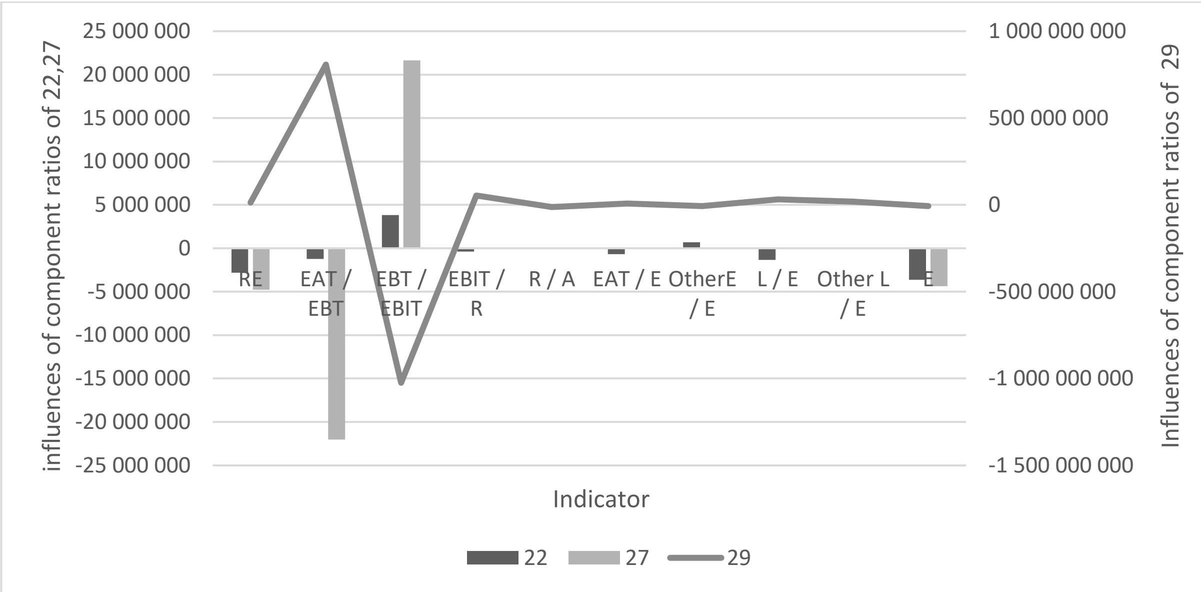

Figure 8 Influences of component indicators on EVA – divisions with the highest positive EVA (thousand CZK)

Figure 8 shows the effects of the component indicators on the EVA of the selected divisions. Equity was the only indicator to have a negative effect on the value of EVA in all the divisions. In division 22, EBT/EBIT had the largest positive effect and equity and the cost of equity had the largest negative impact. The turnover of assets was the indicator with the least influence. In division 27, the EAT/EBT share had the largest negative impact and the EBT/EBIT share had the greatest positive effect on the EVA indicator. The cost of capital also significantly reduced the value of EVA. The indicator of the return on sales had the least effect. For division 29, the EBT/EBIT ratio was found to reduce the EVA value most significantly. On the contrary, the EAT/EBT ratio and the return on sales had a positive effect on the value of EVA. The analysis revealed that division 29 had the greatest influence on the development of EVA in sector C. The most substantial influence was demonstrated for the indicators that were affected by the volume of the generated profit. If there was an increase in the profit during the analysed period, the value of EVA increased.

It is clear from the analysis that the size and order of the effects of the individual indicators in the selected divisions are changing. A positive effect means that EVA increases with an increasing influence of the partial indicators, but the negative effect works the other way around.

4. Conclusion

In this paper, the financial performance of the sectors of the Czech economy over the period from 2012 to 2019 was analysed. For this analysis, economic value added was used. Furthermore, the pyramidal decomposition of EVA was proposed and the key variables with a significant influence on the sectors' economic value added were identified.

As it is known from other research, sector C (Manufacturing) is the main driving force of the Czech economy. In this paper, we verified that sector C is very important to the Czech economy. The contribution focused on the performance evaluation of the selected divisions of sector C with the goal of analysing all the divisions of this sector and identifying the divisions that most affect sector C. It is clear from our results that one of the most important divisions of sector C is division 29 (Manufacture of Motor Vehicles (Except Motorcycles), Trailers and Semi-trailers). This division generated the highest positive EVA during the analysed period and had a significant influence on the development of sector C's EVA. Divisions 22 (Manufacture of Rubber and Plastic Products) and 27 (Manufacture of Electrical Equipment) are also very important parts of sector C as they had the highest positive EVA during the analysed period.

The analysis shows that it is appropriate to use the pyramidal decomposition method when evaluating financial performance. It is useful to apply the analysis of deviations to quantify the effects of the component ratios. It is possible to identify the indicators that have the greatest impact on financial performance. If performance is assessed using the EVA indicator, then the key indicator is the value of the spread, that is, the difference between the ROE and the cost of equity. It is important for the return on equity always to be higher than the cost of equity. If the spread and equity are positive, then the company or industry creates positive economic value added.

The methods applied in this paper are usually used for evaluating companies' financial performance. One of the benefits of this paper may be the application of these methods to evaluate the performance of selected sectors of the economy.

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Appendix

Table 1 Economic value added– individual sectors (thousand CZK)

	2012	2013	2014	2015	2016	2017	2018	2019
A	-1 469 857	-1 198 941	758 752	1 276 342	393 784	978 536	-3 812 340	-10 237 019
B	-3 646 256	-9 104 210	-2 582 442	-7 368 162	-2 538 243	-2 518 789	-422 718	-4 999 826
C	2 731 592	5 940 525	77 086 034	106 443 249	90 018 849	90 941 304	41 855 681	27 127 845
D	47 972 199	36 423 448	-26 039 950	-11 485 269	7 751 915	-7 262 573	-9 272 062	2 397 718
E	-5 076 948	-5 159 691	-2 856 946	-4 773 070	-1 232 321	-3 454 008	-5 291 258	-6 606 615
F	-4 477 547	-6 279 252	-4 388 976	-2 139 605	-907 407	-208 978	-7 914 837	-2 269 144
G	-22 330 128	-23 010 144	-11 061 288	-2 680 275	4 196 440	-1 674 066	1 378 230	-2 979 427
I	-2 215 030	-1 742 605	-1 292 627	-32 283	-18 276	348 868	-937 436	-67 680
J	8 686 491	4 359 303	1 619 586	4 471 679	7 453 279	12 124 521	12 146 604	15 899 921
L	-18 719 948	-22 626 468	-23 137 691	-13 667 396	-16 651 798	-15 119 953	-25 694 885	-21 046 665
M	-19 504 324	9 805 013	8 874 790	7 051 488	10 556 248	-1 188 621	-1 990 085	3 552 707
N	-486 206	1 687 849	-963 388	3 215 059	3 868 886	-1 670 076	-1 654 360	-1 275 291
I	-2 215 030	-1 742 605	-1 292 627	-32 283	-18 276	348 868	-937 436	-67 680

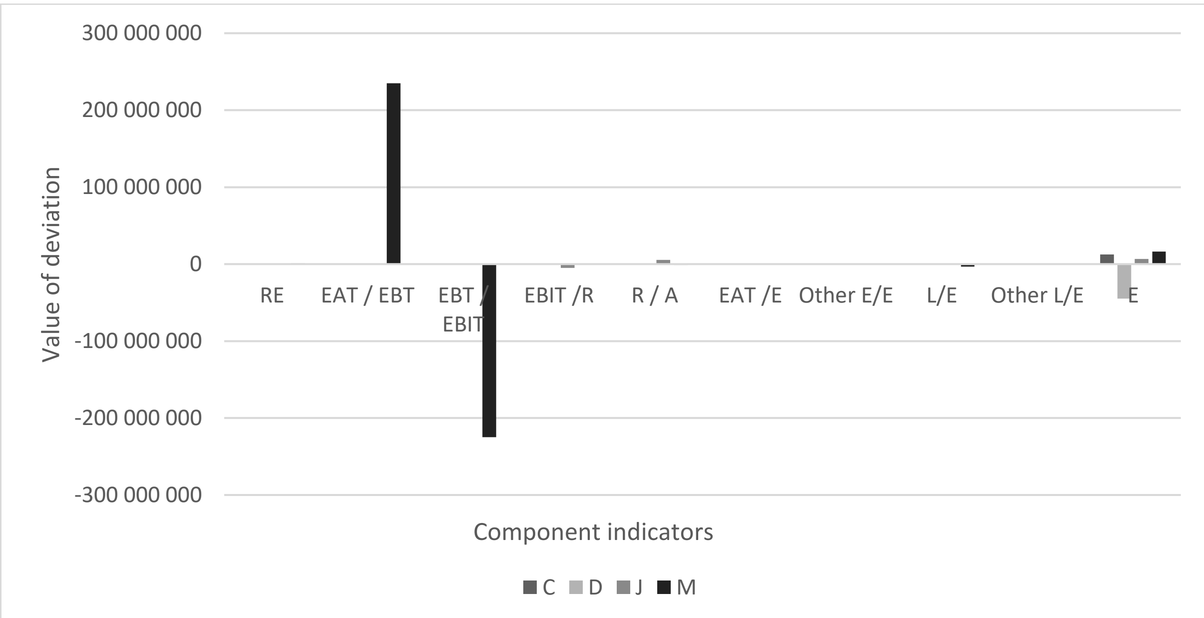

Figure 6 Values of deviation of the component indicators of EVA – sectors with a positive mean value of EVA (thousand CZK)

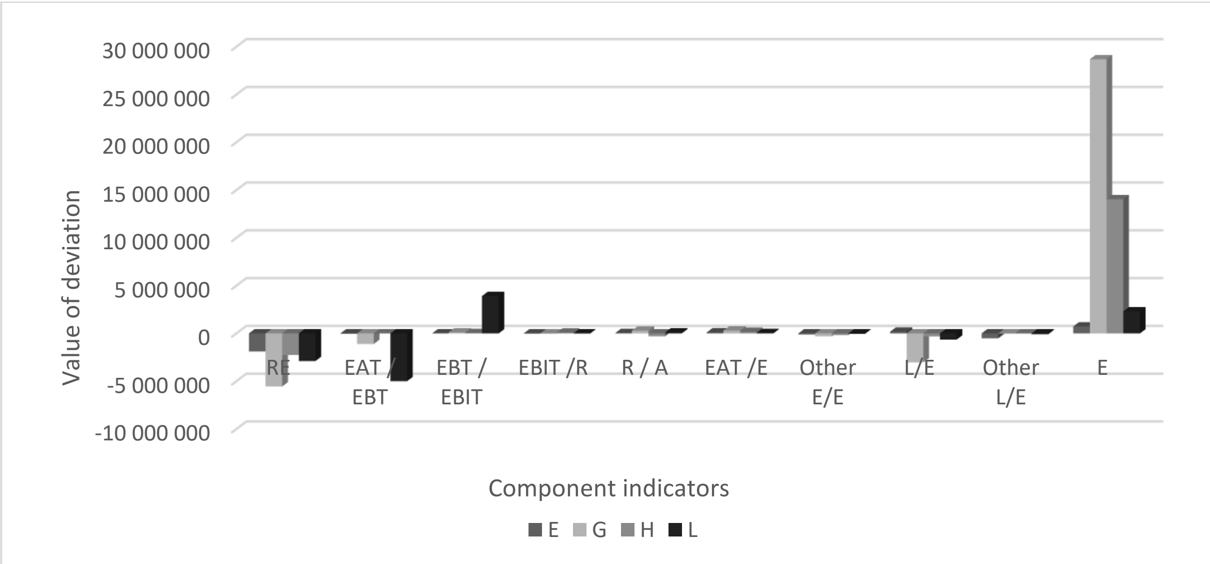

Figure 7 Values of deviation of the component indicators of EVA – sectors with a negative mean value of EVA (thousand CZK)