ENTREPRENEURSHIP AND SUSTAINABILITY ISSUES
ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2024 Volume 12 Number 2 (December)
http://doi.org/10.9770/p3627979668

Publisher
http://jssidoi.org/esc/home

EVALUATION OF FINANCIAL PERFORMANCE OF ENGINEERING COMPANIES IN CZECH REPUBLIC AND CENTRAL EUROPE

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Received 11 July 2024; accepted 9 November 2024; published 30 December 2024

Abstract. This article aims to analyse the development of the financial performance of engineering companies and evaluate the situation of the last decade in the Czech Republic and the neighbouring countries. The analysis of the development of the financial performance of engineering companies in the Czech Republic is carried out over the last 10 years and compared through the Winsorized mean with the situation in engineering in the neighbouring countries. The article is based on data collected in secondary research and relevant articles. The results of the selected financial indicators suggest that the engineering sector in the Czech Republic shows the best values only in terms of the indebtedness indicator. Other indicators show a more favourable position of engineering enterprises in Austria and Germany, demonstrating a higher degree of automation and innovation. Within the V4 countries, Hungary is the leading country according to the results of individual indicators. However, all the selected countries show problems in terms of the Liabilities Turnover Ratio, which is followed by an issue with low values in the profitability indicator. From the cited sources, previous articles, and the analysis carried out, engineering companies in the Czech Republic show average results in the selected financial indicators in the monitored period. In terms of financial performance, the engineering sector in Austria and Germany is in the leading position among the selected countries. The engineering sector in the Czech Republic should focus on increasing profitability, which would be facilitated by increasing technological progress and innovation.

Keywords: financial performance; engineering; Visegrad group; the EU; industry 4.0

Reference to this paper should be made as follows: Bureš, J., Sobotková, N., Bartoš, V. 2024. Evaluation of the financial performance of engineering companies in the Czech Republic and Central Europe. *Entrepreneurship and Sustainability Issues*, 12(2), 262-274. http://doi.org/10.9770/p3627979668

JEL Classifications: M21, G32

1. Introduction

The economy is divided into three sectors: primary (agriculture, etc.), secondary (industry, construction, etc.) and tertiary (services). Industry, therefore, falls within the secondary sector of the economy in the Czech Republic and is further divided into mining and manufacturing. Engineering is classified as manufacturing. Engineering itself can be divided into many sub-industries, therefore it can be considered the most complicated industry, but at the same time, it is the most important industry for the Czech economy in terms of industry, as the largest pillars of Czech industry can be considered to be the engineering, construction or food industries (Svatoš, 2009). We are in the Fourth Industrial Revolution (4IR), a trend towards automation and data exchange in manufacturing technologies and processes. Studies have shown that the Fourth Industrial Revolution technologies can improve productivity growth and safety measures (Aigbavboa et al., 2023). In recent years,

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research topics related to the fourth industrial revolution, also known as Industry 4.0, have gradually been accepted and promoted by governments and organisations worldwide (Liao et al., 2017).

We need to prepare engineering students for a future marked by volatility, uncertainty, complexity, and ambiguity ("VUCA"). Talent and skills gaps are expected to widen across all industries in the coming years (Buehler et al., 2022). Schäfer (2018) argues that the EU can create a dynamic and open environment for the fourth industrial revolution and new technologies. The engineering industry is one of the primary drivers of economic growth in every country, especially in Central Europe, where such industries as automotive, machinery, and high-tech manufacturing dominate the economic landscape. The country possesses a long tradition in engineering, which is quite similar to most of its neighbouring countries, and this sector has been playing a crucial role in the regional economy's stability and growth. Engineering is responsible for the profound transformation of human relations in the twenty-first century's first decade, altering education paradigms and business (Brito et al., 2013).

Industrial engineering strategies positively affect the overall performance of the entire business (Rajnoha et al., 2018). Nowadays, there is a lot of automation in the engineering industry. People are facing significant changes due to automation in manufacturing technologies (Skare et al. 2023; Kuzmenko et al. 2023). Current digitisation in our daily lives helps us to improve their quality. The engineering industry also undergoes enhanced digitisation (Pruskova, 2019).

The role of financial managers in engineering companies will be to uphold the good financial results shown in the past (Gavurova et al. 2022; Lukáč et al., 2022). While engineering managers recognise the significance of costing, they often overlook the actual compilation and monitoring process (Mehmood et al., 2023). They rely on software-generated costing values and may not fully understand the calculation process. The values obtained are corrected based on empirical experience and anticipated needs. This procedure can lead to errors such as assigning unrelated costs, selecting an incorrect cost allocation base, and using the same calculation procedures for all performances (Hudáková Stašová, 2023). Managerial decision-making is one of the most important factors influencing a company's competitiveness. Financial and economic analysis is an essential component of financial management in business entities (Stefko et al., 2019).

In the Czech Republic, Pilsen is the leading business centre of the West Bohemia region. Many larger and medium-sized engineering companies are in the Pilsen region (Váně et al., 2021). General engineering in Pilsen is the economy's main driver when considering the Pilsen agglomeration (Krajicek et al., 2019). In the Czech Republic, the emergence of traditional manufacturing centres was strongly linked to access to natural resources such as coal, water sources, and ore mines. Many businesses located their operations in the neighbourhoods of major Czech cities such as Ostrava and Brno, among others, and this coincidental location triggered a dynamic process of cumulative causation. The initial localised advantages shifted to physical and natural advantages, resulting in a pervasive industrialisation process (Arias-Gomez & Antošová, 2023).

The improvement of industrial engineering performance is currently a major concern. Companies can make such improvements in various ways (Spalek, 2013). Therefore, this article deals with the analysis of the development of the financial performance of engineering companies.

2. Literature Review

Financial performance in an engineering company would be deemed an understatement for understanding the sustainability, potential growth, and overall economic influence of engineering companies. In regions like the Czech Republic and Central Europe, where the engineering sector plays a vital role in the economy, assessing financial health by strong metrics is mandated (Gavurova et al., 2017). One of these metrics is the debt-to-asset ratio, which gives an understanding of the extent to which companies rely on debt to finance their assets. This paper reviews the literature available for assessing financial performance in engineering firms, which indicates the wide use of the debt-to-asset ratio as the primary analytical tool.

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Measuring and evaluating an enterprise's financial performance is one of the most important indicators of its overall market success (Malichová & Ďurišová, 2015) and The evaluation of a company's performance is an essential component of every company's management, as it allows for the determination of the impact of business management decisions on performance results, as well as the direction of the results and the decisions that must be made to improve them. Achieving exceptional financial performance is a top priority for every management team because it is critical in establishing a strong firm structure and facilitating growth (Skare et al. 2024; Baby et al., 2024). Radonic et al. (2021) help business experts identify, manage, and analyse intellectual capital and its impact on business results. Efficient technology can improve productivity and align economic and social development strategies (Tkacova & Gavurova, 2023; Muthuraman, 2020). Many researchers conducted studies to analyse the financial performance of companies (Ali et al., 2008; Jin & Xu, 2020; Lehenchuk et al., 2023). In this literature review, we discuss the method used by different researchers to analyse the financial performance of companies.

To analyse the financial performance of Healthcare companies, Tengilimoğlu et al. (2023) collected financial data from publicly traded healthcare companies and used ratio analysis to calculate three liquidity, leverage, and profitability ratios for use as financial performance indicators, then performed the Wilcoxon signed-rank test for evaluation. Simionescu (2016) conducted a study to evaluate the financial performance of 293 companies in London by using various statistical methods. The study employed regression and cluster analyses to test the influence of financial ratios—specifically book-to-market, cash-to-assets, cash flow, and leverage—on the respective financial performance of 293 companies domiciled in London during 2014. Lam et al. (2021) introduce the MDCM model, the entropy-fuzzy VIKOR model, to evaluate and compare the financial performance of construction companies. Tehrani et al. (2012) developed a model to analyse corporate performance using Data Envelopment Analysis (DEA) and tested it on a group of companies. By using financial ratios as input and output indices in the DEA model, the resulting model can evaluate the financial performance of companies. Tsolas (2020) research uses the RAM (Range Adjusted Measure)-Tobit model to assess the performance of a sample of Greek construction firms. Kangari et al. (1992) employ a quantitative model based on financial ratios (Current ratio, total liabilities to net worth, total assets to revenues, revenues to net working capital, return on total assets, and return on net worth) to evaluate the financial performance and grade of a construction company.

Financial ratio analysis is a fundamental tool for evaluating company performance. In the paper "An Investigation Using Machine Learning," the authors have collected financial data for construction companies in Egypt, computed major ratios like the Current Ratio and Return on Equity, and then applied machine learning techniques—that is, K-means clustering—for recognising unique financial characteristics. This is trying to enhance financial performance evaluation by using sophisticated artificial intelligence techniques(Salah et al., 2021). Using descriptive statistics, tests of difference between means, and multiple linear regression, Filho et al. (2024) revealed that internationalisation negatively impacts financial performance in Brazilian companies, whereas, in European companies, the relationship between the constructs is positive.

The number of studies on how innovation or digitalisation affects the financial performance of companies, including engineering companies, has been increasing in recent years. One of the studies in question is The Role of Digitalization in Business and Management (Calderon-Monge & Ribeiro-Soriano, 2024). Another study offering an overview of digital transformation and its impact on performance in various industries, including engineering, is Digital Transformation in Business and Management Research (Kraus et al., 2022). While existing research on financial innovations, such as Bitcoin, examines their potential impact on national economies, studies highlight that, despite Bitcoin's similarities to traditional currency characteristics, its volatility and lack of centralised regulation pose significant challenges, particularly for the financial performance and stability of engineering firms in the Czech Republic and Central Europe (Vochozka et al., 2024).

Recent studies on the price development and investment potential of precious metals, such as gold, silver, and platinum, have highlighted the strategic importance of metal pairs, particularly gold-platinum, and silver-platinum, for optimising returns amidst market volatility. Given their reliance on these metals for production, this consideration could significantly influence the financial performance metrics of engineering companies in

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the Czech Republic and Central Europe (Kunju Mol Raj et al., 2024). The analysis of the development of the financial performance of engineering companies in the Czech Republic is carried out over the last 10 years and compared through the Winsorized mean with the situation in engineering in the neighbouring countries. In this research, we used comparative analysis to evaluate the performance of engineering companies by comparing financial indicators (Debt-to-Assets Ratio, Added Value on Sales, Return on Sales, and Total Assets Turnover Ratio) among the six European Countries (Czech Republic, Hungary, Slovakia, Austria, Germany, Poland).

3. Methodological Approach

The article is based on a secondary research method, drawing on literature and data obtained from the ORBIS database. In the database, active enterprises fulfilling the following criteria were selected for further investigation: enterprises belonging to the engineering sector, operating in the selected six countries, corresponding in size to small, medium, and large enterprises according to the European Commission classification, for the selected period 2014-2023. These enterprises were subjected to an analysis of their financial performance within the selected financial ratios and then a comparison between the countries. For this paper, the following financial indicators have been selected:

3.1 Debt to Assets Ratio

The Debt-to-Assets Ratio measures the proportion of a company's assets financed by debt. It indicates the level of financial leverage used by the company. A higher ratio suggests a greater reliance on debt to finance assets, which can increase financial risk**.**

$$\text{Debt-to-Assets Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}} \qquad (1)$$

3.2 Added Value on Sales

Added Value on Sales shows how much value a company adds to its products or services relative to its total sales. "Value Added" typically refers to the difference between sales revenue and the cost of raw materials or services purchased. This ratio indicates how efficiently a company creates additional value from its sales activities.

$$\text{Added Value on Sales} = \frac{\text{Value Added}}{\text{Total Sales}} \qquad (2)$$

3.3 Return on Sales

Return on Sales (ROS) measures a company's profitability by calculating the percentage of net profit generated from total sales. It shows how efficiently a company converts sales into profit, with a higher ROS indicating better operational efficiency and profitability.

$$\text{Return on Sales (ROS)} = \frac{\text{Net Profit}}{\text{Total Sales}} \qquad (3)$$

3.4 Total Assets Turnover Ratio

The Total Assets Turnover Ratio measures how efficiently a company uses its assets to generate sales. It shows the relationship between a company’s sales and total assets, with a higher ratio indicating a more efficient use of assets to produce revenue.

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$$\text{Total Assets Turnover Ratio} = \frac{\text{Net Sales}}{\text{Total Assets}} \quad (4)$$

4. Results and Discussion

These indicators were chosen because they are interrelated and provide an essential picture of the business's financial performance. Their interconnectedness will be highlighted within each indicator. The calculated data of the indicators are processed using the aforementioned Winsorised mean. Table 1 shows the classification of entities by size based on employee count, net turnover, and total assets.

Table 1. Categorisation of the enterprises

Category of entities	Number of employees	Annual total of net turnover	Assets in total
Micro	<10 employees	<2 mil. EUR	<2mil. EUR
Small	<50 employees	<10 mil. EUR	<10 mil. EUR
Medium	<250 employees	<50 mil. EUR	<43 mil. EUR
Large	>250 employees	>50 mil. EUR	>43 mil. EUR

Source: Own processing according to European commissions

This chapter will describe the development of the indicators selected above. The following Figures present the development of selected financial indicators for the selected period within all selected states to easily compare the situation. The exact data values are then presented in the tables below the Figure.

Data for the last ten years, i.e. 2014-2023, in the engineering sector within the selected six EU countries, are analysed. There has been a considerable increase in the Return on Sales and Liabilities Turnover Ratio in the last year, which has caused the fluctuation in the below Figures (Figure 3 & Figure 4). To avoid extracting the year 2023 from the Figures, this problem has only been addressed graphically by lowering/shortening the curve in 2023 and indicating its incomplete growth to preserve the narrative value of the graph in terms of the remaining curves. This will be further commented on for the indicators concerned.

4.1 Debt-to-Assets Ratio

The first indicator where the evolution of data in the engineering sector was compared was the Debt-to-Assets ratio. The indicator is given in percentage terms.

From Table 2, it can be said that engineering enterprises in the Czech Republic show the lowest values in terms of debt, which correspond to the recommended values. Engineering enterprises in Hungary and Poland show average values. The highest debt levels are reported by engineering enterprises in Germany, and Austria and, within the V4, by enterprises in Slovakia. However, all the compared engineering enterprises show a debt ratio in the range of 40-60%, which means that the enterprises are in a range that is not considered to be risky. High indebtedness may limit the Added Value on Sales indicator in terms of increased debt and interest costs, limiting the increase in Added Value. High indebtedness could also have a negative impact on Return on Sales, but if debt is used efficiently, higher indebtedness can lead to an increase in Return on Sales. These arguments will be discussed further below.

Table 2. Debt-to-Assets ratio

Debt-to-assets ratio (%)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CZ	45,42	43,23	43,15	43,75	43,39	42,52	42,92	44,43	44,85	39,89
SK	61,43	60,53	60,44	60,43	59,32	57,03	55,35	56,19	57,11	49,90
PL	46,25	44,91	45,40	48,32	48,57	49,56	49,80	51,43	52,11	48,54
HU	49,71	49,07	45,77	46,86	48,74	47,77	49,69	52,18	52,98	50,87
A	59,92	60,52	59,50	58,53	59,25	58,27	59,34	58,31	59,04	52,63
DE	57,86	57,66	57,63	57,92	57,99	56,94	56,72	57,44	57,16	64,22

Source: Own processing according to ORBIS

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Figure 1 shows the graphical representation of the Debt-asset-ratio.

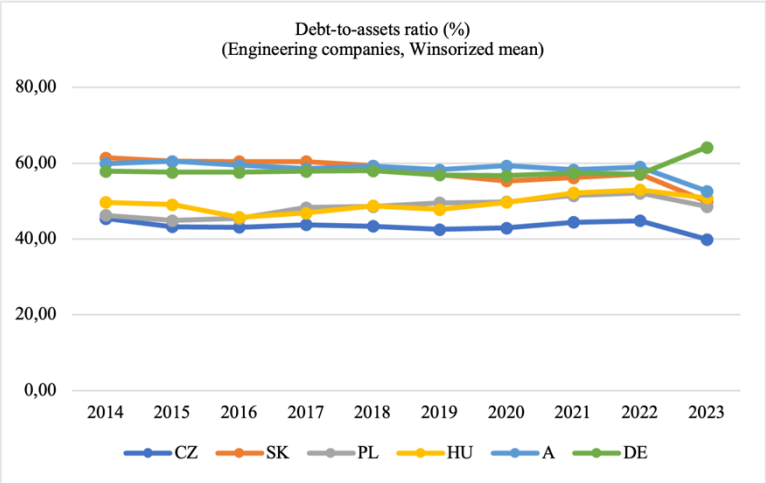

Figure 1. Debt-to-Assets ratio (Engineering)

Source: Own processing

4.2 Added Value on Sales

The next indicator where the evolution of data in the engineering sector was compared was the Added Value to Sales indicator, which is presented as a percentage. Furthermore, the Added Value on Sales indicator can also be related to the Return on Sales indicator, as higher added value leads, as a rule, to higher profitability.

Table 3 below shows that the Visegrad Group countries score lower on this indicator. The lowest values are achieved by enterprises in Poland and Slovakia. Engineering enterprises in the Czech Republic show average values of Added Value on Sales compared to the sample of enterprises surveyed. The best results are recorded for engineering enterprises in Germany and Austria. In 2023 for engineering enterprises in Hungary, the value of this indicator jumped more than twice, so we will not conclude and wait for the results from this year.

As already indicated in the context of the Debt-to-Assets ratio, these two ratios may be related if foreign capital is used to invest in machinery modernisation. This is apparent for engineering companies within Germany and Austria, where these companies perform best on this indicator despite having the highest percentage of debt. Thus, it can be concluded that these engineering enterprises can produce higher added-value products despite their higher indebtedness. The engineering enterprises in the Czech Republic have the lowest indebtedness but do not show the best but rather average results in terms of the Added Value on Sales indicator. The situation is the opposite for engineering enterprises in Poland and Slovakia, where they show the lowest values of Added Value on Sales.

Table 3. Added Value on Sales

AV/S (%)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CZ	27,69	30,32	33,56	33,21	33,16	34,09	35,13	33,57	32,82	32,27
SK	29,82	29,05	30,89	29,34	29,83	28,89	34,04	28,07	25,21	29,84
PL	28,48	28,81	30,03	29,91	29,08	25,66	26,98	26,67	25,42	31,89
HU	30,57	31,59	31,65	31,29	31,18	31,03	33,48	32,24	30,43	68,78
A	49,33	44,03	36,16	35,52	34,50	34,53	36,50	35,77	35,27	41,02
DE	35,72	35,71	36,61	36,94	37,27	36,79	38,43	38,48	36,71	63,90

Source: Own processing according to ORBIS

Figure 2 shows the graphical representation of the Added value on sales.

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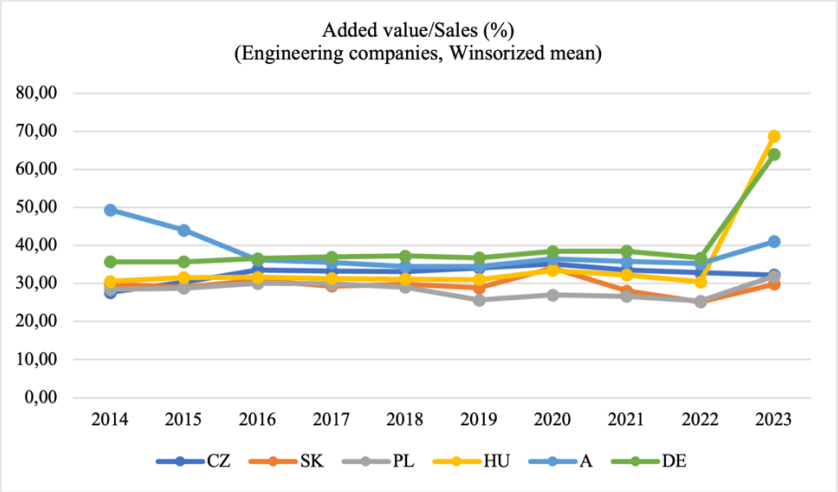

Figure 2. Added Value on Sales (Engineering)

Source: Own processing

According to the Česká spořitelna's analysis for international comparison, the Czech Republic's total added value is one of the lowest in the EU. Higher added value is preceded by business investment, as innovative products bring higher added value. Thus, it can also be clearly stated that enterprises in Germany and Austria, in addition to higher added value, also show higher investment activity.

4.3 Return on Sales (ROS)

The next indicator where the development of data in the engineering sector was compared, was profitability of sales. This indicator is given in percentage terms. As already indicated, there is a huge increase in 2023 for engineering companies in Germany and, therefore, a fluctuation, which would affect the narrative of the graph. For this reason, the Return on Sales curve for enterprises in Germany is truncated, and a further increase above the 14% threshold is indicated. The following table shows this enormous increase of 19.75%, according to the data obtained.

Table 4 shows this enormous increase of 19.75%, according to the data obtained. In terms of Return on Sales, engineering companies in the Czech Republic again show rather average values; however, in the last period, we can see an increasing tendency of this indicator, which is a positive phenomenon. The best results for Return on Sales are found in Hungary and Poland. The Hungarian companies showed a downward fluctuation last year. On the other hand, Germany and Austria show the lowest Return on Sales in the period under review until 2022.

As mentioned above, both of the previous indicators can impact the profitability of sales. It can be seen that the assumption of a negative impact of high indebtedness on ROS is met. It is the companies in Germany, Austria, and Slovakia that have the highest percentage of indebtedness and the lowest Return on Sales. Furthermore, it is noticeable that the enterprises in Hungary and Poland also have a higher percentage of indebtedness, but their ROS is the highest compared to the enterprises in Germany and Austria. In contrast, enterprises in the Czech Republic have an average ROS despite having the lowest debt burden. Another impact on Return on Sales can also be seen in the Added Value on Sales indicator, where companies in the Czech Republic again show average values in both cases compared to the monitored engineering companies in Central Europe. Higher Added Value should lead to higher profitability. These considerations are distorted by the results of the enterprises in Germany and Austria, which, despite having the highest values of the Added Value on Sales indicator, have the lowest profitability on sales among the compared enterprises in Central Europe. This refutes the directly proportional relationship between Added Value on Sales and Return on Sales. The explanation can be found in the added value itself, as companies in Germany and Austria seem to have higher added value than the V4 countries but

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lower sales. Engineering companies in Austria and Germany show higher added value as they generally strive to invest more in innovation and new technologies than companies in the V4 countries.

As many studies have shown, the only way to increase the added value of companies in the Czech Republic is to focus on new technologies, optimisation of production processes, and the use of robots in production. On the positive side, enterprises in the Czech Republic have a lower debt level than those analysed in Germany, Austria, Poland, Slovakia, and Hungary. Therefore, there is room for using foreign capital for these investments. An increase in indebtedness may also affect a higher Return on Equity if the financial leverage is positive.

Table 4. Return on Sales

ROS (%)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CZ	2,67	4,06	6,64	6,50	6,19	5,49	4,86	5,26	4,95	8,25
SK	5,36	5,70	5,57	5,48	5,05	4,15	4,45	5,85	5,26	6,44
PL	7,87	7,72	7,07	6,80	6,46	6,96	6,90	7,64	7,75	9,30
HU	8,25	8,32	8,94	8,54	7,99	7,98	8,07	8,71	9,85	4,55
A	6,77	6,98	4,30	4,83	4,35	4,08	4,65	5,94	5,32	7,48
DE	5,84	5,37	5,02	5,17	5,56	4,30	3,44	5,09	4,81	19,75

Source: Own processing according to ORBIS

Figure 3 shows the graphical representation of the Return Value on Sales.

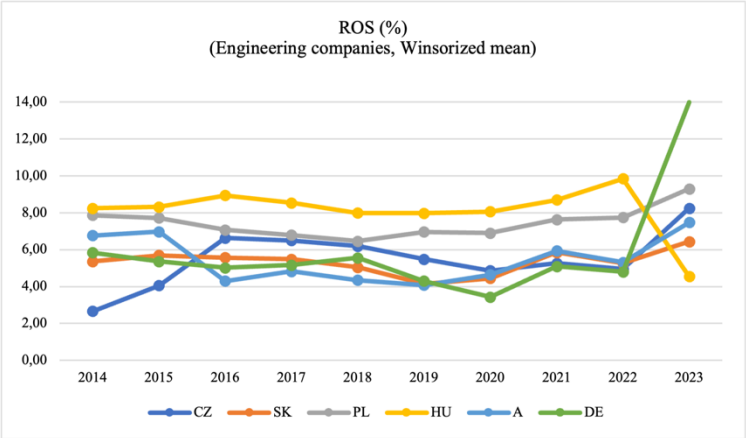

Figure 3. Return on Sales (Engineering)

Source: Own processing

4.4 Total Assets Turnover Ratio

Another indicator that is appropriate to include in this analysis of engineering companies because of their evolution is the Total Assets Turnover ratio. It is appropriate to assess the utilisation of total assets. We are aware that current assets are also included, but this indicator has a higher narrative value for comparisons between enterprises in different countries. There was a significant fluctuation in the last monitored year, 2023, especially for enterprises in Hungary, so we will not include the year.

As can be seen in Table 5, engineering companies in Germany and Austria make the best use of their total assets. The lowest values of Total Assets Turnover are achieved by enterprises in Hungary. Unfortunately, we can see that all engineering enterprises are at the lower recommended value for total asset utilisation. This indicator may be affected by the purchase of more expensive technology in the period under review, as well as by the size of inventories and receivables. The size of the inventory has been affected by the fluctuation not only in the price of steel but also by the unavailability of steel during the period.

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Table 5. Total Assets Turnover ratio

Total Assets Turnover ratio (number of turns)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CZ	1,34	1,33	1,28	1,28	1,30	1,29	1,17	1,20	1,27	1,68
SK	1,47	1,46	1,37	1,41	1,45	1,37	1,23	1,25	1,35	1,31
PL	1,40	1,37	1,29	1,26	1,29	1,27	1,14	1,16	1,20	1,23
HU	1,42	1,36	1,30	1,24	1,24	1,27	1,06	1,09	1,14	0,56
A	1,24	1,36	1,44	1,49	1,56	1,59	1,41	1,44	1,38	1,48
DE	1,56	1,54	1,48	1,57	1,60	1,59	1,45	1,43	1,40	1,27

Source: Own processing according to ORBIS

Figure 4 shows that the total Assets turnover ratio (number of turns):

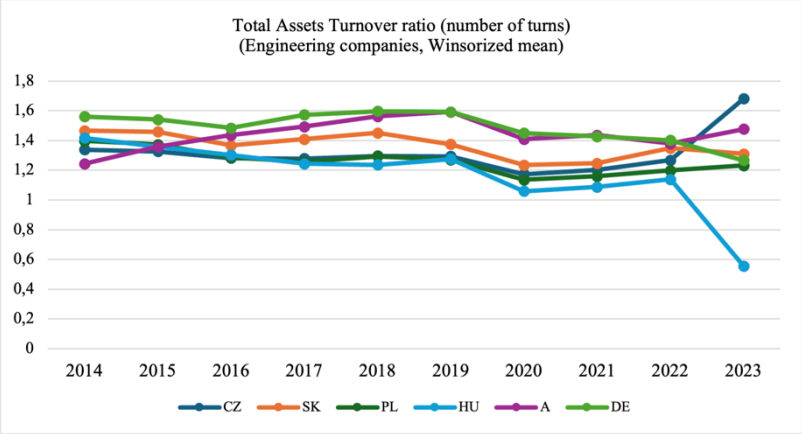

Figure 4. Total Assets Turnover ratio (Engineering)

Source: Own processing

For the Total Assets Turnover ratio, a value between 1.6 and 3 is appropriate. As can be seen in Figure 5, the price increase in the Iron Ore 62% from December 2015 to July 2021 was fivefold. Engineering companies must respond to these fluctuations. Despite these fluctuations, the Total Assets Turnover ratio has not seen significant changes. This indicator is also influenced by the setup of operations in engineering enterprises, whether single-shift or three-shift. That is, whether the machines run for 24 hours.

Figure 5. Steel market price development (USD/tonne)

Source: tradingeconomics.com

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5. Conclusions

As already mentioned, engineering is one of the leading sectors of the national economy. The fact remains that the Czech Republic, a country belonging to the Visegrad Four countries, is at the level of the Central European average in terms of these financial indicators in the engineering field. In terms of overall indebtedness, engineering companies in the Czech Republic show better, i.e., the lowest values. This is a good finding for possible further investment in innovation and technology in these enterprises. The analyses clearly show a better position of engineering enterprises in Austria and Germany, which display a higher degree of automation and innovation, which corresponds, for example, with the results of the Added Value on Sales indicator, where these enterprises show the best results, despite the highest percentage of debt or lower profitability of sales. All enterprises analysed could also focus on monitoring asset utilisation.

High technical level, tradition, professionalism, and a certain self-sufficiency are among the strongest points of Czech engineering. Threatening factors include, on the other hand, low interest in engineering professions, especially among graduates, insufficient capital strength of Czech companies, or lower added value. Increasing added value requires constant innovation and, therefore, investment. Engineering companies in the Czech Republic should focus on increasing their added value and take inspiration from engineering companies, mainly in Germany or Austria. As it has been found, they can use foreign resources to invest in innovation.

The main trends of innovation in the field of engineering can generally be considered to be the continued expansion of robotics, automation, and digitalisation in the area of Industry 4.0. Nowadays, the use of new technologies, such as additive manufacturing technology, which represents a new quality in production, or the application of artificial intelligence or the development of cybernetics, is of growing importance. Digital technology would replace human labour in routine and arduous production processes, allow existing workers to increase their training to fill senior positions and eliminate the shortage of skilled labour.

To maintain the competitiveness of Czech engineering companies, it is therefore necessary to create production with higher added value. The Czech engineering industry has spare potential to use foreign resources to finance the necessary innovations, contributing to increased added value within the relatively low overall debt ratio compared to engineering enterprises in Germany, Austria, Poland, Slovakia, and Hungary.

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Author Contributions: All authors contributed equally. All authors have read and agreed to the published version of the manuscript.

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2024 Volume 12 Number 2 (December)
http://doi.org/10.9770/p3627979668

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