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**DEVELOPMENT TRENDS IN THE FINANCIAL PERFORMANCE OF CONSTRUCTION COMPANIES IN THE CZECH REPUBLIC AND ABROAD**

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**Abstract.** The construction industry plays a significant role in the economic growth of many developed countries, helping to keep the economy steady and growing. In places like the Czech Republic, the construction sector builds essential things like roads and buildings, creates many jobs, and helps other industries grow. This article examines how construction companies are doing financially, with a focus on the Czech Republic and how it compares to nearby countries. By looking at data from the past eight years, this study provides a complete picture of the construction industry's performance, using a special method called the Winsorized mean to ensure fair comparisons. The study shows economic changes, new regulations, and demand affect construction companies' performance. In recent years, challenges such as increasing costs of materials, a shortage of skilled workers, and stricter rules have affected their performance. However, the sector continues to be vital. This article also examines factors that could influence the construction industry's future. These factors include using environmentally friendly building methods, improving technology like automation, and managing resources more efficiently. By dealing with today's problems and taking advantage of future chances, the construction industry can continue to be a key driver of economic growth in the Czech Republic and other countries.

**Keywords:** financial performance; construction industry; the Winsorized mean; analyze; Visegrad group; EU

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## 1. Introduction

The construction industry is a key driver of global economic growth, helping to build new infrastructure, create jobs, and support the development of cities (Pheng & Hou, 2019). In many countries, such as the Czech Republic, this sector is vital for the overall value of goods and services made (GDP). It is closely linked to other industries, affecting economic growth and the speed of national development. As nations and regions put money into sustainable and strong infrastructure, knowing how well construction companies are financially is vital for researchers, government officials, and business leaders (Liu et al., 2020; Asad et al. 2024). In the Czech Republic, the construction industry employs a large part of the workforce, including many foreign workers who take on important jobs due to lacking local workers (Kocourkova et al., 2023). Using a varied group of workers highlights the flexibility of the manufacturing industry and its part in offering jobs to people with different abilities (Dhanasekar et al., 2023).

Many authors investigated factors of economic cycles and confirmed that local economic situations strongly affect business cycles (Gavurová et al. 2016; Tkacova et al. 2018; Tkacova & Gavurova, 2023; Gelfer, 2024).

Different areas are affected differently by changes in money, government rules, and market conditions (Sinicakova & Gavurova, 2017; Sinicakova et al. 2017). This means that construction companies need to be very quick to adapt to changes in what the market wants and the financial situation, as these directly impact their success (Kinnunen et al., 2022).

The success of construction companies, whether in their own country or abroad, depends on the company's size, location, and how well it runs its operations (Al-Hashimy, 2025). Financial analysis is crucial because it helps make good decisions, use resources wisely, and increase profits. By analysing financial indicators, construction companies can identify areas of strength and weakness, forecast future performance, and assess their competitive standing within the industry. Moreover, strong financial stability allows businesses to endure economic changes and exploit new growth opportunities (Struckell et al., 2022). Analysing the financial growth of construction firms helps to understand the more prominent economic factors that influence the industry. This research is especially important for construction companies in the Czech Republic, as local economic conditions significantly affect their success (Vitkova et al., 2024). In cities, businesses often have better access to resources and money, while in less developed areas, companies may face challenges such as poor infrastructure and low consumer demand (Kookana et al., 2020). According to Sudirjo (2023), grasping these distinctions is crucial for creating specific plans to improve performance and boost competitiveness.

Construction companies' financial success depends on many things, like market situations, local economic issues, and how well the companies manage their operations (Giménez et al., 2019). Since the construction industry is essential for economic growth in the Czech Republic and worldwide, it is important to look at and understand the money-related parts that help it do well. By focusing on critical financial signs, construction businesses can handle economic shifts better and find growth opportunities. Looking at Czech companies and comparing them to those in nearby countries helps us see where they stand in competition and what they can do better (Vitkova & Kocourkova, 2021). As Rame et al. (2024) continue to evolve, it is essential for stakeholders to consistently assess key sustainability metrics to ensure that development remains aligned with long-term sustainability goals and can adapt to the dynamic economic and environmental challenges ahead.

## **2. Literature Review**

This chapter is divided into two parts. The first part describes the situation in the construction industry in the Czech Republic, and the second part discusses the situation in the construction industry within the EU.

### **2.1 Situation of the construction industry in the Czech Republic**

According to the Ministry of Industry and Trade, the construction industry offers numerous opportunities for analysis and improvement. Despite some fluctuations, the construction industry is a necessary and nonnegligible factor in the national economy (Alaloul et al., 2022). However, there are still considerable reserves within the construction industry to improve construction technologies and processes and to achieve better performance for construction companies (Ibrahim et al., 2024). Given the fundamental labour shortage in the sector, the potential scope for innovation could be exploited by the industry to manage the resources used by the construction industry more efficiently or respond more flexibly to unforeseen situations (Loosemore, 2015). Innovation would contribute to significant technological change and thus to building a higher value-added economy (Upadhyay et al., 2023). Reducing energy use and lowering the carbon impact are essential for construction companies.

As per the analysis titled 'Construction is expected to decline by 2% in 2023' by BusinessInfo.cz (2023), many things have influenced the construction industry, like unpredictable situations that affect overall business performance. Unexpected events, such as the 2020 SARS-CoV-2 pandemic, greatly affected business outcomes, with the construction industry seeing a drop in production (Alsharef et al., 2021). According to Gajdosikova et al. (2022), the general development of the construction industry in recent years has not only been affected by this epidemic but also by rising prices, the war in Ukraine, the inflation rate, and many other aspects. The impact of these events was evident in the 2023 economic outcomes, with a mid-2023 forecast showing a 3% drop in construction because of adverse effects (Izzeldin et al., 2023). Due to lower sales, high inflation, and increasing

costs, the profit from contracts will go down. The Czech Statistical Office (CZSO) reports that construction fell by 2.6% in 2023 compared to the previous year, with matching forecasts and leaders of construction firms expecting another 2.7% decline in 2024. This results from the Q4/2023 Quarterly Analysis of the Czech Construction Industry prepared by the analytical company CEEC Research. The reason for this is the still unfavourable economic conditions, including expensive loans or high prices of building supplies (Musarat et al., 2020). However, construction materials and energy costs are reduced, which will help the industry grow further.

The bigger persistent problem for construction companies overall is the lack of skilled labour on the market. Almost 90 per cent of construction companies in the Czech Republic lack graduates in civil engineering (Vitkova et al., 2022). According to the CEEC Research's analysis and the words of Education Minister Mikuláš Bek (STAN political party), 95 per cent of 139 small, medium, and large companies surveyed did not record any recruitment of civil engineering graduates to their staff (Talaat & Gadallah, 2024). According to the analysis, most students nowadays prefer more modern fields with higher social status, such as IT, marketing, or finance. In addition, the considerable reluctance of companies to invest in their capacities in times of economic instability is also a problem (Ozili, 2018). On average, the capacity of construction companies is 93% utilised. However, the construction sector, in particular, has faced a high degree of uncertainty in the past period (Fashina et al., 2021). The war in Ukraine has hurt the prices and availability of construction materials and workers (Pereira et al., 2022). Rising inflation or sharp increases in energy and other input prices have not yielded good results. These unexpected events had a significant impact on the construction industry.

The data from the Czech Statistical Office (CZSO) shows that construction in the Czech Republic in 2023 was a bit lower than the Eurozone average, with a similar drop in nearby Germany and Slovakia (Bílková, 2023), which we will also examine in our study. The year 2024 should, therefore, be marked by stagnation, with the Czech construction sector already weaker than the Eurozone average (see Figure 1).

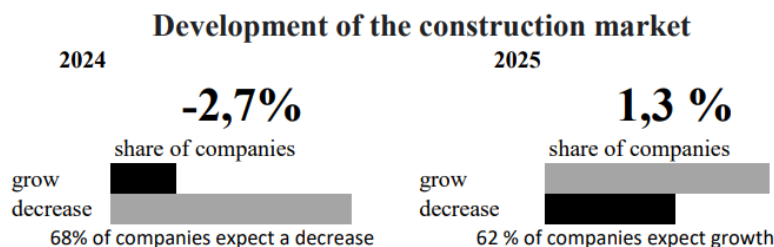


Figure 1. Development of the construction market

Source: Own processing according to Stavebniserver.com, 2023

An aspect influencing the construction industry is the rise in prices, with construction works up 10.3% and materials 12.7% year-on-year in Q1 2023 (Kalinin et al., 2024). A key question for civil engineering is government investment in construction, which depends on factors like the war in Ukraine, energy and material prices, and the impact of public finance consolidation on spending (Grievesson et al., 2024). Minister for Regional Development Ivan Bartoš views the 2024 Construction Act as an opportunity to boost and stabilise the construction industry. Public procurement is crucial for the construction sector, and while its volume hasn't grown year-on-year, the record SFDI budget may boost companies (Dita et al., 2020). This is a prerequisite for production in the transport infrastructure segment. Most construction companies agree that Czech transport infrastructure is insufficient and hindered by funding shortages and complex legislation. Compared to neighbouring countries, road and motorway construction in the Czech Republic has been slow in recent years and, despite record infrastructure construction in 2022, insufficient (Dvořáková et al., 2024). Construction companies believe that adjusting legislation and reducing the administrative burden would improve the poor situation on roads and motorways, with new city bypasses reducing traffic and enhancing safety (Ignatov, 2024).

## 2.2 Situation of the construction industry in the EU

Not only the Czech Republic but all European countries were negatively affected by the coronavirus pandemic in 2020 (To & Lee, 2024). Due to supply shortages of certain materials, construction in the European Union has generally slowed; alas, it was revived in May 2020 (Matiuk et al., 2023). Currently, construction in the European Union grew by 0.4% year-on-year in Q1 2023 and by 0.3% in the Eurozone (CZSO, 2023) (Jašová, 2023). However, none of the major European economies showed growth. In Germany, for example, the construction sector declined by 1.3%. Civil engineering increased by 0.8% in the EU, while in the Eurozone it decreased by 0.3% (Gornig & Pagenhardt, 2024). The domestic construction sector within the EU countries performed below average. Even from the point of view of global companies, the biggest barriers to growth in the construction industry remain the lack of employees and materials or equipment (Omopariola et al., 2022).

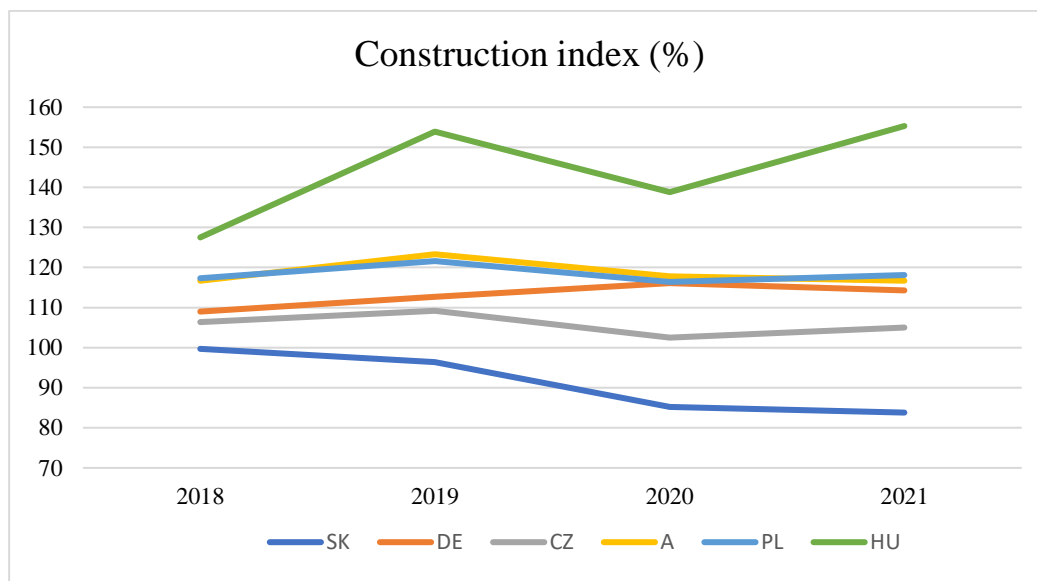


Figure 2. Construction index

Source: Own processing according to Eurostat, 2022

The selected EU countries should be analysed in the context of the construction industry, with Figure 2 above showing the construction index, using 2015 (100%) as the base year (Lederer et al., 2024). Figure 2 indicates that the Slovak and Czech Republic are at the bottom of the graph. The Slovak Republic even saw a decrease in construction in those years compared to 2015. The Czech Republic is slightly above the 100% mark. Germany, as mentioned above, also saw a slight decline in construction. Surprisingly, Hungary recorded the highest increase in construction each year. This perspective can help to understand the evolution of the financial indicators selected below. Eurostat's 2022 GDP per capita distribution shows that all V4 countries are in the lower middle-income group, while Austria and Germany are in the high-income group (Boršič & Podgoršek, 2024). This offers an interesting perspective on the selected countries.

The Budindex report, published by Budimex S.A., Poland's largest general contractor, at the start of 2022, also compares the construction sector situation in individual countries. The report shows the Czech Republic invests 6% of its GDP in construction, ranking 17th in the European top 27, while Poland is second, followed by Austria. European construction projects show that even an influential investor like Germany faces numerous difficulties implementing large projects (Akinsulire et al., 2024). However, Poland led the EU in large construction projects during these years, while the Czech Republic invested the least in construction among the V4 countries. In conclusion, the Czech construction sector is growing only at an average rate within the European Union (Cyrek et al., 2024). Experts attribute the slow Czech construction sector to poor building regulations, unlike Hungary and Poland, which experienced a construction boom. Czech Fund analyst Lukáš Kovanda cites capacity

constraints and a labour shortage as key factors. In contrast, Hungary has shown strong growth in civil engineering and infrastructure, leveraging European funds to build at an impressive pace.

### 3. Methodology

This article aims to analyse the development of the financial performance of construction companies in the Czech Republic and neighbouring countries over the last eight years. The article uses the secondary research method based on the literature study and data from the ORBIS database. Over 82 million active enterprises have been identified in this database. Furthermore, under the criteria of being located in one of the selected six countries, being active in the construction sector, having a size corresponding to small, medium, and large enterprises according to the European Commission classification, and having a period of the last ten years, the final 20,553 enterprises met the requirements chosen for this article. These enterprises were subjected to an analysis of their financial performance in three selected indicators and a subsequent comparison between the countries. For this paper, the following financial indicators were selected:

#### 3.1 Return on Sales (ROS)

Return on Sales (ROS) is a profitability ratio that measures how much profit a company makes for every revenue unit. It shows the efficiency of a company in generating profit from its sales.

$$\text{Return on Sales} = \frac{\text{Operating Profit}}{\text{Revenue}} \quad (1)$$

#### 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.

$$\text{Added Value on Sales} = \frac{\text{Added Value}}{\text{Sales Revenue}} \quad (2)$$

#### 3.3. Added Value on Employees (EUR)

Added Value on Employees measures the added value generated by each employee, expressed in thousands of EUR. It provides insight into the productivity and efficiency of employees in generating value for the company.

$$\text{Added on Employees} = \frac{\text{Added Value}}{\text{No. of Employees}} \quad (3)$$

The results are processed using the aforementioned Winsorized mean.

### 4. Results and Discussion

To determine the appropriate companies to analyse performance, the criteria of annual turnover and asset value were chosen so that the companies fall into the category of small to large enterprises (classification below, see Table 1). Micro enterprises are, therefore, not used for monitoring. Enterprises meeting this classification were included in the survey, with their headquarters in one of the six selected countries, and classifications 41 - Construction of buildings, 42 - Civil engineering, and 43 - Specialised construction activities. The period of observation is 2013-2022.

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
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Source: Own processing according to European Commission

The following graphs present the development of selected financial indicators for the chosen period within all selected states to easily compare the situation. Data for the period 2013-2022 were analysed. However, only 2015-2022 were included in the resulting graphs due to fluctuations within the first two years. For example, in 2013, there was a large construction boom in Austria, which led to a fluctuation in the value added to sales indicators and, at the same time, distorted the situation of the other years. Therefore, for better validity, only eight years of results have been plotted in the graphs. The research also examined the evolution of average sales per country. No particular variations, fluctuations, or changes were found from one year to the next. Therefore, the research compared the following three indicators that further differentiate the sales.

#### 4.1. Return on Sales (ROS)

The profitability of sales compares the development of the construction industry over the last eight years in the six selected countries. The development is shown in Figure 3 below, and the data used is presented in Table 2. The return on sales indicator is given as a percentage.

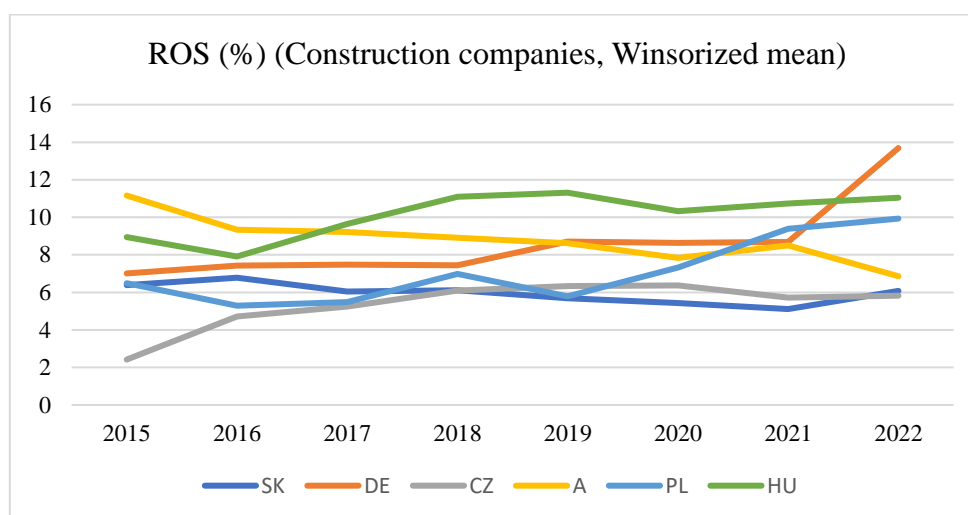


Figure 3. Return on Sales (construction companies)

Source: Own processing

Table 1. Return on Sales

ROS (%)	2015	2016	2017	2018	2019	2020	2021	2022
SK	6,38	6,78	6,04	6,12	5,69	5,43	5,11	6,08
DE	7,01	7,42	7,48	7,44	8,71	8,64	8,69	13,69
CZ	2,42	4,72	5,25	6,09	6,33	6,37	5,72	5,82
A	11,16	9,34	9,21	8,91	8,62	7,83	8,5	6,86
PL	6,48	5,29	5,48	6,98	5,78	7,32	9,38	9,93
HU	8,95	7,91	9,64	11,09	11,31	10,33	10,74	11,05

Source: Own processing according to ORBIS

Regarding return on sales, there are no significant differences when comparing countries. The results for the period under review are in the same range, with no significant fluctuations. In terms of this indicator, the Hungarian construction sector, in particular, is substantial. Germany has also seen an improvement in the last two years. The situation is the worst in the Czech and Slovak Republics.

#### 4.2. Added Value on Sales

The value-added indicator in the construction sector is also compared over the last eight years in the six countries selected. The trend is shown in Figure 4 below, and the data used are also presented in Table 3. The value added on the sales indicator is shown as a percentage.

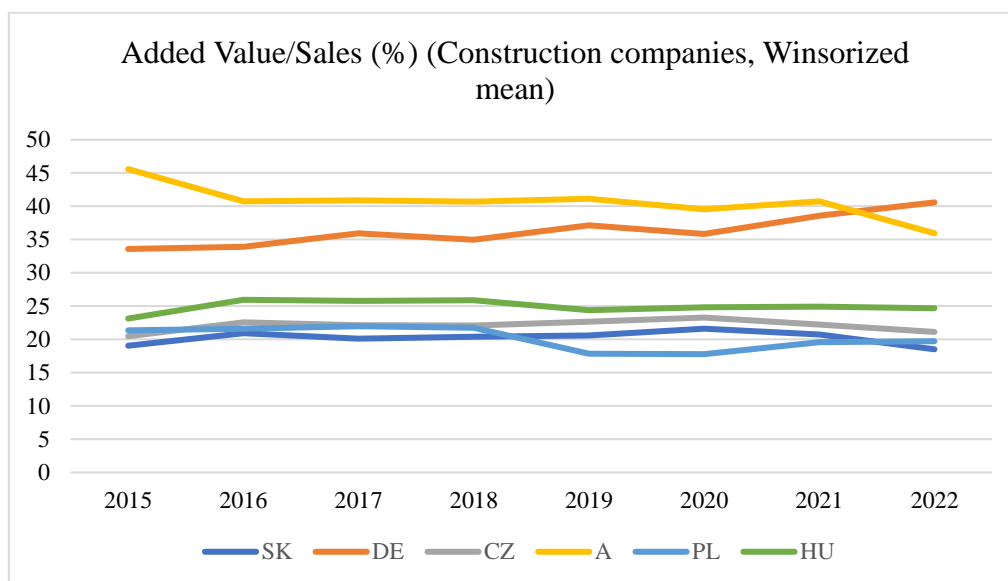


Figure. 4. Added Value on Sales (construction companies)

Source: Own processing

Table 2. Added Value on Sales

AV/S (%)	2015	2016	2017	2018	2019	2020	2021	2022
SK	19,05	20,9	20,12	20,4	20,6	21,6	20,71	18,5
DE	33,58	33,9	35,94	34,96	37,13	35,83	38,55	40,58
CZ	20,47	22,55	22,12	22,08	22,67	23,27	22,2	21,1
A	45,58	40,76	40,9	40,7	41,1	39,53	40,76	35,94
PL	21,35	21,6	21,97	21,72	17,84	17,77	19,57	19,73
HU	23,12	25,94	25,8	25,89	24,39	24,82	24,92	24,69

Source: Own processing according to ORBIS

The chart shows that construction companies operating in the Visegrad Group countries achieve similar values for the Added Value on Sales indicator, including those operating in Hungary. As can be seen, construction companies operating in Austria and Germany have different values, where in some years, this indicator is double that of construction companies in the V4 countries. Their Added Value on Sales indicator reaches the level of 40%. This shows that the construction industries in Germany and Austria have higher automation.

### 4.3. Added Value on Employees

The last indicator presents the evolution of labour productivity in the construction sector over eight years in the six selected countries. The evolution is shown in Figure 5 below, and the data used are presented in Table 4. The value added per employee indicator is given in thousands of Euros.

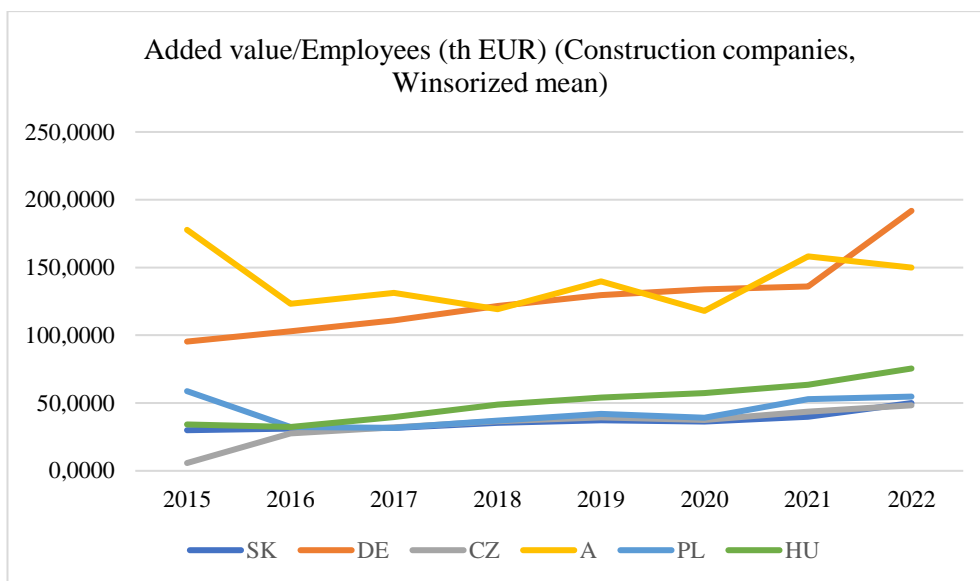


Figure 5. Added Value on Employees (construction companies)

Source: Own processing

Table 3. Added Value on Employees

AV/EMP (in EUR)	2015	2016	2017	2018	2019	2020	2021	2022
SK	29,9726	31,2161	31,7111	35,4821	37,2649	36,3387	39,8526	50,0144
DE	95,3676	102,9839	111,0045	121,7084	129,5719	133,9768	136,0767	191,8173
CZ	5,7786	27,5269	32,2000	36,5429	39,4714	37,5693	43,7285	48,3311
A	177,785	123,354	131,188	119,260	139,804	117,977	158,244	149,846
PL	58,7959	32,3670	31,7368	37,1328	41,9157	39,1097	53,0022	54,6598
HU	34,1974	32,3556	39,7267	48,9735	53,9825	57,4859	63,5678	75,4954

Source: Own processing according to ORBIS

Like the Added Value on Sales indicator, the Added Value on Employees indicator also shows that the construction industry in Germany and Austria is more advanced and performs better than construction companies in the V4 countries, including the Czech Republic. Labour productivity is also almost double in Austria and Germany, which means more automation in these two countries. As of 2018, construction companies in Austria and Germany are alternately in the first position. Construction companies in the Czech Republic are more on the lower end of the V4 countries.

### Conclusions

As mentioned, the construction sector is one of the main sectors of national economies. However, the fact remains that the Czech Republic, as a member of the Visegrad Four, is below or below the Eurozone average in the construction sector. This is also reflected in the results of the above indicators. At the same time, it was found that this statement is not a direct consequence of the pandemic at the turn of 2019 and 2020 or other unforeseen events that have occurred in recent years. This trend is evident throughout the period under review, with construction companies in the Czech Republic underperforming their neighbouring countries on all selected indicators. At the same time, the Czech Republic has invested the least in construction in recent years compared to the V4 countries. Construction companies operating in the V4 countries generally show similar financial performance. The analyses show that Hungary stands out in the construction sector due to its strong growth potential in infrastructure. This reason has caused the best performance of construction companies in Hungary, as measured by the return on sales indicator. In the Czech Republic, for example, transport infrastructure is still insufficient.

The analyses clearly show a better position of construction companies in Austria and Germany as more advanced companies with a higher degree of automation, confirmed in the Added Value on Sales and Added Value on Employees indicators. A general problem in the construction industry is the lack of skilled labour, which is also true for companies in the Czech Republic. This shortage could be partly solved by using more modern technologies, and at the same time, it would cause an increase in the values of the Added Value on Employees indicator. As can be seen, this has been achieved by the construction companies in Austria and Germany.

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