

Comparison of the Performance Development of Construction Companies in the South Moravian Region of the Czech Republic: A Case Study

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Abstract. Historically, construction has always been one of the key sectors for state economic production. It has undergone developments over the years closely related to the world economic situation. The Czech Statistical Office, which processes annual analyses of construction production and describes market development resulting from the analysis of the construction industry deals with the development of economic sectors in the Czech Republic. A set of financial indicators which provide information on the overall market situation is annually published as a part of the research of the Ministry of Industry and Trade of the Czech Republic in the form of a corporate sector financial analysis. The performance of construction companies can be measured by various indicators. The most important performance indicator is the return on sales. This financial analysis ratio is quarterly published as a statistic within the construction sector in the national statistics published by the Ministry of Industry and Trade. The aim of the research described in the article is to compare the performance development of construction companies operating in the South Moravian Region of the Czech Republic. 12 samples of construction companies (4 samples representing the category of small, medium-sized, and large companies) were chosen for comparison. Their return on sales was calculated on the basis of financial statements in the 2013 – 2019 period. This value was plotted in the development trend, which was subsequently compared with the national statistics. The overall comparison of the performance development of construction companies, which was quantified using macroeconomic indicators, was carried out in the South Moravian Region. The macroeconomic indicators of the South Moravian Region were also compared with the national indicators provided by the Czech Statistical Office.

1. Introduction

The construction industry represents one of the basic building blocks of the state economy. It is a sector that is closely linked to territory development, including the impact on the environment. Together with investment construction, it contributes to the territory development by expanding the infrastructure, creating conditions for economic development, an increasing number of job positions during construction activities in the region. [1] The construction industry offers employment for a wide range of people in terms of education as it is able to absorb even workers with lower or different qualifications. The construction industry in the Czech Republic employs 8% of the total number of employed persons. It provides jobs for foreign minorities, whose employment in the Czech construction industry is currently crucial for the smooth and efficient operation of the construction companies due to the lack of domestic workers. This reflects how the construction industry normally functions in the world. [2]



The construction industry falls within the sectors that greatly affect the gross domestic product value of the entire republic. It can be stated that if the construction industry is on the rise, construction companies should also follow this trend. However, it depends not only on their size but also on the location where the construction company is situated. Construction companies must be able to respond flexibly to market needs in an ever-changing economic environment. The companies use, among other things, financial analysis in order to be able to correctly decide the allocation of financial resources, use their assets to the maximum extent for their production and choose the ideal business strategy. A successful company cannot manage without a thorough financial situation analysis. The financial analysis scope can therefore be described as an essential part of the company management, which examines its financial health and provides feedback on all activities that take place within the company.

The aim of the article was to analyse the performance of construction companies based in the South Moravian Region during the observed period of 7 years and compare this development with the overall development of the construction industry in the Czech Republic and subsequently determine the level of the performance of these construction companies.

2. Present State References

Each state publishes statistical data on the basic financial indicators of companies within individual sectors. This statistical data shows the trend in the corresponding field. For example, Bizminer [3], ValuSource [4], or IBISWorld [5] companies, which publish forecasts for individual fields, provide these statistics in the United States. However, all the above-mentioned companies charge for their outputs. The European Union publishes statistics from 28 countries on construction output [6], which are free of charge, however, it does not provide statistics on financial indicators, just the percentage of companies by size (micro, small, medium-sized, large). Statistical data is not subject to a charge in the Czech Republic. Entities such as the Czech Statistical Office [7] and the Ministry of Industry and Trade (MIT) [8] publish the outcomes of statistical surveys. The Czech Statistical Office focuses more on general data on inflation, unemployment, individual sectors (construction industry, tourism, environment, and others). The statistics published by the Ministry of Industry and Trade deal with individual sectors classified according to NACE. Data on financial analysis indicators is published there.

According to MIT [1], the construction industry falls within the key sectors of the economy. It is a major consumer of products of other fields; however, it is also a field that affects the appearance of cities, municipalities, and landscapes. The construction industry is also considered one of the important indicators of economic development. It plays a decisive role in the implementation of capital construction together with the engineering industry. Its position in the economy and changes in the position of this sector can be characterized by its share in gross value added. The share of the construction industry in the gross value added of the whole economy ranged between 5% - 7%, in the 2010 – 2018 monitored period. According to Deloitte company [2], the construction industry is one of the most important sectors of the national economy with a share of approximately 12% in GDP. According to the TZB-info [9] journal which published an article “Czech construction industry before Covid 19”, the CEEC Research company predicts, based on an analysis of the data by the Czech Statistical Office, the following: *“In recent years, we have observed a trend in the construction industry where construction output is constantly declining to almost stagnation, similarly to the sales, which are, however, declining at a slower pace. We can expect this situation not to change in the years to come, and this trend will continue.”*

The Czech Republic is divided into 14 regions with undoubtedly different performance. The mere fact that the statistics reported by the Czech Statistical Office always divide the output values into the average for the Czech Republic without the share of the capital city of Prague confirms the fact that even the performance of the construction industry depends on the location of the construction company operation.

The performance of the entire construction industry, which is represented by the performance of individual construction companies operating in the Czech Republic, is quarterly published in the "Financial Analysis of the Corporate Sphere" document of the Ministry of Industry and Trade [1].

Companies (not only those performing construction implementation activities), are divided into individual size categories based on both the legislation of Act No. 563/1991, on Accounting [2] in Section 1b and also on EU Recommendation 2003/361/EC of 6 May 2003 [3].

Monitoring financial indicators is important for all companies since they are indicators of future possible development, financing, and as monitored by Shahzad and Gundes [13, 14] the profit of the construction company, further specified by Porde [15], also serves to predict the development of the whole state economy according to Chen [16].

Based on the above-stated facts, the authors of the articles focused on assessing the performance of construction companies divided into individual size categories within the South Moravian Region, which was subsequently compared with the macroeconomic indicators of the entire Czech Republic.

3. Methodology

The performance of construction companies can generally be monitored using selected financial analysis indicators. Performance is measured primarily by ratios, which are mainly represented by profitability and turnover or activity. For the purposes of the article, the authors focused mainly on the return on sales (ROS), which is statistically monitored which outputs are published in the Financial Analysis of the Corporate Sphere " document by the Ministry of Industry and Trade" [4]. These outputs are updated quarterly. Although these statistics include the construction industry field with a classification in building construction, civil engineering, and specialized construction activities, it no longer respects the classification of input data, which is taken from the financial statements of construction companies, according to the size categories. It can therefore be stated that this statistical data can be skewed or influenced by the input values of only one company size category.

Individual categories of company sizes are defined by Act No. 563/1991 Coll., On Accounting, as follows:

- Small companies: total assets totalling at CZK 100,000,000, annual total net turnover of CZK 200,000,000, the average number of employees 50; must not exceed at least 2 of the specified limits,
- Medium-sized companies: total assets totalling at CZK 500,000,000, annual total net turnover CZK 1,000,000,000, the average number of employees 250; must not exceed at least 2 of the specified limits,
- Large companies: those that exceed at least 2 of the limits set out for medium-sized companies.

These statistics at the same time do not capture the influence of performance and the supply possibilities of construction work in individual regions.

The total sample of construction companies that was included in the research were 12 companies, with each company size category including 4 samples. A development of 7 years, namely a 2013 -2019 period was considered within the development of return on sales of these construction companies. That means, that the return on sales for these samples was compiled from 84 financial statements, namely the profit and loss statements.

The return on sales is determined by the ratio of the profit type and sales for a given year according to Růčková [17].

$$ROS = \frac{EBIT}{S} * 100 \quad (1)$$

Where:

ROS Return on sales (%),

EBIT Earnings before interest and taxes (in thousand CZK),

S Sales (in thousand CZK).

A simple arithmetic average was used in determining the level of return on sales for individual size categories of construction companies.

The goal of all economies, whether at the national or regional level, is their positive economic development. Overall economic performance is measured using macroeconomic indicators. These are individual variables that focus on a specific industrial field. These variables can be continuously monitored and evaluated. The overall position of the monitored economy can be determined by their comparison. The aim of macroeconomic indicators is to provide the economic stability of a country or a region. [18]

Gross domestic product is the most widely used indicator for comparing a given economy and economic power over a period of time. This is the market value of all final goods and services produced in a given economy over a given time period. [19]

GDP can be obtained in several ways, namely by expenditure, production, and income methods, however, the result must always be the same, despite the fact that each approach uses a different calculation method. [20]

As stated above, GDP is made up only of final products (intermediate goods are not included), they represent fuel, energy, various products, or company inputs obtained from other companies. This is mainly to avoid multiple counting. Simply put, in the case of using the production method, if the value of intermediate goods is deducted from the company income, the value of final output or gross value added (GVA) is obtained.

$$GVA = Production - Intermediate consumption + Taxes on products - Subsidies on products$$

The addition of taxes and the deduction of subsidies on products is due to the fact that output is valued at basic prices and the use is valued at market prices. GDP is therefore equal to GVA plus net taxes on products ("net taxes" means taxes minus subsidies, as some products are not taxed but subsidized).

In practice, GVA accounts for about 90% of GDP, the rest are net taxes on products. Therefore, GDP and GVA usually develop similarly. Only in exceptional cases, if taxes rise or fall dramatically, the development of GDP tends to be different from GVA. In such a case, it is important to monitor the GVA development since it is not affected by net taxes and it directly indicates the economic production performance. In any case, the development of one indicator cannot be separated from another, as they represent only two views of the same. [21]

4. Results and discussions

Return on sales was determined on the basis of the above-stated formula for each construction company included in the analysis. The company size categories were always observed and based on their outputs, an arithmetic average which represented the amount of the return on sales for a given year and construction company size category was determined. All construction companies operate in the South Moravian Region. These outputs were subsequently always compared with statistical data published by

the Ministry of Industry and Trade [22]. The development of the return on sales for the observed 2013-2019 period for the construction sector is shown in the following table.

Table 1. The development of the return on sales for the construction sector. [Authors' own work]

Year	2013	2014	2015	2016	2017	2018	2019
<i>ROS (%)</i>	6.06	-4.88	-4.44	-9.87	8.48	5.83	3.52

The development of return on sales for small construction companies in the monitored years was well below the return on sales trend development of the entire construction industry in the Czech Republic, see Figure 1. The resulting values for individual small construction companies, including the average determination for individual years are shown in Table 2.

Table 2. Return on sales stated in % for small construction companies. [Authors' own work]

Year	2013	2014	2015	2016	2017	2018	2019
Sample 1	0.20	-8.09	-2.42	-6.62	-5.80	5.63	0.70
Sample 2	2.31	1.19	0.25	0.93	0.28	1.70	4.41
Sample 3	-21.12	1.05	8.04	-12.56	-3.77	-2.71	-1.75
Sample 4	2.94	3.83	2.19	1.19	-0.11	1.24	1.54
Average	-3.92	-0.50	2.02	-4.26	-2.35	1.47	1.22

The development of the return on sales for medium-sized construction companies in the monitored years was also below the return on sales trend development of the entire construction industry in the Czech Republic, see Figure 1, however, the closest to the national development. The resulting values for individual medium-sized construction companies, including the average determination for individual years are shown in Table 3.

Table 3. Return on sales stated in % for medium-sized construction companies. [Authors' own work]

Year	2013	2014	2015	2016	2017	2018	2019
Sample 5	10.92	7.22	14.76	12.06	9.70	10.43	10.38
Sample 6	8.23	4.41	3.90	7.01	5.34	4.37	4.20
Sample 7	0.23	-1.16	-0.10	-9.60	0.73	1.65	7.01
Sample 8	-5.79	3.61	-1.05	6.19	2.66	-7.17	2.83
Average	3.40	3.52	4.38	3.92	4.61	2.32	6.11

The development of the return on sales for large construction companies in the monitored years was also below the return on sales trend development of the entire construction industry in the Czech Republic, see Figure 1. The resulting values for individual large construction companies, including the average determined for individual years are shown in Table 4.

Table 4. Return on sales stated in % for large construction companies. [Authors' own work]

Year	2013	2014	2015	2016	2017	2018	2019
Sample 9	2.22	2.87	4.54	3.97	2.54	3.52	5.04
Sample 10	5.32	7.34	7.87	7.51	7.46	8.01	7.42
Sample 11	5.99	6.85	5.69	5.83	6.89	7.76	10.50
Sample 12	3.63	-7.10	3.23	0.61	1.41	3.10	4.34
Average	4.29	2.49	5.33	4.48	4.57	5.60	6.82

Table 5 shows the percentage changes in individual size categories in the monitored years compared to the values given by the Ministry of Industry and Trade for the construction sector.

Table 5. Percentage changes in the return on sales for individual size categories of construction companies compared to the values given by the MIT in the construction industry. [Authors' own work]

Year	2013	2014	2015	2016	2017	2018	2019
Small	-324%	-115%	-66%	-144%	-136%	-62%	-69%
Medium	94%	8%	-26%	-59%	-29%	-40%	55%
Large	145%	-24%	-10%	-54%	-30%	44%	74%

It can be seen from Table 5 and Figure 1 that the smallest changes compared to the development trend for the construction sector published by the Ministry of Industry and Trade were reported by medium-sized construction companies. Their average value of percentage differences for the monitored 2013 - 2019 period showed a value of 0.32%.

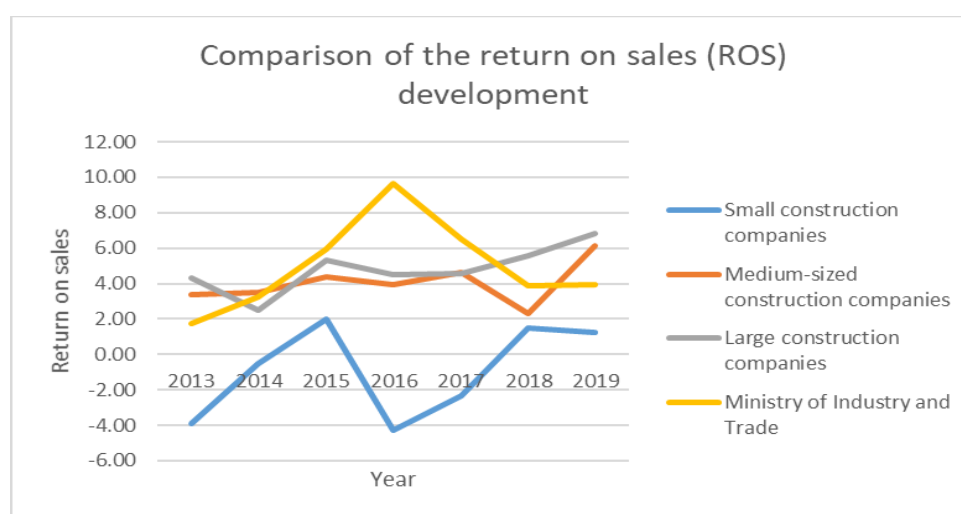


Figure 1. Comparison of the return on sales development for the construction industry of the Czech Republic with individual construction company size categories.

The document "Construction of the Czech Republic 2019" published by the Ministry of Industry and Trade of the Czech Republic [1] shows the revenue amount of individual construction company size categories and the total revenue amount for the entire Czech Republic. The following Table 6 shows the percentage share of the individual construction company categories in the total revenue.

Table 6. Percentage share of the companies in the construction industry in the total revenues [Authors' own work]

Unit	2013	2014	2015	2016	2017	2018
Large	22.55	23.52	24.60	20.47	19.80	18.53
Medium	22.40	21.24	20.90	20.40	19.65	18.80
Small	55.04	55.24	54.50	59.13	60.55	62.66

The same document states the representation of the number of construction companies classified by size category. The number of companies in the construction industry has been constantly increasing since 2013. Small companies with sole traders have traditionally had the largest representation. The category of small companies has accounted for almost 99% of the total number of companies in the long run (see Table 8), and it was in this category, in contrast to other size categories, where more significant growth compared to the previous period was monitored.

Table 7. The total share of the construction companies by size [Authors' own work]

Unit	2013	2014	2015	2016	2017	2018
Large	53	54	55	50	52	57
Medium	579	546	524	500	492	494
Small	169,862	170,206	171,900	175,279	176,846	178,481
Total	170,494	170,806	172,479	175,829	177,390	179,032

Table 8. Percentage share of the construction companies by size [Authors' own work]

Unit	2013	2014	2015	2016	2017	2018
Large	0.03	0.03	0.03	0.03	0.03	0.03
Medium	0.34	0.32	0.30	0.28	0.28	0.28
Small	99.63	99.65	99.66	99.69	99.69	99.69

The above-stated results show that small companies have the largest share in both the number of construction companies and the total revenues.

Table 9 shows the number of construction companies in the South Moravian Region and the share of this number in the total number of construction companies in the whole Czech Republic. The share is around 21% in the long run. The South Moravian Region ranks second in terms of the number of construction companies after the capital city of Prague. This is probably due to the fact that the second largest city in the Czech Republic, Brno, which is the seat of a large number of construction companies is situated there.

Table 9. Share of the construction companies in the South Moravian Region in the total number of units [Authors' own work]

Unit	2013	2014	2015	2016	2017	2018
Czech Republic	170,494	170,806	172,479	175,829	177,390	179,032
South Moravian region	35,323	35,874	36,425	36,858	37,612	38,001
Share	20.72	21.00	21.12	20.96	21.20	21.23

One of the essential indicators that express the company's performance is the value added. (5) In 2018, value added in the construction sector grew for the second year in a row and significantly accelerated its growth. There was a slight decrease in 2016, but for the entire period under monitoring, it can be concluded that there was an increase in the value added. In 2018, gross value added even significantly exceeded the value from 2008, which was the highest value achieved so far. Small companies accounted for the largest share of the value added of the construction sector.

Table 10. Value added of construction companies by size (in millions CZK) [Authors' own work]

Unit	2013	2014	2015	2016	2017	2018
Large	26,402	25,685	32,153	27,561	27,009	44,057
Medium	30,420	30,727	33,427	31,899	33,216	49,273
Small	89,299	95,785	104,324	102,736	112,629	172,221
Total	146,121	152,197	169,904	162,196	172,854	265,551

The South Moravian Region is the second economically strongest region in the Czech Republic, after the capital city of Prague. The total gross domestic product increased by 19.7% between 2013 and 2018, which shows the high dynamics of the region. The city of Brno which in 2018 reached the level of 147% of the European Union average in terms of GDP per capita, significantly contributes to the increase in the GDP of the South Moravian Region. In the long run, the GVA curve almost perfectly copies the GDP

development curve. The South Moravian Region contributed on average by 10.5% to the GVA of the Czech Republic in the monitored period. [23]

Table 11. Share of the gross value added in the South Moravian Region in the total gross value added in the Czech Republic (in millions CZK) [Authors' own work]

Unit	2013	2014	2015	2016	2017	2018
Czech Republic	3,713,015	3,930,576	4,165,174	4,314,719	4,592,620	4,875,019
South Moravian region	400,637	411,935	439,375	447,487	474,395	513,187
Share	10.79	10.48	10.55	10.37	10.33	10.53

It can be concluded from the above-stated data that the economic power of the South Moravian Region can be ranked among the strongest in the Czech Republic. It can be seen from the development of individual size categories of construction companies, that the return on sales in the observed 2013 - 2019 period was always below the average values indicated by the Ministry of Industry and Trade in the construction industry. The smallest percentage differences between the return on sales of a certain size category of a construction company and the nationwide statistics of return on sales within the construction industry were reported by medium-sized construction companies.

If the average values of individual size categories of construction companies are taken into account and the overall average for these selected companies is determined, it results in a development curve of return on sales of construction companies based in the South Moravian Region (see Table 12).

Table 12. Comparison of the return on sales development (%) of selected construction companies to the data by the Ministry of Industry and Trade [Authors' own work]

Unit	2013	2014	2015	2016	2017	2018
Average construction companies	1.26	1.84	3.91	1.38	2.28	3.13
Ministry of Industry and Trade	1.75	3.26	5.93	9.64	6.52	3.90

The above-listed table shows that the return on sales level of selected construction companies based in the South Moravian Region ranks below the national average values of return on sales published by the Ministry of Industry and Trade in the construction sector.

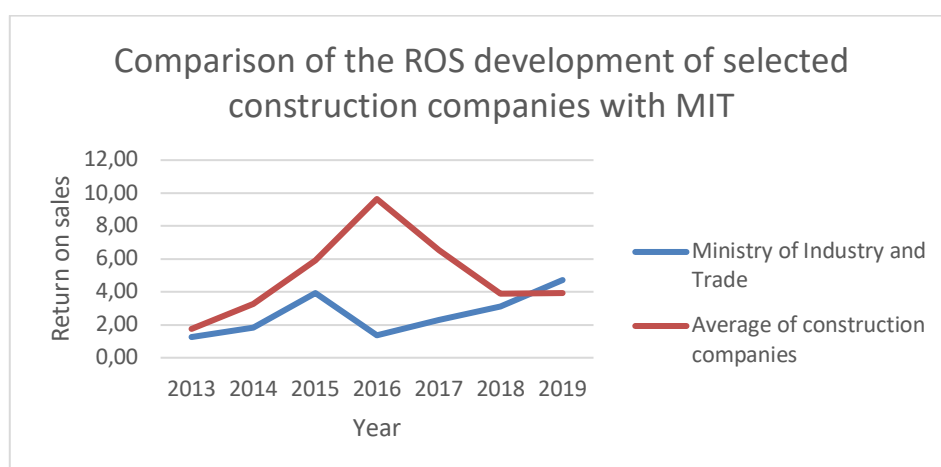


Figure 2. Comparison of the return on sales development for the construction industry in the Czech Republic with the average values of selected construction companies. [Authors' own work]

5. Conclusions

The aim of the article was to point out the performance of construction companies based in the South Moravian Region and to compare the resulting values with the national values given by the Ministry of Industry and Trade for the construction sector. The performance of construction companies that were classified into size categories (small, medium-sized, large) was also monitored and these performance levels were compared with national values that do not respect the classification into company size categories. 12 companies were used as a research sample. A minimum number of 4 samples in each size category was included in these samples. The performance of construction companies was expressed by the most commonly used ratio of financial analysis, namely the return on sales. The Ministry of Industry and Trade updates data on financial analysis indicators for individual sectors on a quarterly basis. However, it is not clear which companies, in terms of their size, enter the statistics. The performance of the South Moravian Region was then monitored by a macroeconomic indicator, namely the value of final production or value added. The share of the South Moravian Region in GVA was 10.5% in the monitored period in the Czech Republic and the overall performance of the South Moravian Region is in second place after the performance of the capital city of Prague.

The above-stated tables and charts show that the performance of construction companies was on average by 50% lower than the values of national statistics published by the Ministry of Industry and Trade in the monitored period. In 2019 alone, the performance of construction companies was 20% higher than the national average. Regarding the construction company size, the closest development curve was shown by medium-sized construction companies.

It would be necessary to increase the sample of construction companies in order to confirm the conclusions from the presented research and it would also be beneficial to analyse construction companies in the neighbouring regions in the Czech Republic in further research.

Acknowledgment(s)

This paper has been worked out under the project of the specific research at the Brno University of Technology no. FAST-S-21-7472 - Management of Economic Processes in Construction Engineering.

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