

## PROFITABILITY OF COMPANY IN INDUSTRY

<sup>a</sup>EVA KALINOVÁ, <sup>b</sup>PETRA MRÁZOVÁ

*School of Expertness and Valuation, Institute of Technology and Business in České Budějovice, Okružní 517/10, 370 01 České Budějovice, Czech Republic*  
email: <sup>a</sup>kalinova@mail.vstecb.cz, <sup>b</sup>28519@mail.vstecb.cz

**Abstract:** Profitability analysis is an integral part of financial analysis of a company. Profit is one of the most commonly used indicators of a company's performance and is used to evaluate a company's historical performance. Given their importance, it examines how the available information on company's profit can be used to increase the profitability. Stock markets are integral and irreplaceable part of a country's economy. The objective of the paper is to determine the relationship between the profitability ratios and the structure of small and medium-sized enterprises operating in industry in the years 2016 - 2020. The data used were obtained from the Cribis database for the given years. For each company, EBIT is calculated, which is also used for the calculation of ROA. ROE is used to determine the relationship to profitability. Further research should be focused on how the financial analysis influences the company's profitability and which companies show higher profitability.

**Keywords:** Financial analysis; enterprise, profitability, industry; ROE; ROA

### 1 Introduction

Company's profitability is one of the most commonly used indicators of company's performance and is used to evaluate the historical performance (Bui, 2019). According to Vlachy (2019), there are inevitable challenges companies have to face, such as competition, government policies, technological advance, management of company, human and financial resources, and other aspects. Stehel et al. (2021) state that given their importance, it is examined how the available information about company's profit can be used to increase profitability. Market participants and financial analysts can thus improve the profitability forecasting by using the average return (Schroder and Yim, 2018).

Stock markets are an inseparable and irreplaceable part of a country's economy (Jackson, Plumlee and Rountree, 2018). The influence of stock markets on a country's economy can be different in different countries (Vochozka et al., 2019). This means that the influence of stock markets depends on different factors, such as the organization of stock exchange, relationship with other components of the financial system, system of management, etc. All these factors are different for different countries; the impact of stock markets on a country's economy is thus different as well (Sobehart, 2018).

According to Kucera and Andelik (2021), stock markets have become the so-called global phenomenon. Many companies operating in this sector are either small or medium-sized enterprises. All countries, from developed to developing countries all over the world have established their stock markets. This sector plays an essential role in the global economy, it is a source of business, innovation, and new jobs. Therefore, the issue of financial analysis in small and medium-sized enterprises is paid constant attention to. Small and medium-sized enterprises are a backbone of each country's economy, and mechanical engineering is one of its key industries (Haviernikova et al., 2019).

The objective of this paper is to determine the relationship between the profitability ratios and the structure of small and medium-sized enterprises operating in industry. To achieve the objective set, the following research questions are formulated: 1) What is the situation of joint-stock companies and limited companies operating in industry in the years 2016-2020 in terms of profitability? 2) Is the situation of other companies in the years 2016 – 2020 better in terms of return on equity and return on assets?

### 2 Literature research

Vochozka et al. (2021) state it has been proven a company is not able to survive if it is not profitable, and a highly profitable

company is likely to generate high return on investments for its owner. Companies that want to achieve stable profitability thus need to know the internal and external factors that might have a significant impact on profitability (Alarussi and Alhaderi, 2018). In their study, the authors used ROE (*Return on Equity*) and EPS (*Earnings Per Share*), with pooled ordinary least squares regression.

Former and recent studies strived for determining financial indicators of profitability by empirical examining of various factors that are theoretically related to profitability, such as size, net operating earnings, liquidity ratios, debt turnover period, debt ratios, return on sales, return on capital employed, and return on assets (Sagapova and Gulyas, 2021). In contrast, according to Wassie (2020), there is no consensus on what optimal capital structure shall include. It is necessary to analyse the influence of capital structure on company's performance and profitability. Therefore, many studies have been conducted in order to determine the contribution of profitability in industry. Most studies were reviewed and various results and conclusions have been drawn.

All decisions made in a company are affected in some way by current financial situation or the impact of the decision made on the future financial performance. Any decision in a company is reflected in the financial indicators (Lesakova, Ondrusova and Vinczeova, 2019). Based on the data provided by the Statistical Office of the Slovak Republic, the following numbers were determined in individual groups of companies. To determine the sample of companies, the number of employees working in a company was used. The representativeness of the sample is verified by non-parametric chi-square goodness-of-fit test, where the size of the company is considered the main feature of representativeness. Therefore, managers need to analyse financial situation the company mainly with regard to its profitability and the factors affecting the profitability. Given that profit maximization is generally one of the most important financial goals, managers try to make decisions that support its achieving (Krulicky and Horak, 2021).

However, it should be borne in mind that the decisions that increase profitability usually increase risk; the decisions targeted at lowering risk are likely to decrease profitability (Detzel, Schaberl and Strauss, 2019). The authors assess the performance of expected various degrees of profitability. Using out-of-sample combination forecast, they predict the degree of profitability for operating profit, gross profit, operating cash flow, and net profit at the level of industry.

Profitability is generally understood as a relative relationship between profit, loss and certain base. Profitability expresses the level of business activity efficiency, which means that it is a result of the efforts of a company. Attention has been mostly paid to the predictive impact of profit or profitability of company on the cross-sectional average stock returns. Positive relationship between expected profitability and expected return is predicted by the valuation theory. The fitted values from first-stage cross-sectional regression for expected profitability as one of the explanatory variables in the second-stage cross-sectional regression. According to Rahim and Balan (2020), who show that the effect of profitability is not significant, hedge returns on profitability classes do not provide much support for the conclusion that there is a positive relationship between the average returns and profitability when considering the company size and the book-to-market ratio.

The objective of the study by Koralun-Bereznicka and Ciolek (2018) was to determine the importance of sector classification of a company and its size for the relationship of profitability and indebtedness in Polish private companies in order to determine the relationship of profitability and leverage effect. There were used only weighted averages from the database of BACH-ESD

(Bank of Company Accounts Harmonized – European Sectoral reference Database).

Abou-faul, Ruiz-Alba and Soares (2020) used a cross-sectional self-administrated survey as a means to gather data at the level of companies from the target population. This tool enables collecting a large volume of data by means of the questionnaire survey. It is possible to obtain a large volume of data from an extensive sample of population in a highly economical way. The advantage is also the confirmed validity and reliability.

Chen, Sun, Wei and Xie (2018) use data on stock return for companies in the USA from the CRSP (*Center for Research in Security*) and accounting data from the Compustat/North America. For companies in Canada, data on shares and accounting data are obtained from Compustat/North America. In the case of companies from other countries, they also obtain data from Compustat/Global. There are included all domestic ordinary shares listed on the major stock exchanges in each country; financial companies and utilities are excluded. To ensure the quality of the data, screening is used. As a method of calculation, the authors use *GP* (*Gross Profit*) for gross profit, which is a difference between *REV* (*Sales Revenue*) and *COGS* (*Cost Of Goods Sold*).

Grau and Reig (2021) analyse the impact of operational risk on the factors determining the profitability of agricultural and food SMEs in Europe. The authors want to analyse the importance of financial leverage and operational risk when determining the profitability by means of studying other risk factors, such as indebtedness, size, specificity, or reputation, i.e. whether the impact of these variables on profitability depends on the level of operational risk the company bears. As a model, they use *ROA* (*Return on Assets*) and analyse the determinants of profitability.

Company performance is usually evaluated on the basis of comparison within sectors. Yamaguchi (2022) describes companies with a profitability higher than average in a sector as successful companies which have competitive advantage. The author used the method of *REM* (*Real Earnings Management*) and found out that monitoring analysts have a positive impact on *REM* and a negative impact on *AEM* (*Accrual Earnings Management*). These impacts are stronger in companies that are close to zero-profit threshold.

Cross-sectoral market concentration studies face problems in defining markets, since readily available sectoral classification does not necessarily resemble product markets (Eide, Erraia and Grimsby, 2021). The authors wanted to identify the actual competitors of a company, which are able to restrict the company's behaviour and prevent it from behaviour independent of effective competitive pressure. Their findings explain the factor of slowing growth of productivity, decrease dynamics of business, and the increase in markup and concentration of companies, as well as a positive and significant relationship between market concentration (measured by the HHI index - *Herfindahl-Hirschman Index*) and profit margins (measured by return on assets [ROA], and operating margins) for US companies.

Wasiuzzaman (2018) mentions the use of leverage, in general, debt in financing a company's operations. It can be seen as an investment strategy of the company, when money is lent to finance the corporate assets in order to increase the potential return on investment, mainly return on equity. However, excessive indebtedness can increase the risk of a company's failure and bankruptcy.

### 3 Data and Methods

#### 3.1 Data

The basic data source are data on the companies operating in the manufacturing industry obtained from the CRIF's (Czech Credit Bureau, a.s) Cribis database. The given dataset contains 158,151 rows and 372 columns. The data are processed in Excel of

Microsoft. In the dataset, only the columns containing IČO, the name of the company, active companies, NACE – SECTIONS, legal form, year, total assets, equity, registered capital, net earnings, total sales, interest expense, taxes.

The data are divided according to the legal form into joint-stock companies, limited companies, and other companies. Further division will be into the years 2016-2020, and only active companies will be analysed. Some companies will need to be excluded from the analysis, since there is a lack of data on equity or net earnings. Net earnings could not be calculated due to incomplete data.

The next step is editing the data and removing the rows with zero equity or zero total assets and zero sales.

#### 3.2 Methods

First of all, *EBIT* is calculated (*EBIT – Earnings Before Interest and Taxes*) for the years 2016-2021. There are two methods of calculation. The value of *EBIT* is determined using the formula 1 below.

$$EBIT = \text{net income} + \text{interest expenses} + \text{taxes} \quad (1)$$

Then *ROA* (*Return on Assets*) is determined using formula 2 for all types of companies.

$$ROA = EBIT / \text{Assets} \quad (2)$$

The last step is to determine *ROE* (*Return on Equity*), which is calculated using formula 3 for all types of companies.

$$ROE = \text{net income} / \text{equity} \quad (3)$$

Using formulas in Excel, other indicators are calculated, such as the arithmetic mean, median, the first and the third quartile for *ROE* and *ROA*, which are divided into individual years. These values are entered in a table.

### 4 Results

#### 4.1 Joint-stock companies

Return on equity informs about the earnings generated by equity. As shown in Table 1, in 2017, 1404 companies achieved the lowest profitability. In contrast, in 2019, the highest value was recorded (15 %). Based on the calculated values of *ROE*, it can be said that the profitability trend of the analysed joint-stock companies fluctuated.

Table 1: Average values of return on equity for joint-stock companies in the years 2016-2020

| Year                     | 2016         | 2017         | 2018         | 2019         | 2020        |
|--------------------------|--------------|--------------|--------------|--------------|-------------|
| Average                  | -0.286535151 | -0.209060997 | 0.189886306  | -0.205997151 | 0.094434935 |
| 1 <sup>st</sup> quartile | -0.473981191 | -0.245929651 | -0.080336356 | -0.00623819  | 0.000257112 |
| Median                   | 0.038676343  | -0.009277344 | 0.010064739  | 0.052874543  | 0.045953925 |
| 3 <sup>rd</sup> quartile | 0.041061957  | -0.003686891 | 0.084069583  | 0.148006871  | 0.097431994 |

Source: Author based on data from www.cribis.cz

Table 2 shows that in 2017, *ROA* achieved 2 %. In contrast, in 2020, the achieved value was highest. The profitability values for the years 2018 and 2019 were the same.

Table 2: Average values of return on assets for joint-stock companies in the years 2016-2020

| Year                     | 2016         | 2017         | 2018         | 2019         | 2020        |
|--------------------------|--------------|--------------|--------------|--------------|-------------|
| Average                  | -0.280858741 | -0.393814609 | -0.191107308 | -0.197921137 | 0.118445684 |
| 1 <sup>st</sup> quartile | -0.010989011 | -0.034907224 | 0            | 0            | 0.019733107 |
| Median                   | 0.004244624  | 0            | 0.018778511  | 0.018853204  | 0.059343257 |
| 3 <sup>rd</sup> quartile | 0.055762456  | 0.023966337  | 0.096774194  | 0.096950743  | 0.127584734 |

Source: Author based on data from www.cribis.cz

#### 4.2 Limited companies

The sample included 975 limited companies. In the years 2016, 2017, and 2018, the profitability value calculated through *ROE* was the same. As seen in Table 3, in 2020, *ROE* was 15 %,

which is the highest value. Based on the calculated values of ROE, it can be stated that the profitability trend of the analysed limited companies was upward.

Table 3: Average values of return on equity for limited companies in the years 2016-2020

| Year                     | 2016         | 2017         | 2018         | 2019         | 2020         |
|--------------------------|--------------|--------------|--------------|--------------|--------------|
| Average                  | -0.61724018  | -0.476287135 | -0.234146721 | -0.142505168 | -0.173915136 |
| 1 <sup>st</sup> quartile | -0.297501644 | -0.420186869 | -0.258253852 | -0.230294232 | -0.198118428 |
| Median                   | 0            | -0.009646302 | 0.000929476  | -0.000232992 | 0            |
| 3 <sup>rd</sup> quartile | 0.13413506   | 0.127012544  | 0.134615385  | 0.137788544  | 0.153628569  |

Source: Author based on data from www.cribis.cz

Return on assets indicated that the value of profitability for the years 2016-2020 was the same (see Table 4). No increase or decrease was thus recorded.

Table 4: Average values of return on assets for limited companies in the years 2016-2020

| Year                     | 2016         | 2017         | 2018        | 2019         | 2020         |
|--------------------------|--------------|--------------|-------------|--------------|--------------|
| Average                  | -0.163490146 | -0.166656657 | -0.16188571 | -0.156383392 | -0.160061814 |
| 1 <sup>st</sup> quartile | 0            | 0            | 0           | 0            | 0            |
| Median                   | 0.019293626  | 0.019209247  | 0.019562903 | 0.019834115  | 0.019696286  |
| 3 <sup>rd</sup> quartile | 0.097028376  | 0.097009126  | 0.09734484  | 0.097757683  | 0.097852896  |

Source: Author based on data from www.cribis.cz

### 4.3 Other companies

ROE indicated fluctuating values of profitability in the case of 13 companies. Table 5 shows that the lowest value was calculated for the year 2018, while the highest value is calculated for the year 2019.

Table 5: Average values of return on equity for other companies in the years 2016-2020

| Year                     | 2016         | 2017        | 2018 | 2019         | 2020        |
|--------------------------|--------------|-------------|------|--------------|-------------|
| Average                  | -19.001337   | 0.040553762 | -0.3 | 0.141819591  | 0.026322674 |
| 1 <sup>st</sup> quartile | -0.408730159 | 0.040553762 | -0.3 | -0.024028238 | 0.004050941 |
| Median                   | -0.299603175 | 0.040553762 | -0.3 | 0            | 0.026322674 |
| 3 <sup>rd</sup> quartile | -0.0625      | 0.040553762 | -0.3 | 0.236757624  | 0.048594408 |

Source: Author based on data from www.cribis.cz

As seen in Table 6, the highest value was recorded in the year 2018, two identical values were calculated for the years 2016 and 2019. The profitability trend is thus fluctuating.

Table 6: Average values of return on assets for other companies in the years 2016-2020

| Year                     | 2016         | 2017        | 2018         | 2019         | 2020         |
|--------------------------|--------------|-------------|--------------|--------------|--------------|
| Average                  | -0.347562646 | 0.030191565 | -0.040431267 | -0.238018536 | -0.368231278 |
| 1 <sup>st</sup> quartile | -0.008105917 | 0.030191565 | -0.040431267 | -0.006453168 | -0.036253776 |
| Median                   | 0.006329114  | 0.030191565 | -0.040431267 | 0.007089913  | 0            |
| 3 <sup>rd</sup> quartile | 0.062535269  | 0.030191565 | -0.040431267 | 0.064125221  | 0.020564042  |

Source: Author based on data from www.cribis.cz

## 5 Discussion Results

Based on the results obtained, it is possible to answer the formulated research questions:

*What is the situation of joint-stock companies and limited companies operating in industry in the years 2016-2020 in terms of profitability?*

Based on the calculations using ROE and ROA, it can be stated that 975 limited companies achieve better profitability for the years 2016-2020 than 1404 joint-stock companies. Using ROE, it was found that both types of companies achieved the highest value of 15 %, while in the case of joint-stock companies, the value was even 0 % once, which did not happen in the case of limited companies. Using ROA, better results were achieved. In the case of joint-stock companies, both increase and decrease in profitability was recorded; in the case of limited companies, the same values were calculated for the individual years of the monitored period.

*Is the situation of other companies in the years 2016-2020 better in terms of return on equity and return on assets?*

ROE and ROA were used for the aforementioned types of companies, but also for other companies. It shall be noted that other companies (Evropská společnost, Družstvo, Veřejná obchodní společnost, Společnost komanditní), for which ROE was used, achieve worse results than the aforementioned two types of companies. Using ROA, better results seemed to be achieved but the values are still negative.

Similar conclusions were made by Lesakova, Ondrusova and Vinczeova (2019), who also used ROE and ROA and found out that limited companies achieve better profitability results than joint-stock companies. The authors also state that profitability is influenced by legal form as well as the size of the company.

According to Alarussi and Alhader (2018), who used ROE in their study, joint-stock companies and limited companies achieved better profitability than other companies.

Finally, Grau and Reig (2021) used ROA in their study. They concluded that small limited companies achieve better profitability than other companies.

## 6 Conclusion

The main activities of analysts include the evaluation of company performance according to the profitability ratios. Analysts participate in the financial management and decision-making in company.

The objective of the paper was to determine the trend of a company's profitability in industry for the years 2016-2020. Using the return on equity and return on assets, it was found that limited companies and joint-stock companies achieve higher average values than other companies. The objective was thus achieved.

The analysis of selected ratios, ROA and ROE, showed a fluctuating trend for the years 2016-2020 in the case of joint-stock companies, and upward trend in the case of limited companies. In the case of other companies, the values were variable and rather low. ROE of limited companies and joint-stock companies achieved the highest value of 15 %. ROA shows better values for joint-stock companies. In the case of other companies, the worst values were achieved using ROE, with the lowest average value achieved was -30 %. Slightly better values (6 %) were achieved using ROA.

Profitability analysis is an integral part of business financial analysis. It enables a company to identify the strengths and weaknesses of its activities. The results of the analysis also enable companies to adopt measures that might help to eliminate unfavourable development and enhance processes increasing profitability and efficiency. The knowledge of factors affecting the profitability of a company may help companies operating in industry to adopt effective measures aimed at increasing profitability.

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