Analysis Profitability of Capital Structure in Companies Manufacturing

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Abstract: The aim of this research is to determine and analyze the influence of capital structure (DER, DAR and CR) on profitability (ROE) in metal and similar subsector manufacturing companies listed on the Indonesia Stock Exchange. The data in this research is secondary data in the form of annual financial reports of metal companies listed on the Indonesia Stock Exchange (BEI) for the 2018-2020 period obtained through the official BEI website. This research uses descriptive analysis methods and multiple linear regression analysis. The results of this research are: 1) Debt to Equity Ratio (DER) has a significant effect on Return on Equity (ROE) in a negative direction; 2) Debt to Asset Ratio (DAR) has no effect on Return on Equity (ROE); 3) Current Ratio (CR) influences Return on Equity (ROE) in a negative direction; 4) Debt to Equity Ratio (DER), Debt to Asset Ratio (DAR), and Current Ratio (CR) simultaneously have a positive effect on profitability as measured by Return on Equity (ROE).

1. Introduction

Economic changes show how quickly the world is becoming more interconnected. All economic players must design and put into practice suitable strategies in order to thrive, both individually and within businesses, in the face of increasing competition in the commercial world. Manufacturing businesses compete intensely as a result of the rising number of players in the market and the challenging economic climate. The prosperity of the owner and all shareholders can grow as a result of companies that have gone public (Purwitasari, et al. 2013).

Capital structure refers to the choice made while determining a company's funding source. Capital structure, according to Laia (2019), is the harmony between total debt and own capital. One criterion for evaluating the effectiveness of business management is profitability. The ability of a business to turn a profit by connecting the sales of all of its assets and its own capital is known as profitability. In addition to return on assets and return
on equity, profitability also comprises profit margin and underlying profitability (Nurcahayani, 2014).

The capital structure's assets can be utilized to finance corporate investments in a range of asset classes. Researchers evaluate the capital structure in this scenario using the debt-to-equity ratio (DER), the debt-to-asset ratio (DAR), and the current assets ratio (CR). In this study, the debt-to-capital ratio (DER), debt-to-asset ratio (DAR), and current ratio (CR) were used to analyze the impact of debt on business profitability. Using debt as a means of financing a business has both benefits and drawbacks. The advantages of utilizing debt are related to taxation, where tax relief and management discipline are provided by debt interest (paying debt promotes managerial discipline). The downsides of using debt are related to the creation of agency costs and bankruptcy expenses.

Profitability is intended to gauge the efficiency of management in carrying out the business activities of the firm as well as a company's capacity to create profits over a specific time period. A business' competitiveness may rise with great profitability. High-profitability businesses can grow to produce new investment opportunities (Marusya et al., 2016). The level of return on investment, which is a shareholder right, is measured in this case using ROE by researchers. The larger the profit earned and the better the company performs, the higher the ROE level. Return on equity (ROE) is one indicator that investors frequently consider before making an investment in a company. Before making an investment, investors need to know whether a company's financial performance is enough. Additionally, ROE assists in identifying issues that a company might not initially be able to perceive (Putri, 2021).

According to Samsir (2020), the existence of an industry is a more direct reflection of the state of the capital market than any other sector of the IDX. Many investors place their wealth in manufacturing companies due to the rising share prices of these businesses each year. Because Indonesia's manufacturing sector is growing so quickly, the study's main focus is on the metal industry and other industries listed on the IDX. The economy is also significantly influenced by the metal industry, for example, and the nation has a considerable tax base. Indonesia's development has benefited from the metal sector, for example (Hutapea et al., 2017).

Before Purwitasari, et al. (2013), a number of academics looked into how capital structure affected profitability. In this instance, the researcher collected data from manufacturing firms, particularly those in the metal sector, that were listed on the IDX in 2018, 2019, and 2020. The purpose of this study is to examine capital structure's impact on profitability once more. This was carried out because Marusya et al. (2016) and Nurcahayani et al. (2014)'s and other researchers' (2016) research did not agree with the findings of various other studies looking at the impact of capital structure on profitability.

2. Literature Review

Capital Structure

According to Arifin (2018), a company's capital structure is the source of funds that have been invested there for a considerable amount of time more than a year. According to Sugeng (2017), capital structure refers to relatively big quantities of capital that have long-term binding power and are more strategically important to the organization. Fahmi (2015) explains the structure of financial ratios for an entity, specifically the comparison of personal capital derived from long-term debt with own capital as the entity's source of financing. The comparison between personal capital obtained via long-term debt and personal capital
obtained as a source of financing for the corporation constitutes the capital structure, which is a declaration in the form of a company's financial proportions. On the basis of the aforementioned viewpoints, it can be said that the capital structure is a mix of debt and equity in the business's long-term financial structure that is funded by the entity.

**Profitability**

According to M. Hanafi et al. (2012), profitability is a ratio used to assess a company's capacity for profit at specific levels of sales, assets, and equity. Profitability is the capacity of a corporation to realize profits from the core business operations, according to a number of insights from previous experts. Kasmir's (2014) goals for profitability are as follows: 1) Determining or measuring an entity's earnings during a specific period; 2) To assess the entity's profits in prior periods, use the current year; 3) Periodically assess profit generation; 4) Personal capital's net profit after tax assessment; 5) To assess the effectiveness of all entity funds utilized for personal and loan capital; 6) All company money are used with personal funds in order to gauge productivity.

Capital structure is a combination of liabilities and capital in a long-term financial structure financed by an entity. Capital structure is measured by three ratios, namely DER, DAR, and CR. Capital structure can affect an entity's profitability as measured by ROE.

### 3. Methodology

Quantitative data are the type of data used in this study. Suwarweni (2018) defines quantitative research as an investigation that yields conclusions that can be reached via the use of statistical techniques or other quantitative methodologies (measures). Secondary data sources were utilised in this study's data collection. According to Wardiyana Sugiarto (2017), secondary data is information that has been gathered from sources other than the original source. The yearly financial reports (yearly Report) of 11 firms listed on the IDX serve as the research's data source.

The methods utilized to collect the data are methodical and governed by established rules (Nasir, 2014). The author's strategies for gathering data in this study are as follows: 1) Records of past events, such as written or visual works, photographs, or other monumental creations (Sugiyono, 2015: 82). The 2018–2020 research data was collected in the following ways: 1) Annual financial reports for businesses involved in the metal sector, etc., which were listed on the IDX; 2) Literary research, theoretical research, and references pertaining to values, culture, and norms formed in the social setting under study. Data are gathered by completing more library research, such as reading books, journals, papers, prior researchers, etc., that are connected to the study issues (Sugiyono, 2018).

Sugiyono (2018) describes quantitative data analysis as a process used following data collection from the entire population or sample of respondents. SPSS version 26 was the program utilized to analyze the data for this study. The following method was employed in this study to evaluate the data and test the hypothesis:

1. Without attempting to generalize or make conclusions that apply to the entire population, descriptive statistics are used to examine data by explaining or illustrating what has been gathered (Sugiyono, 2018).
2. Multi-Regression Analysis

The research's analytical approach is multiple linear regression analysis. Multiple linear regression analysis is a type of regression when there is one dependent variable and
two or more independent variables, according to Sugiyono (2018). The equation for multiple linear regression can be written as follows:

$$Y = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + \epsilon$$

**Information:**
- $Y$: Return on Equity (ROE)
- $\alpha$: konstanta
- $b_1$-$b_3$: parameter
- $X_1$: Debt to Equity Ratio (DER)
- $X_2$: Debt to Assets Ratio (DAR)
- $X_3$: Current Ratio (CR)
- $\epsilon$: error factor (error random)

3. Classic assumption test

The data in this study was analyzed using an analytical tool known as classical hypothesis testing. According to Ghozali (2017:33), regression estimates using ordinary least squares (OLS) will be BLUE if the classical assumptions are met, which means that decisions that pass the F test and T test cannot be biased.

**Normality test**

Ghozali (2016) normality test is carried out to test how the independent variable and dependent variable or both in a regression model are normally or not normally distributed. The normality test in this study used the Kolmogorov-Smirnov test. If the value is $> 0.05$ then the data distribution is declared to meet the assumption of normality, and if the value is $< 0.05$ then it is declared as abnormal data.

**Multicollinearity Test**

Ghozali (2016), the multicollinearity test is designed to find out how a regression model finds correlations between independent variables or independent variables. The impact of this multicollinearity creates high variability in the sample. Multicollinearity test uses VIF (variance inflation factor) and the Tolerance method. Determine whether there is multicollinearity by looking at the VIF $< 10$ and Tolerance $> 0.1$.

**Heteroscedasticity Test**

The heteroscedasticity test is used to detect whether the residuals between several observations have unequal variances. According to Ghozali (2018), a good regression model is one that does not experience heteroscedasticity. Several ways to detect heteroscedasticity. One method that can be used is the Glejser test. According to Gujarati in Ghozali 31 (2018), Glejser analyzes the absolute value of the residual on the regression independent variable. When the probability of significance is above 5%, it can be seen that the regression model does not experience heteroscedasticity.

4. Results and Discussion

4.1 Results

IDX connection was used to collect the data for this study. The information used in this study was gathered by carefully examining the elements of the annual financial reports of manufacturing companies in the metal and related industries that were listed on the IDX for the years 2018 through 2020. Ratio values for the capital structure and profitability variables
utilized in this study are calculated using annual financial reports. According to the research, there were 11 metal production companies listed on the IDX for the financial reporting year of 2018–2020; therefore, the n value or data volume was 33 data.

**Descriptive Analysis of Variables**

1. **Descriptive Analysis of Debt to Equity Ratio (DER) Variables**

   Data on total debt and total equity from the 11 companies sampled in this research. The table shows the highest total debt in 2018, 2019 and 2020, namely to ISSP companies with total debt of IDR 3,578,654,000,000, IDR 3,325,841,000,000 and IDR 2,741,264,000,000 respectively. Meanwhile, the lowest total debt in 2018, 2019 and 2020 was for the LMSH company with total debt of IDR 27,335,071,863, IDR 33,455,177,566 and IDR 35,134,745,290 respectively.

2. **Descriptive Analysis of Debt to Asset Ratio (DAR) Variables**

   Total assets of 11 different companies. The company with the highest total assets in 2018, 2019 and 2020 is the ISSP company with total assets in each year, namely IDR 6,494,070,000,000, IDR 6,424,507,000,000 and IDR 6,076,604,000,000. Meanwhile, the lowest total assets were in the LMSH company with total assets in each year 2018, 2019 and 2020, namely IDR 160,027,280,153, IDR 147,090,641,453 and IDR 143,486,189,959.

3. **Descriptive Analysis of Current Ratio (CR) Variables**

   Value of 11 firms' current assets and liabilities. ISSP firms had the largest total current assets in 2018, 2019, and 2020, with total current assets of IDR 3,640,720,000,000, IDR 3,547,289,000,000, and IDR 3,113,612,000,000,000, respectively. The JKSW company had the lowest total current assets in 2018, 2019, and 2020, with total current assets of IDR 85,911,795,056 in 2018, IDR 59,479,015,501 in 2019, and IDR 73,992,264,159 in 2020. The ISSP firms had the greatest total current debt in 2018, 2019, and 2020, with total current debt totaling 2,579,383, 2,542,901, and 2,162,323 billion IDR, respectively. Additionally, the LMSH corporation had the lowest total current debt in 2018 and 2019 with IDR 17,303,304,995 and IDR 21,455,055,711. The JKSW corporation had the lowest total amount of current debt in 2020, with a total of IDR 20,237,355,497.

4. **Descriptive Analysis of Return on Equity (ROE) Variables**

   Profitability is a ratio to measure an entity's ability to generate profits on a certain amount of sales, assets and share capital (M. Hanafi, et al, 2012). The profitability ratio used is ROE, which is a ratio that describes the level of capital contribution when creating net profits. The largest net profits in 2018, 2019 and 2020 were for ISSP companies with total net profits of IDR 48,741,000,000, IDR 185,694,000,000 and 175,835,000,000 respectively. The lowest net profit in 2018 was for the LMSH company with a total profit of IDR 2,886,727,390, while for 2019 the LION company had a net profit of IDR 962,463,199. In 2020, the lowest net profit was for the INAI company with a profit of IDR 3,991,581,552.

**Descriptive Analysis and Multiple Linear Regression**

1. **Descriptive Analysis**

   Descriptive statistics is analysis used to explain sample characteristics where the main coverage is the lowest, highest, average (mean) and standard deviation values. The results of descriptive analysis of the variable data used in the research are:
Table 1. Results of Descriptive Analysis of Capital Structure (DER, DAR, and CR) and Profitability (ROE)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DER</td>
<td>33</td>
<td>-712.38</td>
<td>10.78</td>
<td>-19.7439</td>
<td>124.38474</td>
</tr>
<tr>
<td>DAR</td>
<td>33</td>
<td>.16</td>
<td>4.00</td>
<td>0.8742</td>
<td>.96825</td>
</tr>
<tr>
<td>CR</td>
<td>33</td>
<td>.60</td>
<td>6.16</td>
<td>2.1642</td>
<td>1.76131</td>
</tr>
<tr>
<td>ROE</td>
<td>33</td>
<td>-1.26</td>
<td>136.02</td>
<td>4.1421</td>
<td>23.67637</td>
</tr>
</tbody>
</table>

From the table above, the following data is obtained: 1) The debt to capital ratio (DER) with a sample of 33 has the lowest value, namely -712.38 with the highest value of 10.78 and a mean value of -19.7439. Meanwhile, the standard deviation value obtained was 124.38474, 2) Debt to Asset Ratio (DAR) with a sample of 33 has the lowest value, namely 0.16, with the highest value being 4.00 and the mean value being 0.8742. Apart from that, the standard deviation value was 0.96825, 3) Current Ratio (CR) with a sample of 33 has the lowest value, namely 0.60, with a maximum value of 6.16 and a mean value of 2.1642. Meanwhile, the standard deviation is 1.76131, 4) ROE with a sample of 33 has the lowest value, namely -1.26 with the highest value of 136.02 and a mean value of 4.1421. Meanwhile, the standard deviation value obtained was 23.67637.

2. Multiple Linear Regression Analysis

Multiple linear regression analysis, according to Sugiyono (2016: 192), is a type of regression involving one dependent variable and two or more independent variables. The equation for a linear multiple regression looks like this:

\[ Y = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + \epsilon \]

The purpose of multiple linear regression analysis is to quantify the influence of the independent variable on the dependent variable. A data processing tool, in this case the SPSS application, is utilized to determine how significant the influence is. The following table is produced from the data processing results:

Table 2. Results of Multiple Linear Regression Analysis of Capital Structure (DER, DAR, and CR) and Profitability (ROE)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.830</td>
<td>.165</td>
<td></td>
<td>5.015</td>
</tr>
<tr>
<td></td>
<td>X1_DER</td>
<td>-.190</td>
<td>.001</td>
<td>-.998</td>
</tr>
<tr>
<td></td>
<td>X2_DAR</td>
<td>-.134</td>
<td>.090</td>
<td>-.005</td>
</tr>
<tr>
<td></td>
<td>X3_CR</td>
<td>-.149</td>
<td>.050</td>
<td>-.011</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Y_ROE

According to table 2 above, the constant value is 0.830, the b1 value is -0.190, the b2 value is -0.134, and the b3 value is -0.149.

\[ Y = 0.830 + (-0.190) \text{DER} + (-0.134) \text{DAR} + (-0.149) \text{CR} + \epsilon \]

Constant (a)

Constant value (a) = 0.830. This means that without the independent variables DER, DAR, and CR, the dependent variable ROE will still have a value of 0.830.
X1 Value (DER)

The X1 value, namely -0.190, has a negative regression coefficient, which shows that if DER decreases, ROE will increase by 19%.

X2 Value (DAR)

The X2 value, namely -0.134, has a negative regression coefficient, which shows that if DAR decreases, ROE will increase by 13.4%.

X3 Value (CR)

The X3 value, namely -0.149, has a negative regression coefficient value, which shows that if CR decreases, ROE will increase by 14.9%.

**Classic Assumption Test Results**

This research used three tests in classic hypothesis testing, namely the normality test, multicollinearity test, and heteroscedasticity test.

1. Normality Test Results

**Table 3.** Capital Structure Normality Test Results (DER, DAR, and CR) Against Profitability (ROE)

<table>
<thead>
<tr>
<th>Unstandardized Residual</th>
<th>Normal Parameters</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Parameters&lt;sup&gt;a&lt;/sup&gt;&lt;sup&gt;,b&lt;/sup&gt;</td>
<td>Mean 0.0000000</td>
<td>Std. Deviation 0.46426661</td>
<td></td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td>Absolute 0.150</td>
<td>Positive 0.150</td>
<td>Negative -0.061</td>
</tr>
<tr>
<td>Test Statistic</td>
<td>.150</td>
<td>Asymp. Sig. (2-tailed) 0.058&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Test distribution is Normal.
<sup>b</sup> Calculated from data.
<sup>c</sup> Lilliefors Significance Correction.

The normality test shows that the Kolmogorov Smirnov Z data is 0.058. The value obtained is greater than the determined significance value, namely 0.05. Then state that the data meets the assumption of normality.

2. Multicollinearity Test Results

**Table 4.** Results of Multicollinearity Test of Capital Structure (DER, DAR, and CR) on Profitability (ROE)

<table>
<thead>
<tr>
<th>Model</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>I</td>
<td>X1_DER .982</td>
</tr>
<tr>
<td></td>
<td>X2_DAR .987</td>
</tr>
<tr>
<td></td>
<td>X3_CR .969</td>
</tr>
</tbody>
</table>

<sup>a</sup> Dependent Variable: Y_ROE

The results of the multicollinearity test for each variable obtained a tolerance value of 0.982, VIF 1.019 DER, tolerance value 0.987, VIF 1.014 (DAR), tolerance value 0.969, and
VIF 1.032 (CR). This shows that the tolerance value is > 0.1 and VIF < 10 for each variable, so it can be concluded that there is no multicollinearity problem in this regression model.

3. Heteroscedasticity Test Results

Table 5. Capital Structure Heteroscedasticity Test Results (DER, DAR, and CR) on Profitability (ROE)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant) .924 .321</td>
<td></td>
<td>2.882</td>
<td>.010</td>
</tr>
<tr>
<td></td>
<td>X1_DER .001 .001 .276</td>
<td>1.240 .230</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2_DAR .043 .228 .043</td>
<td>.190 .851</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X3_CR -.046 .096 -.110</td>
<td>-.480 .637</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: ABS_RES

Obtaining heteroscedasticity test results on the independent variables DER, DAR, and CR on ROE. As you can see from the Glejser table above, the probability value of 0.05 is smaller than the significant value for DER of 0.230. This also happens to the DAR and CR variables, which respectively have magnitudes of 0.851 and 0.637.

4.2 Discussion

The relationship between profitability as measured by Return on Equity (ROE) and capital structure as measured by the Debt to Equity Ratio (DER)

Since the assumptions were confirmed by the regression analysis's findings, it can be stated that the capital structure as evaluated by DER had a considerable detrimental effect on profitability as measured by ROE. This is predicated on the regression coefficient's direction being negative and the significance value being 0.000, which is 0.05 or less. This demonstrates that an entity's profitability (ROE) decreases with increasing DER, which is determined by the total amount of debt. The costs a business must bear to fulfill its obligations go up the higher the DER percentage, which indicates that the entity has more liabilities than equity. This can have an effect on reductions. profitability of the entity. This study supports the findings of Nurcahayani and Daljono (2014), who came to the conclusion that DER substantially harms ROE. This study also agrees with Sari's (2018) findings, which found that DER had a significant negative influence on ROE.

The relationship between profitability as measured by Return on Equity (ROE) and capital structure as measured by the Debt to Asset Ratio (DAR)

Since the assumptions are supported by the regression analysis's findings, it can be said that the capital structure as evaluated by DAR does not significantly harm profitability as measured by return on equity. Based on the significance value, which was 0.146 and had a negative value of less than or equal to 0.05, this statement is made. The average debt to assets ratio (DAR) in this study was 0.8742, or 87.42%, which indicates that the company's debt is less safe compared to its average capital ratio of 10% of assets. due to the fact that the company's total assets are more than 80% in debt. In keeping with Sholihah's (2018) study, which came to the conclusion that DAR had no detrimental effects on ROE. Furthermore, Salim's (2015) study, which came to the same conclusion that DAR does not negatively affect ROE, is also in agreement with this research.
The relationship between profitability as assessed by Return on Equity (ROE) and capital structure as measured by the current ratio (CR)

The hypothesis is accepted when the regression analysis's findings are considered, which suggests that the capital structure as measured by CR has a considerable negative impact on profitability as assessed by ROE. This is based on the fact that the regression coefficient has a negative sign and the significance value was 0.006 from 0.05 or less. This indicates that the firm is believed to be able to pay off all of its current debts to creditors the higher the CR. A high CR number, however, also indicates that there are extra liquid assets that are not being utilized well, which can lead to lower levels of profit or profitability and a lower return on equity (ROE). This study supports that of Hantono (2015), who found that CR had a significant detrimental effect on ROE. Additionally, this research supports that of Sholihah and Rohmawan P (2019), who also came to the same conclusion that CR significantly lowers ROE.

The impact of capital structure as determined by the ratios of debt to equity, debt to assets, and current ratio (CR) On profitability, as determined by Return on Equity (ROE)

Determined to be the significant value based on the outcomes of the 0.000 or less than 0.05 tests that were run. From this, it can be inferred that the dependent variable ratio (ROE) is significantly and positively impacted by each independent variable ratio (DER, DAR, and CR) at the same time. This demonstrates how the company's income or profits are impacted by excessive entity obligations. This indicates that the dependent variable, ROE, will be impacted if the independent variables, as measured by DER, DAR, and CR, are evaluated concurrently or concurrently. The findings of this study concur with those of Sari (2018), who found that DER, DAR, and CR when combined significantly affect ROE. This is also consistent with Sholihah's (2018) research findings, which came to the same conclusion that DER, DAR, and CR collectively have a large impact on ROE. The hypothesis was determined to be accepted based on the regression analysis's findings.

5. Conclusion

From the research and discussion above, the conclusions obtained are: 1) Capital structure as measured by DER, with a value of 0.000 and less than or equal to 0.05, has a significant negative influence on profitability as measured by ROE, 2) Capital structure which measured by DAR with a value of 0.146 0.05 has no negative impact on profitability as measured by ROE, 3) Capital structure as measured by CR 0.05 or less, has a significant negative impact on profitability as measured by ROE, 4) Capital structure which is measured by DER, DAR and CR also have a significant impact on profitability as measured by ROE.

References


