Analyzing the Interconnected Influence of Profitability and Capital Structure on Firm Value: A Case Study of State-Owned Companies in the Construction Sector TBK From 2016-2020

Author:
Salsabilla Muslifah Adinda Supyan¹, Arif Kuswanto²

Affiliation:
Telkom University, Jl. Telekomunikasi No. 1, Terusan Buahbatu - Bojongsoang, Sukapura, Dayeuhkolot, Bandung Regency, West Java 40257, Indonesia¹ ²

e-Mail:
salsabillamuslifah@student.telkomuniversity.ac.id¹, arifkuswanto@telkomuniversity.ac.id²

*Corresponding author

State-owned companies operating in the construction sector are known to incur substantial and accumulating debt. This is attributed to the use of the capital structure through debt loans or external funding, often from foreign parties with multi-year payment terms. Therefore, this study aimed to identify and comprehensively analyze the reciprocal relationship between profitability and the capital structure, examining its impact on firm value. The array is specifically focused on State-Owned Companies in the Construction Sector over the period from 2016 to 2020. A quantitative approach was adopted in the selected methodology, with financial data extracted from 40 reports. The data analysis used various methods, including the Granger Causality, t-test, and Determination Test. The results showed a significant impact of profitability on the capital structure, and vice versa while showing a substantial influence on firm value. Additionally, the

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capital structure significantly impacted firm value in State-Owned Companies in the Construction Sector from 2016 to 2020.

**Keywords:** Profitability, Capital Structure, Firm Value.

**Abstrak**


**Kata kunci:** Profitabilitas; Struktur Modal; Nilai Perusahaan

**INTRODUCTION**

The long-term vision of every company's financial management is to maximize shareholder value, and fierce competition does not change the objective. The goal of maximizing shareholder wealth is to raise the company's share price, which increases the value of the business. A substantial firm value makes it simpler for business actors to communicate with creditors, as suppliers will assert that the entity can repay debts when the institution's assets are significant. However, poor business value leads to low creditor ratings and reduced willingness to lend. According to (Yanda, 2018), the evaluation of a firm's worth is determined by the price of the shares issued, with high stock prices leading to an increase in the firm value and vice versa. Firm worth holds immense importance, with higher value directly corresponding to increased owners' wealth.

The economy did not fully recover due to the COVID-19 epidemic, resulting in disruptions to the financial performance of several state-owned companies. Persero Tbk, Adhi Tbk, and Wijayakarta (Persero) Tbk are all examples of state-owned companies. Construction holds significant investments and is predominantly controlled by the four state-owned companies. Kartika Wirjoatmodjo, deputy minister of SOEs, explains that the challenges faced by BUMN Karya are
attributed to the COVID-19 epidemic and a deficiency in the state capital for national projects. State-owned construction companies are selected as study subjects due to the indications of enormous and increasing debts in the construction industry. Additionally, Indonesia's building sector holds immense significance as one of the country's essential pillars of national growth under President Joko Widodo. The infrastructure of a country directly impacts the surrounding housing, subsequently affecting the property market. An expected increase in activity within the property sector is anticipated to have a cascading effect on other industries, leading to a total rise in the economy.

The Price Book Value (PBV) is used to measure the worth of state-owned construction companies, with the wealth of a firm’s shareholders growing directly in proportion to its market value. Despite Perum Perumnas experiencing a decrease in quality and fundamental performance, this signals a solid long-term investment opportunity, even with the lowest PBV value in 2017. According to Yanda (2018:5), the profit margins of the firm influence the value of the stock since higher earnings boost business profitability, encouraging investors to purchase shares and significantly influencing the company's entire worth. Every company's return on equity (ROE) changed between 2016 and 2020 when evaluating ROE of SOEs in the construction sector. In 2020, Perumnas, Hutama, and Waskita all recorded negative ROE values, showing a loss in profit and a diminishing rate of return for shareholders, suggestive of insufficiently high-profit margins for these companies.

The value of the company can be influenced by its capital structure, and a decrease in firm value can be observed when the optimal target is exceeded as debt increases. Consequently, debt is a crucial component of the company's capital structure. The capital structure of BUMN Construction Sector companies is evaluated using the WACC formula, \( W_{drd} (1-T) + W_{crs} \). The WACC value fluctuated from 2011 to 2020, with the largest WACC recorded in the Nindya company in 2016, showing a 17.63% commission for every Rp. 1 investment. In comparison, Waskita in 2020 had the smallest WACC, suggesting a cost of 16.64% for every Rp. 1 investment or a decrease.

Several previous studies, including research by Rahayu, Suhandak, and Saifi (2019), have explored the capital structure. The results show that increasing profitability significantly impacts the company's capital structure, serving as a main determinant. Examining the IDX capital structure of manufacturing businesses shows a decrease in debt as profitability metrics including return on investment, equity, and net profit have increased. Nguyen, Tan, & Nguyen (2021) assert that the capital structure exhibits an inverse relationship with the business value, contrary to the anticipated positive correlation. Simultaneously, company size exerts a favourable and substantial impact on its value. The regression model shows factors such as profitability, firm sales,
and liquidity lack as statistically significant, showing that these elements do not affect the value of the company.

According to Purbawangsa, Solimun, Fernandes, & Rahayu (2019), there is a positive influence on social responsibility disclosure in Indonesia from both State-Owned Companies and profitability. Furthermore, the disclosure of business social responsibility and company profitability shows a significant and positive impact on the value of the company.

Hung, Cuong, & Ha (2018) assert that, in a model adopting ROE as a control variable, firm value is influenced by two factors, namely company size and the capital structure. Company size is associated with profitability, while the capital structure exhibits a negative relationship with its financial performance.

Hirdinis (2019) presents results showing that firm value is impacted by its capital structure, alternately the company size has a substantial negative effect. Company size significantly influences profitability, while performance has only a marginal impact on firm value. Despite the potential for an increase in profit, it cannot be used to reduce the capital structure and size of the company.

In the analysis conducted by Lisda & Kusmayanti (2021), the results show that both the Capital Structure and Profitability simultaneously influence Firm Value. Kusniawati & Sugiharti (2018) also show that collectively, the variables play a role in influencing firm value. Partial evidence suggests that profitability has an impact on firm value, while the capital structure has no effect at all.

The results of Sunaryo (2020) show that the capital structure and profitability jointly have a significant effect on firm value. Setiyarini & Azhari (2019) further show that the capital structure, measured by DER and DAR simultaneously, does not have any significant influence on PBV. On a partial basis, DER and DAR do not show a significant influence on PBV.

Simangunsong (2016) concludes that the capital structure and profitability have a positive and significant effect on firm value. The t-test results show that the capital structure has no significant effect on firm value, while profitability significantly influences the value of the entity. Agustina (2020) states that profitability negatively and significantly influences the capital structure, while growth potential exhibits a positive and statistically substantial impact.

Idrus (2019) asserts the following, (1) Debt equity ratio (DER) has a partial and significant effect on PBV, (2) ROE also has a substantial impact on PBV, and (3) The combined influence of DER and ROE significantly influences PBV in Food and Beverage Sub-Sector companies on the Indonesia Stock Exchange for the 2013-2017 period.

Sofarde (2018) shows a positive relationship between profitability and the organization’s capital structure, indicating that an increase in ROE leads to a decrease in DER. This insightful relationship underscores the dynamic interplay between profitability and the financial structure of the organization.

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providing valuable insights for understanding the intricacies of financial management.

Lubis (2018) states that profitability, liquidity, and company size simultaneously influence the capital structure. The results also show that profitability does not have a partial impact on the capital structure, while liquidity variables and company size affect the capital structure. This study differs from previous study by using WACC to measure the cost of each component of the company's capital structure based on a comparison of equity, debt, and preferred stock.

The study on the reciprocal relationship between profitability, the capital structure, and its impact on firm value in state-owned companies in the construction sector during 2016-2020 is considered significant and interesting. An in-depth analysis of this issue demands careful consideration of various aspects. A company's profitability is crucial for determining its financial health, influencing investment attractiveness and firm value. Therefore, this study aimed to show the extent to which profitability influences firm value in the context of the construction sector.

The capital structure also plays a crucial role in this relationship, affecting both profitability and firm value. Analyzing the capital structure will provide insights into how company financing policies influence the relationship between profitability and firm value. In the context of BUMN, the role of government and national development goals needs consideration. Government policies, such as subsidies or regulations in the construction sector, can significantly impact a company's profitability and the capital structure. Therefore, a comprehensive analysis necessitates the inclusion of these essential factors. The selected period (2016-2020) is significant for reflecting changes in the economy and regulations over recent years. This study holds the potential to offer valuable insights into how these factors interact in the context of state-owned construction sector companies in Indonesia. Given the provided insights, there is an expressed interest in conducting study and presenting it in the form of a scientific article.

METHODS

Quantitative methods with a descriptive approach were adopted in this study (Sugiyono, 2014). The population and sample consisted of the 5-year financial statements of state-owned construction companies, including Perum Perumnas, PT Adhi Karya (Persero) Tbk, PT Brantas Abipraya (Persero), PT Hutama Karya (Persero), PT Nindya Karya (Persero), PT Pembangunan Perumahan (Persero) Tbk, PT Waskita Karya (Persero) Tbk, PT Wijaya Karya (Persero) Tbk from 2016 to 2020, totalling 40 financial report data. The variables considered in this study were profitability, the capital structure, and firm value. The data analysis method applied included the Granger Causality Test, t-test, and Determination Examination.

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RESULTS AND DISCUSSION

Before conducting a hypothesis test, the classical assumption examination was performed. The tests applied included the Normality, Multicollinearity, Heteroscedasticity, and Autocorrelation Tests (Ghozali, 2016)

A. Classic Assumption Test
a) Normality Test
The results of the normality test on the 40 data points show that the probability value was greater than 0.05, signifying the sampled information in this study follows a normal distribution. This observation is shown in Figure 1.

Figure 1. Normality Test Results

b) Autocorrelation Test
The results of the autocorrelation test showed that the Durbin-Watson or DW value was 0.288484. Therefore, there was no autocorrelation as the DW value fell within the range of -2 to +2. This was evident in the test results, as shown below.

Table 1. Autocorrelation Test Results

Table 2. Multicollinearity Test Results

Source: The results of the analysis

c) Multicollinearity Test
The research data did not exhibit multicollinearity. This was evident from the VIF value in each independent variable, all of which were less than 10, as detailed below.

Table 3. Heteroscedasticity Test Results

Source: The results of the analysis

d) Heteroscedasticity Test
The test showed that the Obs*R-squared value of 0.2599 exceeded 0.05. Therefore, it was concluded that in this regression model, there was no heteroscedasticity problem. This observation is presented in the following table.

Table 4. Heteroscedasticity Test Results

Source: The results of the analysis

B. Granger Causality Test
Several estimation methods were adopted before reaching the Granger causality test stage.
a) Unit Root Test
This test aimed to ascertain how the average variance of the data remained constant and when the covariance between two or more periods depended solely on the lag. The results of the unit root test are presented below.
Table 4. Profitability Unit Root Test Results

<table>
<thead>
<tr>
<th>Null Hypothesis: PROFITABILITY has a unit root</th>
<th>Exogenous: Constant</th>
<th>Lag Length: 0 (Automatic-based on SIC, maxlag=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistics</td>
<td>t-Statistics</td>
<td>Prob.**</td>
</tr>
<tr>
<td>Test critical values: 1% level</td>
<td>-4.236704</td>
<td>0.0019</td>
</tr>
<tr>
<td>5% level</td>
<td>-3.610453</td>
<td></td>
</tr>
<tr>
<td>10% levels</td>
<td>-2.938987</td>
<td></td>
</tr>
<tr>
<td>*Mackinnon (1996) one-sided p-value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: The results of the analysis

From the results in Table 4, it was observed that since prob = 0.0019 < 0.05, the data did not contain unit roots or statistical significance.

Table 5. Capital Structure Unit Root Test Results

<table>
<thead>
<tr>
<th>Null Hypothesis: STRUCTURAL_CAPITAL has a unit root</th>
<th>Exogenous: Constant</th>
<th>Lag Length: 0 (Automatic-based on SIC, maxlag=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistics</td>
<td>t-Statistics</td>
<td>Prob.**</td>
</tr>
<tr>
<td>Test critical values: 1% level</td>
<td>-3.610453</td>
<td>0.0012</td>
</tr>
<tr>
<td>5% level</td>
<td>-2.938987</td>
<td></td>
</tr>
<tr>
<td>10% levels</td>
<td>-2.607932</td>
<td></td>
</tr>
<tr>
<td>*Mackinnon (1996) one-sided p-value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: The results of the analysis

According to the results presented in Table 5, as prob = 0.0012 < 0.05, it can be concluded that the data does not contain unit roots or statistical significance.

b) Determination of Lag Length

The determination of lacquer length aims to determine the length of the period of influence of a variable on other endogenous variables. Here are the results from EViews 12.

Table 6. Result Length Lag=1

<table>
<thead>
<tr>
<th>CAPITAL_STRUCTURE PROFITABILITY</th>
<th>PROFITABILITY (-1)</th>
<th>CAPITAL_STRUCTURE (-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFITABILITY (-1)</td>
<td>0.089667</td>
<td>(0.37926)</td>
</tr>
<tr>
<td></td>
<td>-12.53628</td>
<td>(13.0083)</td>
</tr>
<tr>
<td>CAPITAL_STRUCTURE (-1)</td>
<td>0.23643</td>
<td>(0.008271)</td>
</tr>
<tr>
<td></td>
<td>(-0.96371)</td>
<td>0.650046</td>
</tr>
<tr>
<td></td>
<td>(0.01115)</td>
<td>(0.38237)</td>
</tr>
</tbody>
</table>

Based on the table above, it was observed that the maximum lacquer was Lag 1, as showed by the asterisk in each table. A stability check of the VAR model was also carried out due to it meeting the lag length criteria, and the following outcomes were obtained.

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The stability of the VAR has been met based on the developed VAR model. The Granger causality test was conducted after meeting several prerequisites, and the following outcomes were obtained.

C. T-test

The t-test was used to ascertain the partial effect of the variable. Based on EView 12, the following results were obtained.

Table 10. T-test Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFITABILITY</td>
<td>0.213699</td>
<td>0.057145</td>
<td>3.874791</td>
<td>0.0054</td>
</tr>
<tr>
<td>CAPITAL_STRUCTURE</td>
<td>0.333766</td>
<td>0.071148</td>
<td>4.957315</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

R-squared 0.293170 Mean dependent var 1.018002
Adjusted R-squared 0.274569 SD dependent var 2.144119
SE of regression 1.826194 Akaike info criterion 4.091052
Sum squared resid 126.7294 Schwarz criterion 4.375496
Log-likelihood -79.82104 Hannan-Quinn Criterion 4.121584
Durbin-Watson stat 0.286484

Based on the results above, it was determined that,

1. Profitability had a substantial effect on firm value, proven by the t-test value of 3.874791 exceeding the t-table 2.024, with a significance figure of 0.0054 less than 0.05. This resulted in the rejection of Ho and the acceptance of Ha, confirming the proposed hypothesis that profitability substantially impacts firm value.

2. The capital structure had a significant effect on firm value, evidenced by the t-test value of 4.957315 exceeding t-table 2.024, with a probability figure of 0.0000 less than 0.05. This led to the rejection of Ho and the acceptance of Ha, confirming the proposed hypothesis that capital structure significantly influences firm value.

Table 8. Var Models

<table>
<thead>
<tr>
<th>Root</th>
<th>Modulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.369857 - 0.158690i</td>
<td>0.402463</td>
</tr>
<tr>
<td>0.369857 + 0.158690i</td>
<td>0.402463</td>
</tr>
</tbody>
</table>

No root lies outside the unit circle
VAR satisfies the stability condition

Source: The results of the analysis

Table 9. Granger Causality Test Results

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Obs</th>
<th>F-Statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUKTUR_CAPITAL Does Granger Cause PROFITABILITY</td>
<td>39</td>
<td>4.35765</td>
<td>0.0293</td>
</tr>
<tr>
<td>PROFITABILITY Does Granger Cause STRUKTUR_CAPITAL</td>
<td>4.96937</td>
<td>0.0138</td>
<td></td>
</tr>
</tbody>
</table>

Source: The results of the analysis

Based on these results, it was ascertained that,

1. Profitability had a significant effect on the capital structure, as showed by the F-Statistic value or t-test 4.35765 greater than t-table 2.024, with a probability value of 0.0293 <0.05. This resulted in the rejection of Ho and the acceptance of Ha, confirming the proposed hypothesis that profitability has a significant effect on the capital structure.

2. The capital structure had a substantial influence on profitability, as proven by the F-Statistic value or t-test 4.96937 greater than t-table 2.024, with a significance level of 0.0138 lesser than 0.05. This led to the rejection of Ho and the acceptance of Ha, confirming the proposed hypothesis that the capital structure has a significant effect on profitability.

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DISCUSSION

This study presents compelling evidence to support the hypothesis indicating a positive correlation between profitability and the capital structure, as well as firm value. These results correlate with prior publications by Purbawangsa, Solimun, Fernandes, & Rahayu (2019), Hirdinis (2019), Lisda & Kusmayanti (2021), Kusniawati & Sugiharti (2018), Sunaryo (2020), Simangunsong (2016), Idrus (2019), Sofarde (2018), while inconsistent with other studies conducted by Rahayu, Suhandak, & Saifi (2019), Lubis (2018), Agustina (2020), Nguyen, Tan, & Nguyen (2021), Hung, Cuong, & Ha (2018), Setiyarini & Azhari (2019).

State-owned companies in the construction sector exhibit indications of substantial and accumulating debts. This evolves from the use of capital structure through debt loans or funding from external or foreign entities, including multi-year payment terms. Brigham & Houston (2017) elucidate that companies initially experience significant profits when obtaining loans due to the absence of interest at the onset. However, the company will pay interest in the subsequent year as the costs would rise when the loan is not paid off, eventually leading to a loss.

D. Determination Test

The coefficient of determination (R2) served as a metric to assess how effectively a model accommodated variations in the dependent variable. Based on the results of the analysis conducted with EViews 12, the following observations were made.

- Profitability influenced the capital structure by 0.133187 or 13.32%, as showed in Table 6.
- The capital structure impacted profitability by 0.120890 or 12.09%, as observed in Table 6.
- Profitability affected firm value amounting to 0.293170 or 29.32%, as shown in Table 10.
- The capital structure influenced firm value by 0.293170 or 29.32%, according to Table 10.

CONCLUSION

The study concluded by showing that: Profitability had a significant effect on the capital structure of State-Owned Companies in the Construction industry Tbk during 2016-2020; The capital structure also exhibited a substantial impact on profitability of State-Owned Companies in the Construction Sector Tbk in the same period; Profitability significantly influenced the firm value in State-Owned Companies of the Construction industry Tbk during the same period; and The capital structure showed a substantial effect on firm value in State-Owned Companies of the Construction Sector Tbk in 2016-2020.

SUGGESTIONS

For State-owned companies in the Construction Sector Tbk, the strategy to enhance profitability includes efficiently using capital and concurrently boosting sales. This method ensures the company effectively uses capital to generate profits, showing commendable operational efficiency. Additionally, BUMN Construction Sector Tbk companies are advised to maintain a

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capital structure with a cost of capital that is proportionate and falls below the average EBIT value of 8.32%. For SOEs with a current debt value of 78.58%, it is advisable to reduce substantial debts with third parties. The optimal debt level is suggested to be 74.79%, with a maximum acceptable proportion of debt being 91.98%. Future study is encouraged to broaden the scope of independent variables, including factors such as company size and growth, in analyzing the capital structure and profitability. Incorporating different observation time intervals can show additional variables that may influence or modify the dependent variable.

REFERENCES


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