

The Role of Capital Structure in Mediating the Effects of Profitability and Firm Size on Firm Value

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Abstract: This study is designed to examine the extent to which profitability and firm size exert influence on firm value, with capital structure positioned as an intervening variable. The research was conducted on companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange (IDX) over the period of 2021 to 2023. A quantitative approach was employed, utilizing path analysis as the primary analytical technique. Sampling was carried out through purposive sampling, wherein the main criterion was companies that published annual financial reports in rupiah currency during the study period. Empirical findings reveal that profitability exerts a negative effect on capital structure, whereas firm size positively influences it. Meanwhile, profitability has been found to positively affect firm value, while both firm size and capital structure do not demonstrate statistically meaningful effects on firm value. Capital structure successfully proves its mediating role in the relationship between firm size and firm value, yet it fails to do so for the relationship between profitability and firm value. This study is expected to make a meaningful contribution to financial literature, particularly in relation to capital structure decision-making within the food and beverage industry.

Keywords: profitability, firm size, capital structure, firm value, food and beverage industry

A. INTRODUCTION

Corporate value essentially reflects investors' perceptions of a Firm's performance, as reflected in the movement of its stock price (Dhani & Utama, 2017). One of the fundamental objectives of a business entity is to continuously optimize corporate value in order to enhance shareholder wealth. Efforts to maximize this value are crucial because they are directly linked to the Firm's ultimate operational goals. In practice, corporate value can be observed through the stock price circulating in the market (Lubis et al., 2017). A number of internal and external variables contribute to shaping corporate value, including profitability levels, Firm size, and capital structure composition. To understand the extent to which these factors actually play a role, an in-depth empirical study is required.

Profitability essentially reflects how effectively a Firm manages its resources to generate profits (Mufidah & Purnamasari, 2018). This measure of profitability is closely linked to a Firm's ability to generate profits from sales activities, asset utilization, and the management of available capital. When a Firm's profitability shows a consistently rising trend, this attracts the interest of potential investors and encourages their confidence to allocate their funds to that Firm, as every investor fundamentally seeks optimal returns on their investment (Yulianti et al., 2022).

Several previous studies have shown that profitability has a significant partial effect on firm value (Yulianti et al., 2022; Dewantari et al., 2020; Lubis et al., 2017; Saddam et al., 2021). However, there are also findings pointing in the opposite direction, where profitability exhibits a negative and insignificant effect (Thaib & Dewantoro, 2017). Regarding its relationship with capital structure, some studies found a positive effect of profitability (Dana, 2018; Efendi et al., 2021), while others found a negative relationship (Savitri et al., 2021).

Firm size is one of the endogenous factors with significant potential to influence firm value. Based on signaling theory, large-scale companies are assumed to send positive signals to investors, which can ultimately contribute to an increase in firm value. The larger the Firm, the greater its access to various sources of funding to support the achievement of its business targets. Nevertheless, large-scale companies are also vulnerable to high debt accumulation, given that creditors generally perceive the risk of default in such companies to be lower (Vernando & Erawati, 2020).

Previous research findings on the effect of firm size on firm value show inconsistency. Dewantari et al. (2020), Kartika Dewi & Abundanti (2019), and Djashan (2019) concluded that there is a significant positive effect. Conversely, Savitri et al. (2021) and Wardhany Devi Dean Ayu et al. (2019) found that firm size does not have a significant impact on firm value. Regarding the relationship between firm size and capital structure, the findings of Savitri et al. (2021) and Vernando & Erawati (2020) indicate a positive effect, whereas Kusna & Setijani (2018) did not find a significant relationship between the two.

Signaling Theory

Signaling theory describes how actions and conditions taken by Firm management can provide valuable information to shareholders and potential investors regarding the Firm's prospects and quality, which ultimately impacts the assessment of the management's performance (Yulita Setiawanta & Much Azizium Hakim, 2019). These managerial actions are driven by the desire to build a positive public perception of the Firm, making delivering high-quality signals a necessity. In the context of signaling theory, companies with superior quality are able to convey more credible and convincing signals to the market than companies with lower quality, making it easier for investors to differentiate between the two (Putu Riesty Masdianti & Ni Made Sindy Warasniasih, 2020).

Firm Value

Firm value reflects investors' assessments of a Firm, generally represented by stock prices traded in the market. In this study, firm value is measured using the Price to Book Value (PBV) ratio. This ratio reflects how highly the market values the Firm's book value; the higher the PBV, the more expensive the Firm's stock price relative to its book value, indicating stronger market appreciation of firm value (Savitri et al., 2021). In other words, the prevailing stock market price directly reflects the market's perception of the Firm's fundamental value (Lubis et al., 2017).

Capital Structure

Capital structure refers to the composition of a Firm's financing, including permanent short-term liabilities, long-term debt, preferred stock, and common stock. In the business world, decisions regarding capital structure are among the most strategic financial decisions. The condition and development of the capital market have a significant influence on the formation of this capital structure. The stock market provides space for companies to expand access to external funding sources. Management's choice between debt and equity as funding sources is ultimately reflected in the composition of the Firm's capital structure. In Indonesia, as a developing country, there is a tendency to use relatively high levels of debt in corporate financing structures (Jemani & Erawati, 2020).

Profitability

Profitability reflects a business entity's capacity to create economic value in the form of profits from its various activities, whether related to sales, total asset utilization, or equity management (Iman et al., 2021). Putu Riesty Masdianti & Ni Made Sindy Warasniasih (2020) define profitability as a Firm's inherent ability to generate profits from available resources. In many empirical studies, profitability is measured using the Return on Assets (ROA) indicator (Efendi et al., 2021).

Firm size

Firm size is a parameter that describes the magnitude of a Firm, which can be measured through various proxies such as total assets, market capitalization value, natural logarithm of total assets, or other indicators. This variable is considered capable of influencing market assessments of firm value (Dewantari et al., 2020). Referring to signaling theory, companies operating on a large scale tend to transmit more positive signals to investors, potentially driving firm value appreciation. The construct of firm in practice is represented through total assets, sales volume, average income, and other asset measures.

Structure

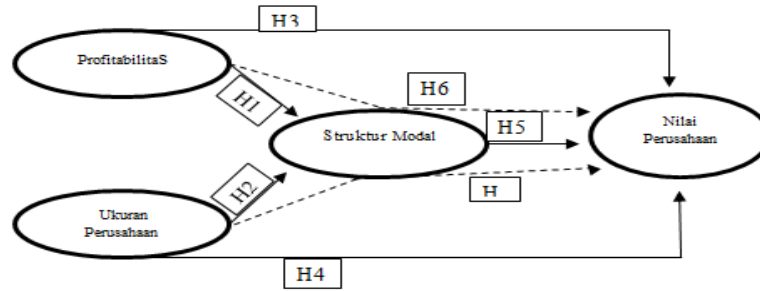


Figure 1. Research Structure

B. METHODS

This study utilizes secondary data sourced from Firm financial reports officially published on the Indonesia Stock Exchange website at www.idx.com (Sugiyono, 1967). The research design is descriptive-quantitative, employing a hypothesis testing approach focused on a specific sample. The data analyzed are annual financial reports from food and beverage manufacturing companies listed on the IDX for the period 2021 to 2023.

The operational definitions of each variable in this study are as follows: (1) Profitability is measured by Return on Assets (ROA), which is the ratio of net profit to the Firm's total assets; (2) Firm size is proxied by the natural logarithm of total assets; (3) Firm value is measured by Price to Book Value (PBV), which is the ratio between the market price per share and the book value per share; and (4) Capital structure is measured by the Debt to Equity Ratio (DER), which is the ratio between total liabilities and total equity.

The population in this study includes all food and beverage sub-sector companies listed on the IDX during the 2021–2023 period, totaling 251 companies. From this population, a sample of 216 observations was obtained. The sample selection was carried out using a purposive sampling technique by applying the following criteria: (a) companies operating in the food and beverage sub-sector and listed on the IDX during the 2021–2023 period; (b) companies that regularly publish financial reports for the same period; and (c) companies that use the rupiah (Rp) currency in preparing their financial reports.

C. RESULT AND DISCUSSION

RESULT

Classical Assumption Test

Normality Test

Data normality testing was performed using the Kolmogorov-Smirnov test. The test results showed a Monte Carlo Sig. (2-tailed) value exceeding the 0.05 tolerance limit (a value of 0.200). Thus, it can be concluded that the data in this study are normally distributed and meet the normality assumption.

Multicollinearity Test

The multicollinearity test aims to detect the presence or absence of a high correlation among the independent variables used. The test results indicate that all independent variables have a Tolerance value exceeding 0.10 and a Variance Inflation Factor (VIF) value below 10.00. Based on these results, it can be concluded that the research model is free from multicollinearity problems.

Heteroscedasticity Test

Heteroscedasticity detection was performed through scatterplot analysis. Figures 2 and 3 show that the data points are randomly distributed, both above and below the zero line, without forming a specific pattern. This condition indicates that there are no symptoms of heteroscedasticity in the regression model used.

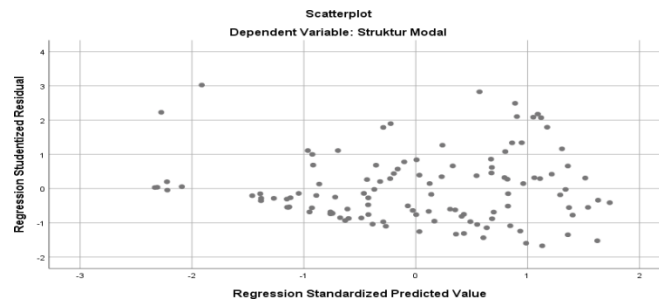


Figure 2. Results of Heteroscedasticity Test for Equation I

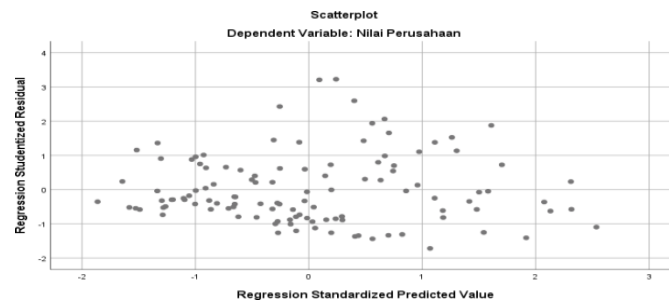


Figure 2. Results of Heteroscedasticity Test for Equation II

Autocorrelation Test

The autocorrelation test yielded a Durbin-Watson (DW) value of 2.006 for equation I. This value is compared with the upper limit (DU) value obtained from the Durbin-Watson table of 1.7323 at a 5% significance level with 216 samples and 2 independent variables. Since $DU < DW < 4-DU$ ($1.7323 < 2.006 < 2.2677$), it is concluded that there is no autocorrelation in the first equation.

For equation II, the Durbin-Watson value obtained is 2.546. Referring to the DU value of 1.7323, the condition $DU < DW < 4-DU$ ($1.7323 < 2.546 < 2.2677$) is met, thus the same conclusion can be drawn: there is no indication of autocorrelation in the second equation.

Multiple Regression Analysis

Based on the multiple regression data processing, the resulting equation model is as follows:

Equation I (Capital Structure as the dependent variable):

$$Z = \alpha + \beta X_1 + \beta_2 X_2 + e$$

$$Z = -1,827 + (-3,771) X_1 + 0,101 X_2$$

Equation II (Firm Value as the dependent variable):

$$Y = \alpha + \beta X_1 + \beta_2 X_2 + Z + e$$

$$Y = -2,220 + 14,011 X_1 + 0,121 X_2 + (-0,331) Z$$

In equation I, the significance value of profitability (X_1) is 0.000 and firm size (X_2) is 0.007, both below 0.05, making them statistically significant. In equation II, the significance value of profitability is 0.000 (significant), while firm size is 0.193 and capital structure is 0.154, both exceeding the 0.05 threshold, making them insignificant.

Partial Statistical Test Results (T-Test)

Profitability (X_1) on Capital Structure (Z)

Partial testing shows that profitability has a t-coefficient of -3.740 with a significance level of 0.000, which is far below 0.050. These results lead to the conclusion that profitability has a negative and significant impact on capital structure. The second hypothesis in this study is accepted.

Firm Size (X_2) on Capital Structure (Z)

Firm size shows a t-coefficient of 2.768 with a significance level of 0.007, less than the critical limit of 0.050. Thus, firm size has a significant positive effect on capital structure. The first hypothesis of this study is accepted.

Profitability (X_1) on Firm Value (Y)

Profitability recorded a coefficient of 5.351 with a significance level of 0.000, which is less than 0.050. This finding confirms that profitability has a positive and significant effect on firm value. The fourth hypothesis of this study is accepted.

Firm Size (X_2) on Firm Value (Y)

Firm size yields a coefficient value of 1.311 with a significance level of 0.193, exceeding the critical threshold of 0.050. This means that, although the direction of the effect is positive, firm size does not have a statistically significant impact on firm value. The third hypothesis of this study is rejected.

Capital Structure (Z) on Firm Value (Y)

Capital structure shows a coefficient value of -0.331 with a significance level of 0.154, exceeding the critical threshold of 0.050. These results indicate that capital structure does not have a significant effect on firm value. The fifth hypothesis of this study is rejected.

Coefficient of Determination (R^2) Test

The R^2 value for path I equation of 0.210 indicates that profitability and firm size together explain 21.0% of the variation in capital structure. The remaining 79.0% is influenced by other variables not included in the model.

For path II equation, the R^2 value of 0.272 indicates that profitability, firm size, and capital structure simultaneously explain 27.2% of the variation in firm value. The remaining 72.8% is contributed by unobserved factors outside the model.

Path Analysis

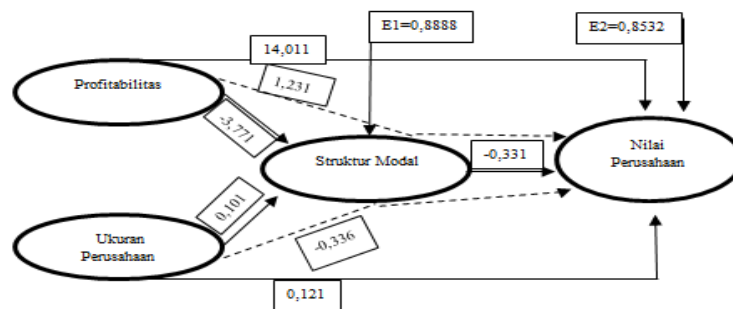


Figure 4. Path Analysis Results

Based on the constructed path model, the details of the direct and indirect influences are as follows: (1) Direct influence: profitability of -3.721 and firm size of 0.101; (2) Indirect influence through capital structure: profitability of $(-3.721) \times (-0.331) = 1.231$ and firm size of $(0.101) \times (-0.331) = -0.0334$.

DISCUSSION

The Effect of Profitability on Capital Structure

From the partial test results, profitability (X_1) shows a β coefficient of -3.721 with a p-value of 0.000, which is statistically smaller than $\alpha = 0.05$, thus H_0 is rejected and H_a is accepted. These results indicate that as a Firm's profitability increases, the Firm tends to reduce the use of debt in its capital structure. This is consistent with the predictions of pecking order theory, where more profitable companies prioritize the use of retained earnings over external financing. This finding aligns with the results reported by Savitri et al. (2021), Kusna & Setijani (2018), and Mufidah & Purnamasari (2018).

The Effect of Firm Size on Capital Structure

Partial test results indicate that Firm size (X_2) has a β coefficient of 0.101 with a p-value of 0.007, which is below $\alpha = 0.05$, so H_0 is rejected and H_a is accepted. This means that companies with larger assets tend to have a higher proportion of debt in their capital structure. This is possible because large-scale companies have easier access and lower costs to obtain external financing. This finding supports research by Savitri et al. (2021) and Vernando & Erawati (2020).

The Effect of Profitability on Firm Value

In testing the firm value variable, profitability (X_1) shows a β coefficient of 14.011 with a p-value of 0.000 ($<\alpha = 0.05$), so H_0 is rejected and H_a is accepted. Thus, the higher a Firm's profitability, the greater the market appreciation of its value. This suggests that a Firm's ability to generate profits is a strong positive signal for investors and directly contributes to increased Firm valuation. These results align with the findings of Yulianti et al. (2022), Dewantari et al. (2020), and Lubis et al. (2017).

The Effect of Firm Size on Firm Value

Firm size has a β value of 0.121 with a p-value of 0.193, which exceeds the $\alpha = 0.05$ threshold. Therefore, H_0 is accepted and H_a is rejected. These results indicate that Firm size does not directly influence market perceptions of firm value in a statistically significant manner. This finding aligns with research by Wardhany Devi Dean Ayu et al. (2019), which also found no significant effect of Firm size on firm value.

The Effect of Capital Structure on Firm Value

The t-test results for the capital structure variable (Z) yielded a coefficient of -0.331 with a significance level of 0.154, exceeding the threshold of 0.050. This condition indicates that the level of leverage, represented by DER, does not significantly impact the market valuation of a Firm. The hypothesis stating that capital structure has a significant positive effect on firm value is rejected. This result is consistent with the findings of Yulianti et al. (2022) and Thaib & Dewantoro (2017), who also found no significant effect of capital structure on firm value.

The Mediating Role of Capital Structure in the Relationship Between Profitability and Firm Value

Path analysis shows that the indirect effect of profitability through capital structure (1.231) is greater than its direct effect (-3.721). However, given that capital structure has been shown to have no significant effect on firm value, the mediating role of capital structure in the profitability-firm value relationship cannot be confirmed. In other words, the mediating path through DER has not been proven effective in transmitting the effect of profitability to firm value.

The Mediating Role of Capital Structure in the Relationship Between Firm Size and Firm Value

According to Figure 4, the indirect effect of firm size through capital structure (-0.033) is smaller than its direct effect (0.101). This condition indicates a direct influence path from firm size to firm value. Capital structure, proxied by the Debt to Equity Ratio (DER), is proven to act as an intervening variable mediating the relationship between firm size and firm value, thus the sixth hypothesis in this study is accepted. This finding is supported by research by Kusna & Setijani (2018) and Jemani & Erawati (2020), which also confirm the

mediating role of capital structure in the relationship between firm size and firm value.

CONCLUSION

Based on a series of empirical tests conducted, this study yields several key conclusions: (1) Profitability has been shown to have a negative and significant impact on capital structure; (2) Firm size has a positive and significant impact on capital structure; (3) Profitability has a positive and significant impact on firm value; (4) Firm size has not been shown to have a significant impact on firm value; (5) Capital structure has no statistically significant impact on firm value; (6) Capital structure mediates the effect of firm size on firm value; however, (7) Capital structure does not mediate the relationship between profitability and firm value.

This study has several limitations that should be acknowledged. The limited data coverage of three years limits the generalizability of the findings to the overall condition of companies. Furthermore, the study focused only on companies in the food and beverage sub-sector listed on the IDX. For future research, it is recommended to expand the scope to other sectors such as energy, non-food manufacturing, or the technology sector, and consider a longer time span to produce more comprehensive and representative findings.

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