Analysis of the Effect of Capital Structure and Profitability on Firm Value in Manufacturing Companies

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ABSTRACT

In recent years, the dynamics of corporate finance have been significantly shaped by global economic volatility, technological advancements, and increasing financial market integration, especially in emerging economies. Manufacturing companies, being capital-intensive, are particularly sensitive to changes in capital structure and profitability, which serve as critical factors influencing firm value. This study investigates how capital structure and profitability affect the valuation of manufacturing firms listed on the Indonesia Stock Exchange. Employing a quantitative research design, panel data regression was applied to a purposive sample of 45 companies over the 2018–2022 period. Both fixed and random effects models were evaluated, with the Hausman test guiding model selection. Findings indicate that profitability has a robust positive impact on firm value, supporting signaling theory by demonstrating that higher profits communicate strong operational performance to investors. Conversely, higher leverage, as measured by capital structure, negatively impacts firm value, reflecting investor concerns over increased financial risk. The results suggest that firms can enhance market valuation by improving profitability, while careful management of debt levels is essential to avoid value erosion. These insights offer actionable recommendations for managers in emerging markets to optimize financial strategies and strengthen investor confidence.

Keywords: *Capital Structure, Firm Value, Manufacturing Companies, Panel Data Regression, Profitability.*

ABSTRAK

Dalam satu dekade terakhir, fluktuasi ekonomi global, kemajuan teknologi, dan integrasi pasar keuangan telah memberikan pengaruh besar terhadap praktik keuangan perusahaan, terutama di negara berkembang. Perusahaan manufaktur, yang bersifat padat modal, sangat dipengaruhi oleh struktur modal dan tingkat profitabilitas, yang merupakan faktor utama dalam menentukan nilai perusahaan. Penelitian ini bertujuan untuk mengevaluasi pengaruh struktur modal dan profitabilitas terhadap nilai perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia.

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Dengan menggunakan pendekatan kuantitatif, analisis regresi data panel diterapkan pada sampel purposif sebanyak 45 perusahaan selama periode 2018–2022. Fixed Effect Model, Random Effect Model dilakukan, dan uji Hausman digunakan untuk menentukan model terbaik. Hasil penelitian mengungkapkan bahwa profitabilitas memberikan dampak positif dan signifikan terhadap nilai perusahaan, mendukung teori sinyal yang menyatakan bahwa laba yang tinggi mencerminkan kinerja perusahaan yang baik di mata investor. Sebaliknya, struktur modal menunjukkan pengaruh negatif, mengindikasikan bahwa utang yang tinggi meningkatkan persepsi risiko finansial. Temuan ini menekankan pentingnya strategi peningkatan profitabilitas untuk memperkuat valuasi pasar, sementara pengelolaan utang yang cermat diperlukan untuk menjaga stabilitas nilai perusahaan, memberikan panduan praktis bagi manajer di perusahaan manufaktur di pasar berkembang.

***Kata kunci**: Struktur Modal, Profitabilitas, Nilai Perusahaan, Perusahaan Manufaktur, Regresi Data Panel.*

INTRODUCTION

In the past decade, the company's financial landscape has undergone significant transformation due to a combination of various external factors, such as global economic volatility, accelerated technological disruption, and international financial market integration (Zhan, 2021; Sudrajat & Setiyawati, 2021). These elements have heightened the intricacy of strategic decisions, particularly in emerging economies like Indonesia. One of the sectors most affected by this dynamic is the manufacturing sector, which structurally has capital-intensive characteristics and a high dependence on financing efficiency. Manufacturing companies are not only required to maintain operational efficiency and productivity, but must also be able to manage capital structure and profitability levels optimally in order to maintain and increase the value of their company in the eyes of investors and other stakeholders (Najafabadi et al., 2018; Wang et al., 2021).

Capital structure and profitability are fundamental components in financial theory, exerting a direct influence on firm value. The capital structure, which illustrates the balance between debt and equity financing, plays a critical role in determining a company's long-term financial stability and associated risks (Reschiwati et al., 2020). The Trade-Off Theory suggests that although moderate use of debt can provide benefits such as tax protection, excessive use of debt can increase the risk of financial difficulties and bankruptcy. Conversely, the Pecking Order Theory suggests that companies tend to choose internal financing, such as retained earnings, before resorting to external financing by issuing debt or equity. Profitability, on the other hand, signals the company's operational efficiency and management performance, serving as a positive indicator for investors and influencing market valuation. Profitability, on the other hand, is an indicator of financial performance that reflects a company's ability to generate profits from the assets and equity it owns (Chen & Chen, 2011). Signaling theory emphasizes that high profitability is a positive signal that shows the quality of management and promising business prospects, so as to be able to increase investors' perception of the company's value (Purba & Africa, 2019; Inrawan & Lie, 2024).

However, studies that look at how these two factors affect a company's value have given mixed results. Some studies have shown that a high capital structure actually lowers a company's value because it increases risk perception, while other studies by Purwanti et al. (2020) find a positive or even insignificant relationship, depending on the type of industry and the period of observation (Graham & Leary, 2011; Hirdinis, 2019).

Similarly, profitability, although studies by Oktaviani et al. (2024) show a positive influence, there are other mediating or moderating variables that can weaken the relationship in certain contexts. This inconsistency is an indication that the relationship between capital structure, profitability, and company value is contextual and needs to be reviewed more specifically and up-to-date, especially in the context of the post-COVID-19 economic recovery that has restructured many aspects of the company's finances and operations (Abdullah & Tursoy, 2021).

This study seeks to understand the effect of capital structure and profitability on company value in manufacturing companies listed on the Indonesia Stock Exchange from 2018 to 2022. The industrial sector was chosen because it plays a vital role in the country's economy and has a complex way of managing its financial structure. This study is expected to broaden existing insights in the corporate finance sector by presenting new evidence and supporting business leaders in making more informed financial decisions. In addition, the findings of this study can also be taken into consideration by regulators in designing policies that promote the stability and development of the manufacturing sector through responsive and sustainable financing policies.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Capital Structure and Company Value

A company's value reflects investors' assessment of its current performance and expected growth, playing an important role in influencing investment decisions. One common indicator for assessing this value is the Price to Book Value (PBV) ratio, which compares a company's market share price to its book value of equity. Higher PBV values typically signal investor optimism regarding the firm's long-term profitability and growth prospects (Co et al., 2021; Olayinka, 2022; Permata et al., 2025). From a theoretical perspective, agency theory and signaling theory offer insights into how managerial decisions, particularly regarding financing and profit management can influence firm value. Signaling theory suggests that companies with strong performance prospects communicate positive signals to the market through indicators such as robust profitability or prudent capital structures, ultimately enhancing the company's market valuation (Natsir & Yusbardini, 2020; Wahyuni & Gani, 2022).

The capital structure is the composition of the company's funding between debt and equity. Optimal capital structure decisions are crucial as they concern the balance between risk and expected returns (Dao & Ta, 2020; Ronic & Amadi, 2021). The Trade-Off Theory argues that companies should balance the tax benefits of using debt with the potential bankruptcy costs, while the Pecking Order Theory states that companies prefer internal funding (retained earnings) and will only use debt when internal sources are insufficient (Utami, 2019). Some empirical research by Ispryahadi and Abdulah (2021) shows that capital structure has a significant effect on a company's value. High levels of debt can increase financial leverage and magnify the risk of bankruptcy, thereby lowering the value of a company in the eyes of investors. However, in some contexts, the capital structure actually has a positive influence on the company's value when used efficiently and accompanied by good risk management (Ibrahim, 2017).

H1: Capital structure has a significant negative effect on company value.

Profitability and Company Value

Profitability represents a firm's ability to generate earnings efficiently from the resources it controls and is commonly used as an indicator of overall financial performance. In empirical research, profitability is frequently measured using Return on Assets (ROA) and Return on Equity (ROE). ROA reflects how effectively a company utilizes its assets to produce profits, while ROE indicates the return generated from shareholders' invested capital (Saputra, 2022). An increase in profitability signals improved operational efficiency and stronger business prospects, suggesting that the company is capable of managing its resources more effectively. Firms with stable and growing profits are generally perceived as having better performance, which enhances investor confidence, particularly among those seeking sustainable returns on investment (Oktaviani et al., 2024).

From a theoretical perspective, profitability is closely linked to firm value through signaling mechanisms. High profitability conveys positive information regarding a company's financial strength and future potential, which reduces information asymmetry between management and investors. In line with signaling theory, firms that report strong

financial performance tend to attract greater investor interest, leading to higher stock prices and, consequently, increased firm value (Handayani & Rahayu, 2019; Pangestuti et al., 2022). Empirical evidence supports this relationship, as studies by Sudiyatno et al. (2021) and Wahyuningsih et al. (2025) demonstrate that both ROA and ROE have a positive and significant effect on firm value, particularly within the manufacturing sector. These findings indicate that profitability not only reflects internal operational success but also functions as a critical signal influencing market perceptions and investment decisions.

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H2: Profitability has a significant positive effect on company value.

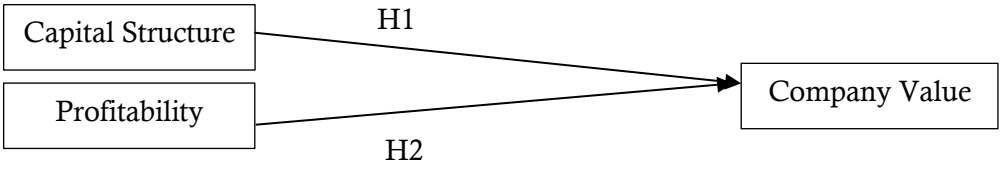

Figure 1. Research Framework

Based on Figure 1, the research framework in this study is designed to examine the relationships between financial structure, profitability, and firm value in manufacturing companies. Specifically, H1 proposes that capital structure, measured by the Debt to Equity Ratio (DER), negatively affects company value, reflecting the idea that higher leverage increases financial risk and may reduce investor confidence. H2 posits that profitability, assessed through Return on Assets (ROA) and Return on Equity (ROE), has a positive effect on firm value, indicating that efficient operations and strong earnings signal favorable prospects to the market.

RESEARCH METHODS

This study adopts a quantitative methodology within a causal-comparative design, aimed at investigating the effects of capital structure and profitability on firm value. The quantitative approach allows for an objective and systematic analysis of the relationships among variables, utilizing inferential statistical techniques to rigorously test the proposed hypotheses (Michener & Sokal, 2017; Goerlandt et al., 2017). The research population includes all manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022. For sampling, a purposive method was applied based on several criteria: (1) firms must have been continuously listed on the IDX during the study period; (2) firms must have published complete annual financial statements; and (3) firms must provide full data for all variables under investigation, namely Debt-to-Equity Ratio (DER), Return on Assets (ROA), Return on Equity (ROE), and Price-to-Book Value (PBV). Applying these criteria resulted in a final sample of 45 manufacturing companies.

Secondary data were obtained from official IDX publications and other reliable financial databases, covering financial statements over five consecutive years. The study examines three main variables. Capital structure is represented by DER, calculated by dividing total debt by total equity. Profitability is measured through ROA, determined as net profit over total assets, and ROE, calculated as net profit over total equity. Firm value, the dependent variable, is proxied by PBV, which compares a firm's market stock price to its book value of equity. These indicators provide a robust quantitative basis for testing the proposed hypotheses. Data analysis was conducted using panel data regression models in statistical software such as EViews. The analytical procedure involved several stages, beginning with descriptive statistics to outline the general characteristics of the data. Subsequently, the most appropriate panel regression model was identified as the Fixed Effect Model (FEM), with the Hausman test used to select the optimal model. After model selection, simultaneous (F-test) and individual (t-test) significance tests were performed to assess the influence of independent variables on firm value. Finally, the

coefficient of determination (R^2) was calculated to determine how much of the variance in firm value could be explained by capital structure and profitability. The regression model used in this study is formulated as follows:

$$PBV_{it} = \alpha + \beta_1 DER_{it} + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \varepsilon_{it}$$

Explanation:

PBV_{it}	: Firm value of company i in year t
DER_{it}	: Debt to Equity Ratio of company i in year t
ROA_{it}	: Return on Assets of company i in year t
ROE_{it}	: Return on Equity of company i in year t
α	: Constant
$\beta 1, \beta 2, \beta 3$	: Regression coefficients
ε_{it}	: Error term.

RESULTS

Descriptive statistics provide an overview of the data characteristics of all variables used in the study. In this study, data was obtained from 45 manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2018–2022 period, resulting in 225 panel data observations. The variables analyzed include capital structure proxied by Debt to Equity Ratio (DER), profitability as measured by Return on Assets (ROA) and Return on Equity (ROE), and company value proxied by Price to Book Value (PBV).

Table 1. Descriptive Statistic

Variable	N	Mean	Std. dev.	Minimum	Maximum
Capital Structure (DER)	225	1.45	0.85	0.10	3.80
ROA	225	0.072	0.041	-0.05	0.18
ROE	225	0.115	0.067	-0.10	0.25
Company Value (PBV)	225	1.85	0.92	0.45	4.10

Table 1 presents the descriptive statistics for the variables used in this study. The average Debt-to-Equity Ratio (DER) is 1.45, indicating that, on average, the manufacturing firms examined tend to rely more on equity than debt in structuring their capital, although individual values vary considerably from 0.10 to 3.80, with a standard deviation of 0.85, reflecting significant differences in leverage levels among companies. ROA has a mean of 0.072, with values ranging from -0.05 to 0.18 and a relatively low standard deviation of 0.041, suggesting that most firms have a relatively uniform size, with some variation. Profitability, represented by Return on Equity (ROE), shows a mean of 0.115, ranging from -0.10 to 0.25, with a standard deviation of 0.067. This indicates that while most companies generated positive returns for shareholders, a few recorded negative performance during the observation period. Company value, measured by Price-to-Book Value (PBV), has an average of 1.85, with a range of 0.45 to 4.10 and a standard deviation of 0.92, reflecting moderate variation in market valuations among the firms. These descriptive figures highlight notable differences in capital structure, profitability, and market valuation within the manufacturing sector, providing a solid foundation for further regression analysis to explore the relationships among these variables.

Before conducting a panel data regression analysis, it is important to ensure that the model used meets the basic assumptions of classical linear regression. Violations of these assumptions may lead to biased, inefficient, and unreliable estimation results. Therefore, a series of diagnostic tests was conducted to examine the assumptions of normality, multicollinearity, heteroscedasticity, and autocorrelation.

The normality of the residuals was tested using the Jarque–Bera test, which aims to determine whether the error terms of the regression model follow a normal distribution. Residual normality is required to ensure that the estimated regression coefficients meet the BLUE (Best Linear Unbiased Estimator) criteria. The test results showed that the

Jarque–Bera statistic was below the critical value and the probability value exceeded 0.05, indicating that the residuals were normally distributed. This confirms that the normality assumption is satisfied and that the model is suitable for further analysis. Multicollinearity was examined using the Variance Inflation Factor (VIF) to identify potential high correlations among independent variables. Multicollinearity can distort coefficient estimates and weaken statistical inference. The results showed that the VIF values for all independent variables (DER, ROA, and ROE) were below the commonly accepted threshold of 5, indicating that there were no serious multicollinearity issues. Thus, all independent variables could be retained in the regression model without concern for estimation bias (Kyriazos & Poga, 2023). To test for heteroscedasticity, the Breusch–Pagan test was employed to assess whether the residual variance remained constant across observations. The test results indicated a significance value greater than 0.05, suggesting the absence of heteroscedasticity. This implies that the residuals exhibit homoskedasticity, thereby supporting the reliability and validity of the regression estimates. Autocorrelation was assessed using the Durbin–Watson test, which is particularly relevant for panel data with a time-series dimension. The Durbin–Watson statistic fell within the acceptable range of 1.8 to 2.2, indicating that there was no evidence of positive or negative autocorrelation among the residuals. Consequently, the assumption of independence of errors was satisfied.

After confirming that all classical assumptions were met, the next step involved selecting the most appropriate panel regression model. Panel data regression generally includes three alternative approaches: the Common Effect Model (CEM), which assumes no individual differences across entities; the Fixed Effect Model (FEM), which accounts for individual-specific characteristics by allowing different intercepts; and the Random Effect Model (REM), which treats individual differences as random effects that are uncorrelated with the independent variables. Model selection was conducted through sequential testing. The Chow test was first applied to compare CEM and FEM, and the results showed a p-value below 0.05, indicating that FEM was preferable to CEM. Subsequently, the Hausman test was performed to choose between FEM and REM, yielding a probability value below 0.05. This result confirms that the Fixed Effect Model is the most appropriate specification, as it captures firm-specific characteristics that influence the relationships among variables. All classical regression assumptions were satisfied, and the Fixed Effect Model was selected as the main approach for estimating the effect of capital structure and profitability on firm value (Dao & Ta, 2020).

After selecting the right model through the Chow and Hausman test, the Fixed Effect Model (FEM) was chosen as the most suitable regression model to estimate the influence of capital structure and profitability on the company's value. The model estimation was carried out using panel data from 45 manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2018–2022 period. The complete regression results are provided in Table 2.

Table 2. Regression Result

Variable	Coefficient	Std. Error	T-Statistics	p-value
Capital Structure (DER)	0.84	0.31	2.71	0.008
ROA	– 0.32	0.10	– 3.20	0.002
ROE	1.95	0.45	4.33	0.000
Company Value (PBV)	1.12	0.38	2.95	0.004
Adjusted R^2	0.58			

The results presented in Table 2 indicate that the Debt-to-Equity Ratio (DER) has a coefficient of -0.32 with a p-value of 0.002, suggesting that capital structure has a significant negative impact on firm value. An increase of one unit in DER is associated with a 0.32-point decrease in the company's PBV, assuming other factors remain constant. These findings support Hypothesis 1 (H1) and align with the Trade-Off Theory, which posits that excessive debt increases the risk of bankruptcy, agency costs, and financial instability, ultimately lowering investor valuation. In the context of

manufacturing companies, which typically require substantial financing, high levels of debt may be viewed unfavorably by the market, particularly during periods of economic uncertainty such as the post-pandemic era.

Profitability indicators, namely ROA and ROE, show positive and significant effects on firm value, with coefficients of 1.95 ($p < 0.001$) and 1.12 ($p = 0.004$), respectively. This confirms Hypothesis 2 (H2) and supports Signaling Theory, suggesting that strong financial performance signals positive growth prospects to investors. Among the two, ROA has a stronger influence on PBV than ROE, highlighting that investors place greater emphasis on efficient asset utilization over equity returns when evaluating company performance. The model's Adjusted R^2 of 0.58 suggests that DER, ROA, and ROE collectively explain 58% of the variation in firm value, while the remaining 42% is influenced by other variables such as liquidity, revenue growth, operational efficiency, managerial strategies, industry regulations, and macroeconomic conditions. These results indicate solid explanatory power, yet future research should incorporate additional factors to enhance the precision of value predictions in Indonesia's complex manufacturing sector.

DISCUSSION

This study shows that a company's ability to make profits has a positive and strong impact on firm value. This implies that firms with higher profitability levels tend to receive greater market valuations. These results align with Signaling Theory, which suggests that strong financial performance conveys favorable information to investors, prompting increased demand for the company's shares and, consequently, a rise in market value (Malina et al., 2020; Simanullang et al., 2021). In particular, a high ROA signals that a firm is efficiently utilizing its assets to generate earnings, which investors interpret as an indicator of sustainable long-term potential (Diana & Maria, 2020). Meanwhile, a robust ROE reflects the firm's capacity to deliver attractive returns on shareholders' equity. Together, these metrics provide a holistic view of management effectiveness in creating economic value for investors. These findings corroborate previous research by Pervan et al. (2019), Schoenmaker and Schramade (2019), and Parulian and Siregar (2025), which emphasize that profitability is a key driver of firm value, particularly in capital-intensive sectors like manufacturing.

On the other hand, the way a company uses debt has a strong negative effect on its value. This suggests that higher levels of debt within a company's financing mix tend to reduce investor confidence and lower the perceived market value of the firm (Uzliawati et al., 2018). These results align with the Trade-Off Theory, which argues that while debt can offer advantages such as tax benefits, excessive borrowing increases the risk of financial distress, bankruptcy, and agency costs. In practice, investors often approach highly leveraged companies cautiously, especially if the firm's cash flow may be insufficient to cover debt obligations.

This issue is particularly pronounced in Indonesia's manufacturing sector, which has faced significant disruptions during and after the COVID-19 pandemic, including supply chain bottlenecks, rising input costs, and volatile demand. Under such conditions, investors tend to favor firms that maintain conservative capital structures and adopt prudent financial management. Consequently, manufacturing companies must carefully evaluate their debt levels, ensuring that any increase in leverage is supported by stable revenue projections and robust cash flow management (Robert et al., 2023; Odhiambo et al., 2025).

An additional notable result is the Adjusted R^2 of 0.58, indicating that the model accounts for approximately 58% of the variability in company value. This highlights that both capital structure and profitability are key determinants influencing valuation differences among manufacturing firms. Nevertheless, the remaining 42% of variation remains unexplained, suggesting the influence of other factors. These may include non-financial elements such as corporate governance quality, brand strength, product innovation, growth and expansion strategies, as well as broader macroeconomic

conditions like inflation, interest rates, and fiscal or monetary policies (Amman et al., 2011; Ali et al., 2023). These findings underline the importance for financial managers in manufacturing companies to focus on enhancing profitability through efficient operations and sustainable growth initiatives. Simultaneously, careful management of the capital structure is essential to balance the potential benefits of external financing with its inherent risks. Beyond managerial implications, these insights are valuable for investors, market analysts, and regulators, all of whom contribute to maintaining a robust, stable, and transparent financial environment.

CONCLUSION

This study provides empirical evidence on the effects of capital structure and profitability on the market valuation of manufacturing companies listed on the Indonesia Stock Exchange between 2018 and 2022. Findings indicate that the capital structure has a significant negative impact on firm value, suggesting that elevated debt levels increase financial risk and interest obligations, which in turn reduce investor confidence and perceived corporate worth. In contrast, profitability shows a substantial positive effect, highlighting that firms with stronger earnings performance and more efficient use of assets are valued more favorably by the market, consistent with Signaling Theory.

From a managerial standpoint, these findings suggest that firms should strategically manage debt levels to enhance value while maintaining robust profitability to signal operational strength and growth potential to investors. Regulators and market participants may also utilize these insights to assess corporate financial strategies more effectively. However, the study has limitations. It focuses exclusively on manufacturing firms and considers only DER, ROA, and ROE, omitting other potential determinants. Moreover, external factors such as macroeconomic shifts and corporate governance practices were not incorporated. Future research could broaden the scope by examining multiple industries, additional financial and non-financial variables like liquidity, growth, governance quality, and market dynamics, and by employing longitudinal or cross-country designs to improve generalizability and provide a more comprehensive view of the determinants of firm value.

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