

The Influence of Profitability, Leverage, and Firm Size on Firm Value in Automotive Companies Listed on the Indonesia Stock Exchange

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Abstract

This study aims to analyze the effect of leverage, profitability, and firm size on firm value in automotive companies listed on the Indonesia Stock Exchange (IDX) during the period 2019–2023. Firm value in this study is measured using Price to Book Value (PBV), leverage is measured by Debt to Asset Ratio (DAR), profitability is measured using Return on Assets (ROA), and firm size is represented by the natural logarithm of total assets (SIZE). The analytical method used is panel data regression with a fixed effect model, selected based on the results of the Chow test and Hausman test. The findings indicate that leverage (DAR) has a positive and significant effect on firm value, suggesting that the optimal use of debt can enhance investor confidence. Profitability (ROA) also has a positive and significant effect, indicating that firms with higher profitability tend to have better market value. Conversely, firm size (SIZE) has a negative and significant effect on firm value, implying that larger firms do not necessarily possess higher market value.

Keywords: Firm Value, Leverage, Profitability, Firm Size, Automotive Companies.

INTRODUCTION

Firm value is an important indicator that reflects the market's perception of a company's prospects and performance in generating long-term profit and growth. A high firm value indicates that the company is viewed positively by investors, which ultimately leads to increased market confidence and stock prices (Exsucu, 2024). Therefore, companies need to understand the factors that influence firm value in order to develop appropriate strategies to enhance competitiveness and business sustainability (Saputra, Marswandi, et al., 2023). Several key factors believed to influence firm value include profitability, leverage, and firm size (Kusumaningrum & Iswara, 2022). Profitability indicates the extent to which a company can generate profit from its operational activities. Companies with high

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profitability are generally considered efficient and capable of providing good returns to investors (Arlita et al., 2023). Brigham and Houston (2010) state that profitability is a key indicator in assessing a company's financial health and serves as a basis for investment decision-making. Research conducted by Setyawan & Ghozali, (2025) found that profitability has a positive and significant effect on firm value. Similar findings were reported by Aulia & Avriyanti, (2024), who concluded that profitability plays an important role in increasing firm value. However, Trida, (2022) found that profitability has no effect on firm value.

On the other hand, leverage or the debt-to-equity ratio is a key determinant in a company's capital structure. An optimal level of leverage can increase firm value through the leverage effect; however, excessive use of debt may pose a risk of default (Darmawan & Susila, 2022). According to Sartono (2016), "appropriate leverage will create a balance between risk and return, thus positively affecting firm value." Research by Linawaty & Ekdajaja, (2017) found that leverage has a significant effect on firm value. Similar results were reported by Kristofel et al. (2023), who found that leverage has a negative and significant effect on firm value. This suggests that higher leverage may lead to a decline in firm value.

Firm size is also an equally important variable. Large companies generally have greater resources, broader access to funding, and higher stability compared to smaller firms (Prasetyo & Tambunan, 2024). Investors tend to have more confidence in large firms as they are considered more resilient to economic fluctuations and better equipped to face crises (Saputra & Hendri, 2024). Previous studies have shown that larger firm size can lead to a decrease in firm value (Yohana et al., 2021). This finding suggests that larger firms do not necessarily have higher firm value, possibly due to increased operational complexity or managerial inefficiency. However, different results were found by Heng & Nugroho, (2023), who stated that firm size has no effect on firm value. These differing results indicate that the impact of firm size on firm value may be contextual, depending on industry conditions, managerial strategies, and other external factors.

In the context of the Indonesian automotive industry, the period from 2019 to 2023 was marked by significant dynamics. The industry experienced growth in the early years, but was severely affected in 2020 due to the COVID-19 pandemic, which led to a decline in production, supply chain disruptions, and reduced consumer purchasing power. Following the pandemic, the automotive industry began to recover through various innovations and operational strategy adjustments. These economic changes provide a relevant background for examining how financial factors such as profitability, leverage, and firm size influenced firm value during the recovery period.

METHODOLOGY

This study employs a quantitative approach aimed at examining the influence of independent variables namely profitability, leverage, and firm size on the dependent variable, which is firm value. The data used in this study are secondary data in the form of annual financial reports of automotive companies listed on the Indonesia Stock Exchange (IDX) for the period 2019 - 2023. The data collection technique employed is documentation, by accessing financial data available on the official IDX website and each company's annual reports. Sample selection was carried out using a purposive sampling method, applying specific criteria to ensure the sample is relevant to the research objectives. These criteria include: (1) automotive companies that were consistently listed on the IDX during the 2019–2023 period, and (2) companies that published complete annual financial reports during that period.

The profitability variable is measured using Return on Assets (ROA) (Saputra, Komala, et al., 2023), leverage is measured by the Debt to Asset Ratio (DAR) (Bodie et al., 2014), firm size is measured using the natural logarithm of total assets (Saputra, Marswandi, et al., 2023), and firm value is measured using the Price to Book Value (PBV) (Bodie et al., 2014). Data analysis is conducted using multiple linear regression analysis with the assistance of statistical software such as EViews. Prior to the regression analysis, the data are tested through classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests, to ensure that the model meets the validity requirements. The results of the analysis are then used to examine the significance of the influence of each independent variable on firm value.

RESEARCH AND RESULTS

Descriptive Statistics Test Results

Table 1. Descriptive Statistics

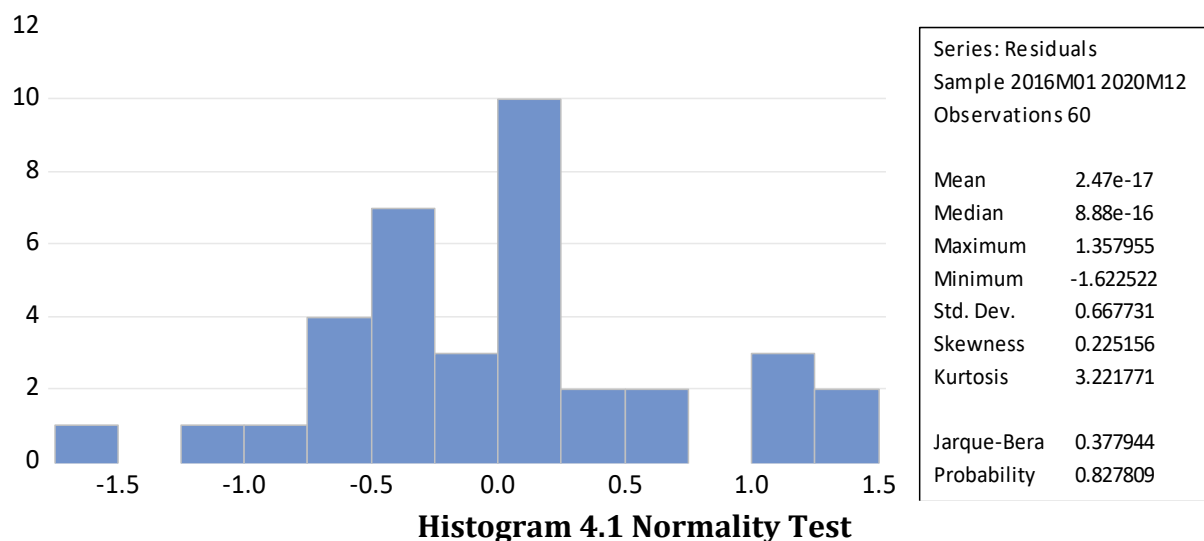
Variabel	ROA	DAR	SIZE	PBV
Mean	2.321526	0.847582	0.097428	0.600348
Median	1.878662	0.466231	0.086367	0.441180
Maximum	7.474708	3.824769	0.309881	5.237762
Minimum	0.105954	0.149870	0.005394	0.505647
Std. Dev.	1.935427	0.792000	0.074739	0.891557
Observations	60	60	60	60

Source: EViews Output

Based on the descriptive statistics results from 60 observations, the ROA variable has an average value of 2.32 percent, with a maximum of 7.47 percent, a minimum of 0.11 percent, and a standard deviation of 1.93, indicating variability in profitability among companies. The DAR variable has an average of 0.85, with a maximum value of 3.82, a minimum of 0.15, and a standard deviation of 0.79, reflecting a considerable difference in leverage levels across companies. Meanwhile, the SIZE variable has an average of 0.097, with values ranging from 0.005 to 0.31 and a standard deviation of 0.074, suggesting that firm sizes are relatively homogeneous. The PBV variable, used as a proxy for firm value, has an average of 0.60, with the highest value at 5.24 and the lowest at 0.51, and a standard deviation of 0.89, indicating significant differences in market valuation among companies.

Classic Assumption Test Results

Based on the normality test results shown in Histogram 4.1, the probability value is 0.827809, which is greater than the significance level of 0.05 ($0.827809 \geq 0.05$). This indicates that the data are normally distributed. Therefore, the normality assumption for the data has been fulfilled, allowing the regression analysis to proceed without the need for data transformation.



Referring to Table 2, all correlation coefficients between the independent variables, namely capital structure (DAR) and profitability (ROA), as well as the control variable firm size (SIZE), are below the threshold of 0.8. The highest correlation coefficient was recorded between DAR and ROA, at -0.512907, indicating a moderate negative correlation but still well below the limit indicating potential multicollinearity. Thus, it can be concluded that

there are no symptoms of multicollinearity among the variables in this regression model, making the model suitable for further analysis.

Table 2. Multicollinearity Test Results

Variabel	DAR	ROA	SIZE
DAR	1.000000	-0.51291	-0.17833
ROA	-0.51291	1.000000	0.033413
SIZE	-0.17833	0.033413	1.000.000

Source: Output Eviews

In the autocorrelation test using the Durbin-Watson statistic on data with 60 observations (N) and 3 independent variables (K), the lower bound (DL) value is 1.2953 and the upper bound (DU) value is 1.6539. The Durbin-Watson (DW) statistic from the analysis is 2.237. To determine the presence of autocorrelation, the DW value is compared with DL, DU, and 4 minus DL (4 - DL), which is 2.7047. Since the DW value (2.237) falls between DU (1.6539) and 4 - DL (2.7047), it can be concluded that there is no positive or negative autocorrelation in this regression model. In other words, the residuals of the model are independent and do not show any pattern of sequential correlation.

Table 3. Autocorrelation Test Results

N	K	DL	DU	DW	4 - DL
60	3	1,2953	1,6539	2,237	2,7047

Source: Output Eviews

The results of the heteroscedasticity test using the Glejser method show that the variables capital structure (DAR), profitability (ROA), and firm size (SIZE) have p-values greater than 0.05. This indicates that there is insufficient evidence to reject the null hypothesis, and thus it can be concluded that the regression model does not suffer from heteroscedasticity. In other words, the residual variance in this model is constant and not influenced by changes in the values of the independent variables, meaning the classical assumption of homoscedasticity is met. This condition is important to ensure the reliability of the regression estimation results and the validity of subsequent hypothesis testing.

Table 4. Glejser Heteroscedasticity Test Results

Independent Variable	Coefficient	t-Statistic	Prob.
C	0.685289	0.357789	0.7232
DAR	0.000594	0.015278	0.9879
ROA	-0.342869	-0.65397	0.5185
SIZE	-0.018097	-0.26558	0.7925

Source: Output Eviews

Model Estimation Test Results

Based on Table 5, it is known that the Cross-Section F value is 0.0000, which is less than the significance level of 0.05. This indicates that the fixed effect model is more appropriate to use compared to the common effect model, due to significant differences between individuals (companies) in the panel data. After selecting the fixed effect model as the more suitable model, the next step is to conduct the Hausman test. This test aims to determine whether the fixed effect or random effect model is the most appropriate by comparing the consistency and efficiency of both models.

Table 5. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	9.068264	(7,28)	0.0000

Source: Output Eviews

Based on Table 6, it is found that the probability value of the Cross-Section Random is 0.0203, which is less than the significance level of 0.05. This indicates that there is a significant difference between the fixed effect and random effect models. Since the probability value is below the significance threshold, the Hausman test results suggest that the fixed effect model is more appropriate to use compared to the random effect model. Therefore, the fixed effect model is chosen as it provides consistent estimates and better reflects the differences in characteristics among individuals (companies) in the panel data used.

Table 6. Chow Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	11.637509	4	0.0203

Source: Output Eviews

Hypothesis Test Results (t-test)

Based on the regression results, it is found that firm value (PBV) is significantly influenced by the three independent variables used in the model, namely capital structure (DAR), profitability (ROA), and firm size (SIZE). DAR (Debt to Asset Ratio) has a coefficient of 1.189 with a probability value of 0.0100. This indicates that capital structure has a positive and significant effect on firm value. In other words, every one-unit increase in DAR will increase the firm value (PBV) by 1.189, assuming other variables remain constant. This suggests that, in the context of this study, moderate use of debt can enhance investor confidence, thereby positively impacting firm value.

ROA (Return on Assets) shows a positive coefficient of 1.545 with a probability of 0.0128, meaning profitability also has a positive and significant effect on PBV. In other words, the higher the company's ability to generate profits from its assets, the higher its market value. SIZE (Firm Size) has a negative coefficient of -1.835 with a probability value of 0.0217. This indicates that firm size has a significant negative effect on PBV. In the context of this sample, larger companies tend to have relatively lower market value compared to their book value. This may be due to declining operational efficiency or lower growth expectations in larger firms.

Table 7. Fixed Effect Model Test Results

Independent Variable	Coefficient	t-Statistic	Prob.
C	5.296854	2.496459	0.0187
DAR	1.189149	2.761222	0.0100
ROA	1.545417	2.660889	0.0128
SIZE	-1.834853	-2.430721	0.0217
R ²	0.78004		
N	60		

Source: Output Eviews

The coefficient of determination (R-squared) value obtained in the regression model is 0.7800, indicating that 78% of the variation in firm value (PBV) can be explained by the independent variables used in the model, namely capital structure (DAR), profitability (ROA), and firm size (SIZE). This means the model has a relatively high predictive ability, as the majority of changes in PBV can be accounted for by these three variables. The remaining 22% is explained by other factors outside the model, such as market conditions, managerial strategies, product innovation, economic stability, and other external factors not included in this regression model. The high R² value also reflects that the selection of independent

variables in this study is quite appropriate and relevant to the dependent variable being examined. However, despite the high R^2 , researchers must still pay attention to classical assumption tests and model validity to ensure that the results truly reflect a strong and unbiased relationship.

The Effect of Leverage (DAR) on Firm Value (PBV)

Based on the regression results, the leverage variable measured by the Debt to Asset Ratio (DAR) has a coefficient of 1.189149, with a t-statistic of 2.761222 and a probability value of 0.0100. Since the p-value is lower than the significance level of 0.05, it can be concluded that leverage has a positive and significant effect on firm value. This indicates that the higher the level of leverage, the higher the firm value (PBV). This finding is not consistent with the study conducted by Linawaty & Ekadjaja, (2017), which found that leverage has a negative effect on firm value. It also contradicts the findings of Kristofel et al. (2023), which demonstrated that leverage negatively and significantly affects firm value, meaning that a higher level of leverage leads to a decrease in firm value. These results suggest that the automotive companies in the sample are able to manage debt usage efficiently, thus maintaining investor confidence. Optimal leverage can create a financial leverage effect and provide tax benefits (tax shield), which ultimately enhance firm value. However, firms must also remain aware of the financial risks associated with exceeding their debt repayment capacity.

The Effect of Profitability (ROA) on Firm Value (PBV)

The profitability variable, measured by Return on Assets (ROA), has a coefficient of 1.545417, a t-statistic of 2.660889, and a probability value of 0.0128. Since the p-value is less than 0.05, profitability has a positive and significant effect on firm value. This means that the greater the company's ability to generate profit from its assets, the higher its perceived value in the eyes of investors. This result is consistent with studies conducted by Setyawan & Ghazali (2025) and Aulia & Avriyanti (2024), which also found that profitability positively and significantly affects firm value. These findings indicate that profitability plays a critical role in increasing firm value. However, this study contradicts the findings of Trida (2022), which concluded that profitability does not affect firm value. Profitability reflects a company's operational efficiency and financial health—key factors in investor assessments of a company's long-term prospects. These findings align with signaling theory, which posits that high profits send a positive signal to the market regarding the company's performance and future outlook.

The Effect of Firm Size (SIZE) on Firm Value (PBV)

Firm size (SIZE) shows a regression coefficient of -1.834853, with a t-statistic of -2.430721 and a probability value of 0.0217. Since the p-value is below 0.05, firm size has a negative and significant effect on firm value. This finding aligns with the study by Yohana et al. (2021), which demonstrated that a larger firm size can lead to a decrease in firm value. In the context of this study, larger firms tend to have lower market values relative to their book values. This contradicts the common assumption that large firms possess greater competitive advantages and stability. The decline in PBV among larger companies may be due to operational inefficiencies, bureaucratic complexities, or slower growth, which reduce investor appeal. These results serve as a reminder that firm growth in size does not necessarily correlate with an increase in firm value.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the regression analysis of 60 observations of automotive companies listed on the Indonesia Stock Exchange for the period 2018–2022, it can be concluded that leverage, profitability, and firm size simultaneously have an influence on firm value (PBV). Partially, leverage as measured by the Debt to Asset Ratio (DAR) shows a positive and significant effect on firm value. This indicates that the proportional use of debt can enhance investors' perception of the company's value. Furthermore, profitability as measured by Return on Assets (ROA) also has a positive and significant effect on PBV, which means that companies with strong earnings performance tend to have higher market values. Meanwhile, firm size (SIZE) shows a negative and significant effect on firm value, suggesting that larger-scale companies are not necessarily valued more highly by the market, possibly due to inefficiency issues or stagnant growth.

Based on the research findings, it is recommended that companies be more prudent in managing their financial structure, particularly in the use of debt, since leverage has been proven to increase firm value if managed optimally. In addition, companies should continue to improve profitability through operational efficiency, innovation, and the strengthening of business strategies, considering that profitability is a key factor that boosts firm value in the eyes of investors. Regarding the firm size variable, the negative result indicates that management should focus not only on asset growth but also on effective asset management to positively impact market valuation. For future researchers, it is suggested to include additional variables such as ownership structure, liquidity, business risk, or external factors like inflation and macroeconomic stability, in order to provide a more comprehensive understanding of the determinants of firm value.

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