Research Article

Panel Regression Analysis: Profitability, Debt Policy and Economic Value Added to the Value of Automotive and Component Companies in Indonesia

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Abstract: This study aims to prove the effect of profitability (Return On Equity), Debt Policy (Debt to Equity Ratio), and Economic Value Added on Company Value (Price Book Value), both partially and simultaneously. This research approach is quantitative which is associative in nature to prove the effect of independent variables on dependent variables. The population of this study is an automotive company listed on the IDX using 12 sample companies during the 2019 - 2022 observation period so that 48 observation data units are obtained. The data analysis method used is Panel Regression which uses cross-sectional and time series data. The methods used are Chow Test, Hausman Test to estimate the selected regression model. This study proves that the Fixed Effect Model is the selected regression model. The results prove that Profitability has no significant effect on the value of Automotive companies on the IDX. Debt policy has a significant effect on the value of Automotive companies on the IDX. Economic Value Added has a significant effect on the value of Automotive companies on the IDX. The results of simultaneous testing prove that profitability, debt policy and EVA together have an effect on firm value.

1. INTRODUCTION

Rapid economic growth has led to stronger business competition. The company must continue its business in order to survive, especially since the Indonesian economy is now increasingly uncertain. On the other hand, investors must be cautious in investing involving venture capital; the company must also pay attention to the progress and growth of its business so that it promises future profits (Dilliana et al, 2019).

The purpose of establishing a company is to maintain its business continuity, obtain profits, and develop its business; it will lead to the goal of improving the welfare of its shareholders. In general, every company has a goal to improve company performance, and company health (Kadim and Sunardi, 2019). Firm value is significant as a guide for shareholders and benefits investors to make decisions. (Husain dkk, 2020).

The goal of any business entity is to prosper the owners of capital, regardless of whether the business entity is engaged in services, trade or manufacturing. Welfare can be defined as the pursuit of profit. Investors (both common and preferred shareholders) and creditors have an interest in valuing shares and debt securities, not only assessing the historical performance of the

shares, but also measuring the performance or value of the company. After measuring the total value of the company, capital owners will be able to decide whether to increase or sell their shares.

Source: Automotive Data, 2020

The stock price chart data shows very sharp fluctuations, indicating that stock movements can affect the value of a company. Company value is often associated with stock prices. The higher the share price, the higher the value of the company. Maximizing firm value also means maximizing shareholder wealth which is the company's goal." However, measuring added value is not easy. In general, *Economic Value Added* (EVA) is often used to determine business objectives, measure company performance and determine the costs incurred to provide a measure that allows aligning company objectives and determining whether capital investments generate returns greater than their costs (Irawan, 2018).

Debt policy is the guideline that guides the debt evaluation process and debt issuance practices, including the issuance process, debt portfolio management, in meeting the capital needs of the company. The debt policy should enhance profitability, articulate policy objectives, provide guidelines for the structure of debt issuance, and demonstrate commitment to long-term capital and financial planning. Adherence to the debt policy will provide a signal to investors and is therefore likely to affect firm value (Toby & Sarakiri, 2021). Excessive use of debt poses a risk, because the company experiences financial difficulties due to the debt burden. Companies must be able to *trade off* debt in order to maximize profits.

Signalling Theory

Signaling theory is the belief that information about the financial health of a company is not available to all parties in the market at the same time. This signal manifests as information about management in conducting business activities to meet stakeholder demands (Baraja & Yosya, 2019). Companies that have the opportunity to earn high *net income* will be more likely to use part of their profits as retained capital because it will make it easier for managers to manage capital. According to Reschiwati, et al (2020), signal theory is important because it can reduce information asymmetry, and for this reason, it is important to know the views and perceptions of the actors involved in the process, in this case employees, so that distortions can be eliminated.

Firm Value

Firm value is the investor's perception of the company's success rate. For public companies, this is usually associated with the company's share price because the company's value is reflected in its share price. In addition, the value of shares also reflects the assessment of the owner of the capital against the capital owned by the business entity. Company valuation can use the *Price to Book Value* (PBV) ratio which describes the ratio of stock price to book value. A company valuation

that is attractive usually has a PBV ratio greater than one, which means that the market value of the stock is greater than its nominal book value (Surjanto & Sugiharto, 2021). Putriana (2019) states that company value is an economic measure that reflects the market value of a business that shows book value is different from market price. According to Septian, et al (2021) companies that have high company value will attract investor interest and foster stakeholder confidence in the company. Firm value is believed to reflect not only the company's current performance, but also the company's future prospects. The formulation that can be used to measure *Price to Book Value* in this study is :

$$PBV = \frac{\text{Stock Price}}{\text{Book Value}} \times 100\%$$

Profitability

The profitability ratio of a company is very useful for measuring the company's own performance history, or the average ratio of the company's industry. Usually, a higher value than the previous value indicates that the company is doing well (Nur et al, 2023). Pando, et al (2019) explain the profitability ratio can explain how well the company's management runs its business. Investors can use it, along with other studies, to determine whether a company is a good investment or not. Parmar & Shukla (2021) explain that profitability ratios can be a window into the financial performance and health of a business. Ratios are best used as a comparison tool rather than as a metric in itself. Arsyad, et al (2021) interpret the profitability ratio can be used in conjunction with the efficiency ratio, which considers how well a company uses its assets internally to generate revenue (compared to profit after expenses). Profitability of a company is one of the financial assessment models that describes the management of the company's assets and capital in obtaining certain profits from a certain periodical. This ratio uses data from lab reports and nerca reports for a certain period. The most popular profitability ratio measurements used in financial analysis include *Return On Investment* (ROI) is a ratio measurement that describes the effectiveness of investment management in generating net income. Assessment of the effectiveness of investment in the company is very important because it can explain the extent to which the investment made can generate profits. *Return On Equity* (ROE) is a ratio that describes the return on capital managed. The use of this ratio aims to assess the effectiveness of the use of capital in generating profits. *Return On Assets* (ROA) is a ratio measurement that describes the management of the company's assets in generating profits. This ratio illustrates the extent to which the use of assets in the company is able to generate maximum profit. *Net Profit Margin* (NPM) is a ratio assessment that describes the extent to which net profit can be achieved from the company's sales results during a certain period. *Gross Profit Margin* (GPM) is an assessment of the extent of gross profit earned by the company from its sales activities (Aulová et al, 2019). The profitability ratio used in this study is ROE using the formula:

$$ROE = \frac{\text{Earnings After Tax}}{\text{Total Equity}} \times 100\%$$

Debt Policy

The company's debt policy describes how the company manages capital sourced from debt. Companies will tend to use higher debt if the need for internal capital or retained earnings is insufficient (Fahmi, 2015). Companies that use high debt have high financial risk because the impact of debt will increase the cost of capital. In addition to the high risk effect, the use of debt can also increase company profits where the fulfillment of sufficient capital from debt can be managed in generating profits (Sunardi et al., 2020). *Debt* policy is measured using *Debt to Equity Ratio* (DER), which is the ratio of the use of the company's total debt to its total capital. The

commonly used formulation in assessing DER is:

$$DER = \frac{Total\ Debt}{Total\ Equity} \times 100\%$$

Economic Value Added

Economic Value Added is a measure of revealing the financial performance of a business based on its residual income. It aims to determine the value that the company generates with the help of invested funds and increase the profits generated for shareholders (Fernandez, 2019). EVA valuation is equivalent to a valuation based on the Net *Present Value* (NPV) of a particular financial project. The important difference between the two concepts is that the NPV approach is based on market value while the EVA principle refers to accounting figures (Shad et al, 2019). EVA can be used to measure the value created by a company or organization, as well as its ability to create value over time. EVA can be applied to any organization or company, regardless of size or industry (Subedi & Farazmand, 2020). The definition given by Stern Value Management to EVA indicates that EVA is the difference between the net operating profit after tax of a business organization and the opportunity cost of capital invested in the business organization.

EVA = NOPAT – Cc

EVA = NOPAT – IC * WACC

The conceptual framework of this research can be schematically described as follows:
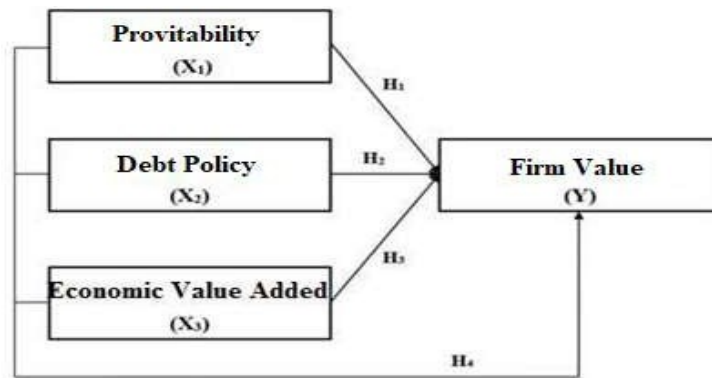

Figure 1. Research model

Referring to the conceptual framework picture, the researcher proposes the following hypothesis:

H1: Profitability partially has a significant effect on Firm Value in Automotive and Component companies on the Indonesia Stock Exchange.

H2: Debt Policy partially has a significant effect on Firm Value in Automotive and Component companies on the Indonesia Stock Exchange.

H3: *Economic Value Added* partially has a significant effect on Firm Value in Automotive and Component companies on the Indonesia Stock Exchange.

H4: Profitability, Debt Policy, and *Economic Value Added* simultaneously have a significant effect on Firm Value in Automotive and Component companies on the Indonesia Stock Exchange.

2. METHOD & MATERIAL

This study uses a type of quantitative research that is influential (associative) through panel data regression analysis. The data collection method is done by collecting financial data from automotive and component companies at www.investing.com.

2.1. Sample and procedures

The population used in this study were all automotive companies listed on www.lembarsaham.com which totaled 16 companies. The sample withdrawal technique in this study used purposive sampling technique, namely samples taken if they met certain criteria so that 12 samples were selected.

2.2. Measurement

This research uses three independent variables and one dependent variable as seen in table 3.1 below:

Table 3.1 Operational Limitations and Variable Indicators

Variable	Definition	Indicator	Measuring Scale
Profitability (X_1)	how well the company's management runs its business. This can be seen from the company's ability to generate profits	$ROE = \dfrac{\text{Earning After Tax}}{\text{Equity}} \times 100\%$	Ratio
Debt Policy (X_2)	describes how a company manages capital sourced from debt. Companies will tend to use higher debt if internal capital requirements and retained earnings are insufficient	$DER = \dfrac{\text{Total Debt}}{\text{Total Equity}} \times 100\%$	Ratio
Economic Value Added (X_3)	a measure of expressing the financial performance of a business based on its residual income	$EVA = NOPAT - Cc$ $EVA = NOPAT - IC * WACC$	Ratio
Company Value (Y)	reflects the difference between the market price of shares and the book value of shares. The valuation of attractive companies usually has a PBV ratio greater than one, which means the stock market value is greater than the nominal book value	$PBV = \dfrac{\text{Stock Price}}{\text{Book Value}} \times 100\%$	Ratio

2.3. Data analysis technique

Quantitative data (numbers) are needed in the panel data regression analysis process carried out using the Eviews 9 statistical application. The *panel regression* assessment used uses two variable characteristics, namely the dependent variable is a variable function that can be influenced by other variables, in this case the *Price Book Value* (PBV). While the independent variable is a variable that affects other variables, including using Profitability (ROE), Debt Policy (DER) and *Economic Value Added* (EVA) with the following model:

$$Y_{it} = a + b_1 X_{1it} + b_2 X_{2it} + b_3 X_{3it} + e$$

Description :

Y_{it} = Firm Value

X_{it} = Profitability, Debt Policy and EVA

i	= observations
α	= constant
β_{1-3}	= coefecient
t	= periode
ε	= error

3. FINDINGS

3.1. Descriptive statistics

The PBV (Y) variable has an average value of 2.13 with the highest value of 22.29 in the BRAM company in 2021 and the lowest value of 0.01 in the MASA company in 2019. It can be concluded that companies that have good value values are in BRAM companies and companies that have unfavorable values are in MASA. The ROE variable (X1) has an average value of 0.11 with the highest value of 0.77 in the GDYR company in 2019 and the lowest value of -0.08 in the BOL company in 2019.-0.08 is in the BOLT company in 2020. It can be concluded that companies that have good profitability values are in GDYR companies and companies that have poor profitability are in BOLT. The DER variable (X2) has an average value of 1.00 with the highest value of 3.75 in the IMAS company in 2019 and the lowest value of 0.66 in the BOLT company in 2019. It can be concluded that companies that have high debt policies are in IMAS companies and companies that have low debt policies are in BOLT. The EVA variable (X3) has an average value of 0.11 with the highest value of 582,229,710,332 in the PRAS company in 2019 and the lowest value of -40,677,532,342 also in the PRAS company in 2022. It can be concluded that companies that have fluctuating economic value added values are PRAS companies. The presentation of data in this study begins with descriptive statistical analysis which aims to assess the distribution of data distribution as follows:

Table 1. Descriptive statistics

	Variable	Mean	SD
1	ROE	0.112	0.178
2	DER	1.002	0.918
3	EVA	2.487	1.103
4	PBV	2.128	4.808

Source: Data Processing Results, 2023

3.2. Regression Results

The ability of the regression model to explain the percentage of influence can be seen from the coefecient value. The coefecient (R^2) value can sometimes trigger weaknesses that may be biased. Based on table 6, it is known that the coefecient (R^2) value is 0.8914. The magnitude of this coefecient (R^2) number can be concluded that the percentage of the ability of the independent variable to explain the dependent variable is 89.14%. The remaining 10.86% can be explained by other variables not discussed in this study. Factors that may be able to influence are fundamental and technical factors such as *Dividend*, profit growth, liquidity, company size and so on. Moreover, technical factors such as the *volume of* stock trading transactions can also affect fluctuations in Firm Value (PBV).

Hypothesis testing using the t-test to prove partial influence on the dependent variable. This test is seen from the calculated t value compared to the t table value or the significance value compared to the probability of 0.05. The results of hypothesis analysis for the ROE variable have a coefficient value of -0.225 with a significance of 0.9275> 0.05, meaning that the hypothesis is rejected. The conclusion is that ROE has no effect on Firm Value (PBV) in Automotive Companies listed on the Indonesia Stock Exchange. The results of hypothesis analysis for the DER variable have a coefficient

value of 0.293 with a significance of 0.0165 <0.05, meaning that the hypothesis is accepted. The conclusion is that DER has a significant effect on Firm Value (PBV) in Automotive Companies listed on the Indonesia Stock Exchange. The results of hypothesis analysis for the EVA variable have a coefficient value of 1.28 with a significance of 0.0251 <0.05, meaning that the hypothesis is accepted. The conclusion is that EVA has a significant effect on Company Value (PBV) in Automotive Companies listed on the Indonesia Stock Exchange.

Table 2. Regression results

Variable	β	SE	P-value
ROE	-.225	2.46	.927
DER	.293	1.61	.016
EVA	1.281	4.26	.025
R^2	.245		
F-Statistics / p-value	16.245 (0.014)		

Source: Data Processing Results, 2023

4. DISCUSSION

The discussion in this study analyzes the proof of the hypothesis tested using panel regression analysis. The research results for the *Return On Equity* (ROE) variable prove that ROE has a negative but insignificant relationship. The results of proving this hypothesis are inconsistent with the results of research by Suwardika & Mustanda (2017); Parmar & Shukla (2021) which proves that ROE has a positive and significant effect on PBV. Investor preference for profitability does not affect firm value due to aggressive investment policies. profitability ratios can be a window into the financial performance and health of a business. Ratios are best used as a comparison tool rather than as a separate metric Arsyad, et al (2021) Interpreting profitability ratios can be used in conjunction with efficiency ratios, which consider how well a company uses its assets internally to generate revenue (compared to profit after costs). Profitability should greatly influence investors in making decisions to invest their funds because investors are more interested in companies that have a high level of profitability with the assumption that the higher the profitability of the company, the higher the prosperity of its shareholders. The effect of profitability on firm value is not based on signaling theory which explains that companies with the ability to generate and increase their profits steadily will be seen as a positive signal to investors regarding company performance. Higher profitability has not been able to give investors and shareholders a positive profile of the company's achievements and increase their loyalty. Therefore, they do not retain their money invested in the company's shares, add or buy more shares, and increase the share price and value.

The proof of the research results on the *Debt to Equity Ratio* (DER) variable is able to prove that the *Debt to Equity Ratio* (DER) has a positive and significant effect on Firm Value. These results are consistent with the results of research conducted by Septariani. D (2017); Toby & Sarakiri (2021) which prove that the *Debt to Equity Ratio* (DER) has a positive and significant effect on Firm Value. Debt policy is a guideline that guides the debt evaluation process and debt issuance practices, including the issuance process, debt portfolio management, in meeting the company's capital needs. Debt policy should enhance profitability, articulate policy objectives, provide guidelines for the structure of debt issuance, and demonstrate commitment to long-term capital and financial planning. Adherence to debt policy will provide a signal to investors and is therefore likely to affect firm value. Debt policy has a positive effect on increasing firm value, indicating investor preference for the risk taker stick, namely investors dare to take risks by investing in companies with high levels of debt. Investors assume that high debt will also generate high profit potential for the company. If debt is desirable, then total firm value (measured by liabilities plus market value of

equity divided by total assets) will be higher in firms that have more debt relative to their size. Conversely, this study found that firm value is inversely related to the percentage of debt for all three debt measures. Debt is often cheaper than equity, and interest payments are tax deductible. So, as the level of debt increases, the returns to equity owners also increase, thereby increasing firm value. If risk is not a factor, then the more debt a business has, the greater its value.

The proof of the research results on the *Economic Value Added* (EVA) variable is able to prove that EVA has a positive and significant effect on Firm Value. The results of this study are consistent with the results of research associated with using Signal Theory where a positive EVA will cause a positive reaction for investors (Ginny & Jasumin, 2019). EVA can be used to measure the value created by a company or organization, as well as its ability to create value over time. EVA can be applied to any organization or company, regardless of size or industry (Subedi & Farazmand, 2020). EVA basically, it is used to measure the value that a company generates from the funds invested in it. If the EVA of a company is negative, it means that the company is not generating value from the funds invested into its business. Economic Value Added (EVA) is a value-based financial performance measurement tool to measure the financial performance of a company by calculating the cost of capital for equity. EVA is the most important innovation because it makes modern profit theory. Economic value added is created if the company generates a return on total capital that exceeds the cost of capital. Companies that have high EVA tend to be more attractive to investors to invest in the company, because the higher the EVA, the higher the value of the company.

5. CONCLUSION

The results of research using panel regression analysis concluded that profitability using the ROE ratio has no significant effect on the value of Automotive companies on the IDX. This means that investors really assess the company's profitability in investing so that it does not affect the company's value (PBV). The debt policy variable using the DER ratio is proven to have a significant effect on firm value (PBV). This means that investors are very interested in assessing the company's debt policy in investing so that it affects the company's value (PBV). *Economic Value Added* (EVA) has a significant effect on the value of Automotive companies on the IDX. This means that investors really assess the economic added value generated by the company in investing so that it affects the company's value (PBV). The test results simultaneously prove that profitability, debt policy and EVA together have an effect on firm value. This means that investors consider that profitability, debt policy and EVA are preferences in assessing companies. Researchers try to recommend the results of this study by menguriakan Some suggestions are that potential investors who intend to invest their capital should assess the factors affecting firm value, namely debt policy and economic value added because it is proven to have an effect on firm value. Company management should be able to optimize company value by maintaining an ideal debt policy ratio and positive economic value added. Future researchers who want to examine the same problem are advised to be able to add other variables, add samples, and extend research observations in order to represent even better results.

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