

Firm Growth and Firm Value in Indonesia's Energy Sector: The Mediating Role of Profitability and The Moderating Role of Dividend Policy

Mutmainah¹, Akhmadi², Wawan Ichwanudin³

^{1,2,3}Universitas Sultan Ageng Tirtayasa; Serang, Banten, Indonesia

ABSTRACT: Using profitability as a mediating variable and dividend policy as a moderating variable, this study investigates the link between company growth and firm value in energy sector companies listed on the Indonesia Stock Exchange between 2014 and 2023. Price-to-Book Value (PBV) is used to assess firm value; sales growth is used to measure firm growth; Return on Assets (ROA) is used to measure profitability; and a dividend dummy variable that indicates whether a company distributes dividends is used to represent dividend policy. This study uses panel data regression in conjunction with mediation and moderation analysis using secondary data from annual financial statements. The results show that profitability is significantly improved by business growth. Profitability does not, however, mediate the relationship between company growth and firm value, indicating that increases in profitability by themselves are not enough to raise market worth. Furthermore, dividend policy's possible moderating effect is indicated by the fact that it neither directly affects firm value nor moderates the relationship between profitability and firm value. These results imply that when assessing firm value, investors in the capital-intensive and highly uncertain energy sector give more weight to broader business fundamentals than to profitability and dividend distribution.

KEYWORDS: Firm Growth; Firm Value; Profitability; Dividend Policy; Energy Sector; Panel Data Analysis

I. INTRODUCTION

Investors frequently assess corporate performance through firm value because it reflects market expectations regarding the company's future prospects and shareholder wealth (Brigham & Houston, 2019). A higher firm value reflects greater market confidence and shareholder wealth. In capital market studies, firm value is commonly measured using Price to Book Value (PBV), which represents the market's valuation of a company's net assets. The value of a firm is influenced by both internal factors, such as firm growth, profitability, and dividend policy, and external factors, including macroeconomic conditions, commodity prices, and government regulations.

The Indonesian energy sector provides an important context for examining firm value because it is characterized by high capital intensity, commodity price volatility, and the ongoing global energy transition. Despite experiencing business expansion during the observation period, the market valuation of many energy companies remained relatively low compared with other sectors. Figure 1 illustrates that the PBV of energy companies consistently lagged behind those of the industrial and basic materials sectors during most of the 2014–2023 period. This phenomenon indicates that business growth alone may not be sufficient to increase market valuation in the energy sector.

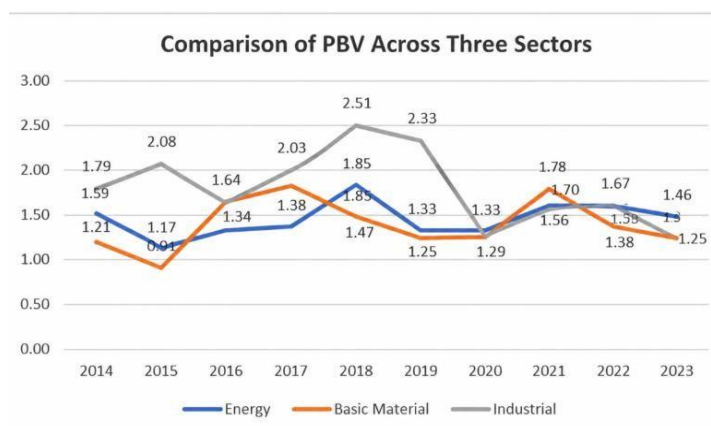


Figure 1. Comparison of PBV Across Three Sectors
Source: Stockbit (processed data)

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A similar pattern is presented in Figure 2, which compares the movement of firm sales and PBV over time. Although firm sales fluctuated and generally improved over time, PBV did not consistently follow the same trend. In several years, higher sales were accompanied by stagnant or even declining market valuation. This suggests that investors may evaluate energy companies based on factors beyond sales performance alone, such as long-term profitability, investment quality, business sustainability, and future growth prospects.

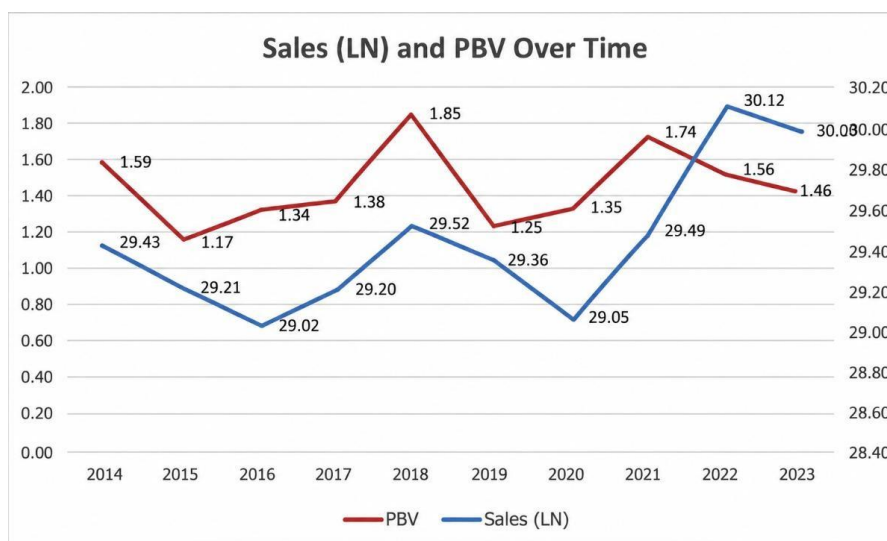


Figure 2. Trend of Firm Sales (Ln) and PBV
Source: Stockbit (processed data)

According to Signalling Theory, a company's growth should eventually raise its value and provide a good signal about its future possibilities. However, the pattern seen in Indonesia's energy sector implies that increasing sales might not be enough to raise market value on its own. One explanation could be that investors won't value a company's expansion until it increases profitability (Damodaran, 2006). Additionally, because dividend payments might indicate management's confidence in future performance, dividend policy may improve the link between profitability and firm value. However, prior empirical research has yielded conflicting results about the moderating role of dividend policy and the mediating role of profitability.

These contradictory results point to a research gap, especially in Indonesia's energy industry, where comparatively few studies have looked at business growth, profitability, dividend policy, and firm value all at once. Thus, the purpose of this study is to determine whether dividend policy moderates the relationship between profitability and firm value in energy companies listed on the Indonesia Stock Exchange between 2014 and 2023, analyse the impact of firm growth on firm value, and look into the mediating role of profitability.

II. LITERATURE REVIEW AND THEORETICAL BACKGROUND

A. Signalling Theory

According to Spence's Signalling Theory, there is information asymmetry since managers know more about a company's true state than do outside investors (Spence, 2018). To reduce this asymmetry, managers communicate relevant information through financial and non-financial signals that reflect the company's future prospects. It is anticipated that positive signals, including steady dividend payments, growing profitability, and steady sales growth, will boost investor confidence and eventually raise the value of the company. In this study, Signalling Theory serves as the primary theoretical foundation. Firm growth, profitability, and dividend policy are viewed as signals delivered by management to the market. However, the effectiveness of these signals depends on investors' perceptions regarding whether the information reflects sustainable value creation or merely short-term financial performance.

B. Efficiency Market Hypothesis (EMH)

The Efficient Market Hypothesis (EMH), put forth by Fama in 1970, asserts that stock prices accurately reflect all information that is available to the public. As a result, it is anticipated that information on sales growth, profitability, and dividend policy will be swiftly incorporated into stock prices, impacting company value only when it includes fresh and pertinent data (Fama, 1970). However, outside variables including changes in commodity prices, governmental regulations, geopolitical threats, and the global energy transition also influence business value in the energy sector.

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C. Firm Value

Investors' overall evaluation of a company's performance and prospects is represented by firm value. One of the main goals for publicly traded corporations is to maximise firm value since it represents market confidence and shareholder wealth (Salvatore, 2004). A greater firm value makes a company more appealing in the capital market since it shows that investors have a positive opinion of its financial performance and growth potential (Brigham & Houston, 2019). As a result, firm value is regarded as a crucial sign of business performance and has a significant impact on investors' choices.

D. Firm Growth

According to Higgins, Koski, and Mitton (2022), firm growth refers to a company's ability to achieve sustainable sales growth. As sales increase, additional assets are required to support business operations, and these assets are financed through retained earnings and debt when no new equity is issued (Robert C et al., 2022). Therefore, firm growth is ultimately limited by the growth of equity, known as the sustainable growth rate, which is the maximum rate of sales growth that can be sustained without altering the firm's operating or financial policies. (Robert C et al., 2022)

E. Profitability

According to Gitman and Zutter (2022), profitability refers to the relationship between the revenues generated by a firm and the costs incurred in utilizing its current and fixed assets in productive activities. Profitability is commonly assessed by relating the firm's returns to its sales, assets, equity, or share value. Therefore, profitability shows the firm's ability to generate earnings using the resources it uses. (Gitman & Zutter, 2019)

F. Dividend Policy

According to Gitman and Zutter, dividend policy is a firm's strategic decision regarding the distribution of earnings between dividend payments to shareholders and retained earnings for future investment. This policy requires management to balance legal and contractual requirements, investment opportunities, shareholder preferences, and market conditions. Therefore, dividend policy functions as a financial signal that shows management's confidence in the company's future prospects, changes investor perceptions, and helps maximise shareholder wealth in addition to being a tool for allocating corporate earnings (Gitman & Zutter, 2019)

III. HYPOTHESIS DEVELOPMENT

A. The Influence of firm growth on firm value

A company's capacity to increase its operations and enhance performance in the future is reflected in its firm growth. Signalling Theory states that increased firm growth boosts investor confidence, lessens information asymmetry, and sends a favourable signal about future business possibilities, all of which improve firm value (Spence, 2018). Sales growth, which shows the company's capacity to boost revenue from its core operations, is used in this study as a proxy for firm growth.

This link is largely supported by earlier research. Higher firm growth has a positive impact on firm value, according to Putri (2020), Surasmi et al. (2022), Pramesti et al. (2021), Kasmawati et al. (2023), and Akhmadi (2023). This is because investors view rising firms as having better prospects for the future and more potential for value creation. The following hypothesis is put forward in light of theoretical justifications and empirical data (Akhmadi, 2023; I Gusti Agung Prabandari Tri Putri, 2020; Kasmawati et al., 2023; Pramesti et al., 2021; Surasmi et al., 2022):

H1: Higher firm growth leads to higher firm value.

B. The Influence of Firm Growth on Profitability

By boosting production capacity, expanding corporate operations, and improving operational efficiency, firm growth is anticipated to increase profitability (Gitman & Zutter, 2019). Sustained sales growth, according to Signalling Theory, is a sign of successful business expansion and a company's capacity to produce larger future earnings. Businesses are more likely to take advantage of economies of scale, make better use of their assets, and increase their capacity to turn a profit as they expand.

Previous studies consistently support this relationship. Panji (2018), Andriani et al. (2021), Putri (2020), Mufalichah and Nurhayati (2022), Fajaria and Isnalita (2018), and Shehu Sani and Abubakar (2022) found that firm growth positively affects profitability because business expansion enables firms to increase revenue, improve operational efficiency, and strengthen financial performance (Andriani et al., 2021; Fajaria & Isnalita, 2018; I Gusti Agung Prabandari Tri Putri, 2020; Mufalichah & Nurhayati, 2022; Panji, 2018; Shehu Sani & Khadija Salihu Abubakar, 2022).

H2: Higher firm growth leads to higher profitability.

C. The Influence of Firm Growth on Firm Value with Profitability as Mediator Variable

Since business expansion does not automatically create shareholder value until it is converted into higher earnings, profitability is believed to mediate the relationship between firm growth and firm value (Gitman & Zutter, 2019). Signalling Theory states that

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although profitability shows management's capacity to translate expansion into financial performance, firm growth sends a favourable signal about future business prospects. As a result, successful businesses are more likely to draw in investors and raise their market prices.

Previous empirical studies support this mediating role. Putri (2020) and Amelia and Anhar (2019) found that profitability mediates the relationship between firm growth and firm value, indicating that business growth enhances firm value primarily through improved profitability (Amelia & Anhar, 2019; I Gusti Agung Prabandari Tri Putri, 2020). Similarly, Yusuf et al. (2022) reported that profitability serves as an important mechanism through which firm growth contributes to firm value (Yusuf et al., 2022). Although Triyani et al. (2018) found that the mediating effect was relatively weak, their findings suggest that profitability still plays a positive role in linking firm growth to firm value. Therefore, profitability is expected to act as an intermediary variable that transforms firm growth into higher firm value (Triyani et al., 2018)

H3: Profitability mediates the relationship between firm growth and firm value.

D. The Influence of Profitability on Firm Value

One of the most important measures of a company's financial performance is its profitability, which shows how well it can make money from its operations and assets (Gitman & Zutter, 2019). Signalling Theory states that increased profitability boosts investor confidence and increases firm value by sending a good signal to investors about managerial effectiveness and the company's future prospects. Strong profitability is typically seen as a sign of a company's ability to maintain growth, fund future initiatives, and generate long-term shareholder value.

Previous studies consistently support this relationship. Pramesti et al. (2021), Saila and Agustina (2023), Kasmawati et al. (2023), Mutiara et al. (2022), and Firdaus and Tanjung (2022) found that profitability has a positive effect on firm value because profitable firms are considered more efficient in utilizing their resources and generating sustainable returns. Based on these theoretical arguments and empirical findings (Firdaus & Tanjung, 2022; Kasmawati et al., 2023; Mutiara et al., 2022; Pramesti et al., 2021; Saila & Agustina, 2023),

H4: Higher profitability leads to higher firm value.

E. The Influence of Dividend Policy on Firm Value

Management's choice about how to distribute profits to shareholders is reflected in the dividend policy (Gitman & Zutter, 2019). Dividend payments give a favourable signal about a company's financial stability, future cash flows, and management's confidence in maintaining business performance, according to Signalling Theory. As a result, businesses that regularly pay out dividends are often seen as having stronger financial prospects, which boosts investor confidence and increases the value of the company.

Previous empirical studies support this argument. Amar et al. (2021), Akhmadi et al. (2021), and Ramadhani et al. (2018) found that dividend policy positively affects firm value because investors interpret dividend payments as a signal of financial stability and future profitability (Akhmadi & Januarsi, 2021; Amar et al., 2021; Ramadhani et al., 2018). As a result, businesses with steady or rising dividend payments are more likely to receive favourable feedback from the market and be valued higher. In light of these theoretical justifications and practical data.

H5: The higher the dividends distributed, the higher the firm's value.

F. The Influence of Profitability on Firm Value with Dividend Policy as Moderator Variable

Since profitability indicates a company's capacity to produce long-term profits, it is commonly acknowledged as one of the key factors that determine firm value. However, a company's dividend policy may affect how profitability affects firm value. Dividend payments offer an extra indication of financial soundness and management's faith in future performance, according to Signalling Theory. As a result, investors are anticipated to react more favourably to prosperous companies that regularly pay dividends, increasing the firm's worth.

Previous empirical studies support this argument. Akhmadi and Januarsi (2021), Kasmawati et al. (2023), Fajaria and Isnalita (2018), and Saputri and Bahri (2021) found that dividend policy strengthens the positive relationship between profitability and firm value by reinforcing investor confidence in the sustainability of corporate earnings (Akhmadi & Januarsi, 2021; Fajaria & Isnalita, 2018; Kasmawati et al., 2023; Saputri & Bahri, 2021). Accordingly, firms with higher profitability and consistent dividend payments are expected to achieve higher market valuations than firms with similar profitability but lower dividend distributions.

H6: The higher the dividends distributed, the stronger the positive effect of profitability on firm value.

IV. RESEARCH METHOD

A. Population and Sample

The companies in the energy sector that were listed on the Indonesia Stock Exchange (IDX) between 2014 and 2023 are the subject of this study. Despite periods of corporate expansion, the energy industry was chosen due to its comparatively lower Priceto-Book Value (PBV) when compared to numerous other industries. This phenomenon implies that variables other than firm growth and

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financial success may have an impact on market valuation in the energy sector. As a result, the industry offers a suitable environment for analysing how dividend policy and profitability contribute to company value.

B. Variable Measurement

This study employs four variables: firm value as the dependent variable, firm growth as the independent variable, profitability as the mediating variable, and dividend policy as the moderating variable. Firm value is measured using Price-to-Book Value (PBV), which reflects the market's valuation of a company's net assets and represents investors' perceptions of the firm's future prospects. Firm growth is proxied by Sales Growth (SG), measured using the year-over-year percentage change in sales, indicating the company's ability to expand its business operations. Profitability serves as the mediating variable and is measured by Return on Assets (ROA), representing the company's ability to generate earnings from its total assets. Dividend policy functions as the moderating variable and is represented by a dividend dummy variable, where a value of 1 indicates that the company distributed dividends during the year and 0 otherwise.

Table 1 The operational definitions and measurements of the variables

Variable	Proxy	Measurement
Firm Value	PBV	Market Price per Share / Book Value per Share
Firm Growth	Sales Growth	$Sales\ Growth\ (YoY) = \frac{Sales\ t - Sales\ t - 1}{Sales\ t - 1} \times 100\%$
Profitability	ROA	Net Income / Total Assets
Dividend Policy	Dividend Dummy	1 = company distributes dividends; 0 = otherwise

C. Data Analysis Methods

The data was analyzed using STATA version 17. To give an overview of the data distribution and variability, descriptive statistics were first used to summarize the features of the research variables, such as the mean, standard deviation, minimum, and maximum values. The associations between the variables were then investigated using panel data regression analysis. The best estimating model was identified using the Chow, Hausman, and Lagrange Multiplier (LM) tests. The Random Effects Model (REM) was determined to be the best estimating model based on the model selection results. While the moderating role of dividend policy was analyzed using Moderated Regression Analysis (MRA) by including the interaction term between profitability and dividend policy, the mediating role of profitability was investigated using a series of regression studies.

D. Classical Assumption Test

The Classical Assumption Test is used in data analysis, such as: (1) The normality test, which determines if the residuals in the regression model are normally distributed (Ghozali, 2018). The Skewness-Kurtosis test was used in this study's normalcy test. If the probability value (p-value) is higher than 0.05, the residuals are regarded as normally distributed (Ghozali, 2018). (2) Multicollinearity test: This test looks for a strong correlation between the independent variables in the regression model. The Variance Inflation Factor (VIF) was used to evaluate multicollinearity. Multicollinearity is absent from the model if the VIF value is less than 10 (Ghozali, 2018) (3) The heteroskedasticity test seeks to determine whether the residuals' variance is constant. (3) The heteroskedasticity test seeks to determine whether the residuals' variance is constant (Gujarati & Dawn C. Porter, 1972) The Modified Wald test was used in this work to assess heteroskedasticity. (4) The autocorrelation test seeks to ascertain if the residuals exhibit serial correlation across time. The Wooldridge test was used to investigate autocorrelation because this study uses panel data (Wooldridge, 2010) Robust standard errors are employed if heteroscedasticity is found. In order to identify intertemporal correlations among errors, an autocorrelation test was performed using the Wooldridge Test (Wooldridge, 2010) Robust standard errors are used to address autocorrelation in order to guarantee the quality of the estimation findings.

E. Regression Model

The regression equations are presented as follows:

Mediation Model

$$PBV = \beta_0 + \beta_1 SG + e \dots \dots \dots (1)$$

$$ROA = \beta_0 + \beta_1 SG + e \dots \dots \dots (2)$$

$$PBV = \beta_0 + \beta_1 SG + \beta_2 ROA + e \dots \dots \dots (3)$$

Moderation Model

$$PBV = \beta_0 + \beta_1 ROA + e \dots \dots \dots (4)$$

$$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + e \dots \dots \dots (5)$$

$$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \beta_3 ROA * DIV + e \dots \dots \dots (6)$$

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Information:

Symbol	Description
PBV	Price-to-Book Value (Firm Value)
SG	Sales Growth
ROA	Return on Assets (Profitability)
DIV	Dividend Policy (Dividend Dummy; 1 = dividend-paying firm, 0 = otherwise)
ROA × DIV	Interaction between Profitability and Dividend Policy
β_0	Constant (Intercept)
β_1	Regression coefficient of Sales Growth (SG) or Return on Assets (ROA), depending on the regression model
β_2	Regression coefficient of Return on Assets (ROA) or Dividend Policy (DIV), depending on the regression model
Symbol	Description β_3 Regression coefficient of the interaction term (ROA × DIV)
ε	Error term

F. Hypothesis Test

Panel data regression analysis was used to test hypotheses. The t-test was used to assess each hypothesis's significance at a 5% significance level ($\alpha = 0.05$) (Gujarati, 2003). When the computed coefficient is statistically significant and the probability value (p-value) is less than 0.05, the hypothesis is supported. On the other hand, the suggested hypothesis is not supported if the p-value is higher than 0.05. Three regression models were constructed in order to investigate the mediating role of profitability. By adding the interaction term between profitability and dividend policy to the regression model, the moderating effect of dividend policy was examined.

V. RESULT AND DISCUSSION

A. Descriptive Statistics

Table 2 Descriptive Statistical Result

Variabel	Observasi	Mean	Std. Deviasi	Minimum	Maksimum
PBV	260	2.318846	4.164839	-7.44	26.45
SG	260	13.92231	38.21116	-58.4	193.8
ROA	260	7.865115	13.22375	-37.87	60.26
DIV	260	0.723077	0.4483412	0	1

Processed by the author using STATA 17 (2025).

The descriptive statistics for the variables employed in this investigation are shown in Table 2. 260 firm-year observations in all were examined. The Price-to-Book Value (PBV) of energy companies varied significantly during the course of the observation period, with an average of 2.82 and values ranging from -7.44 to 26.45. With a minimum of -58.40% and a maximum of 193.80%, Sales Growth (SG) had a mean of 13.92%, indicating significant variations in business growth between organisations. The average Return on Assets (ROA) was 7.87%, ranging from -37.87% to 60.26%, reflecting heterogeneous profitability performance within the sector. Meanwhile, the Dividend Policy (DIV) variable had a mean of 0.72, indicating that approximately 72% of the observations represented firms that distributed dividends during the study period. Overall, the descriptive statistics reveal considerable variation in firm value, growth, and profitability among Indonesian energy companies, highlighting the heterogeneous characteristics of the sector during the 2014–2023 period.

B. Inferential statistics

1. Panel Data Model Selection

Table 3 Panel Data Model Selection Result

Equation	Regression Model	Chow Test (p-value)	LM Test (p-value)	Hausman Test (p-value)	Selected Model
(1)	$PBV = \beta_0 + \beta_1 SG + \varepsilon$	0	0	0.0048	FEM
(2)	$ROA = \beta_0 + \beta_1 SG + \varepsilon$	0	0	0.1007	REM
(3)	$PBV = \beta_0 + \beta_1 SG + \beta_2 ROA + \varepsilon$	0	0	0.0017	FEM
(4)	$PBV = \beta_0 + \beta_1 ROA + \varepsilon$	0	0	0.0013	FEM
(5)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \varepsilon$	0	0	0.67	REM
(6)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \beta_3 ROA \times DIV + \varepsilon$	0	0	0.013	FEM

Processed by the author using STATA 17 (2025).

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Table 3 displays the descriptive statistics for the variables used in this study. A total of 260 firm-year observations were analyzed. Over the course of the observation period, energy businesses' Price-to-Book Value (PBV) ranged from -7.44 to 26.45 , with an average of 2.82 . Sales Growth (SG) had a mean of 13.92% , with a minimum of -58.40% and a maximum of 193.80% , demonstrating notable differences in company growth between organizations.

The findings show that while the Random Effects Model (REM) was chosen for Equations (2) and (5), the Fixed Effects Model (FEM) was chosen for Equations (1), (3), (4), and (6). As a result, two regression equations were calculated using REM and four using FEM. These results show that different regression equations have distinct optimal estimate models, which reflects the various features of the connections under investigation. As a result, the estimating model chosen by the panel data model selection process was used to test each hypothesis.

2. Classical Assumption Test

a. Normality Test

Table 4 Normality Test Result

Equation	Regression Model	Skewness–Kurtosis (Prob > χ^2)	Conclusion
(1)	$PBV = \beta_0 + \beta_1 SG + \varepsilon$	0.6509	Normal
(2)	$ROA = \beta_0 + \beta_1 SG + \varepsilon$	0.0712	Normal
(3)	$PBV = \beta_0 + \beta_1 SG + \beta_2 ROA + \varepsilon$	0.3643	Normal
(4)	$PBV = \beta_0 + \beta_1 ROA + \varepsilon$	0.2831	Normal*
(5)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \varepsilon$	0.3485	Normal
(6)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \beta_3 ROA \times DIV + \varepsilon$	0.2612	Normal*

Processed by the author using STATA 17 (2025).

The Skewness–Kurtosis normalcy test results are shown in Table 4. The residuals are regularly distributed in all regression models, as indicated by p-values larger than 0.05 . As a result, the regression models are suitable for further hypothesis testing since the normalcy condition is met.

b. Multicollinearity Test

Table 5 Multicollinearity Test Result

Equation	Regression Model	Mean VIF	Tolerance	Conclusion
(1)	$PBV = \beta_0 + \beta_1 SG + \varepsilon$	1	1	No multicollinearity
(2)	$ROA = \beta_0 + \beta_1 SG + \varepsilon$	1	1	No multicollinearity
(3)	$PBV = \beta_0 + \beta_1 SG + \beta_2 ROA + \varepsilon$	1.3	0.77	No multicollinearity
(4)	$PBV = \beta_0 + \beta_1 ROA + \varepsilon$	1	1	No multicollinearity
(5)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \varepsilon$	3.14	0.32	No multicollinearity
(6)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \beta_3 ROA \times DIV + \varepsilon$	3.04	≥ 0.25	No multicollinearity

Processed by the author using STATA 17 (2025).

The multicollinearity test results for each regression model are shown in Table 5. The findings demonstrate that, although the relevant tolerance values are greater than 0.10 , all Variance Inflation Factor (VIF) values are much below the threshold of 10 . These results show that none of the regression models have multicollinearity issues. To reduce any potential multicollinearity related to the interaction term, the variables were mean-centered before estimating the interaction model. As a result, all regression models are suitable for further hypothesis testing since they meet the multicollinearity assumption.

c. Heteroscedasticity Test

Table 6 Heteroscedasticity Test Result

Equation	Regression Model	Prob > χ^2	Conclusion
(1)	$PBV = \beta_0 + \beta_1 SG + \varepsilon$	0	Heteroskedasticity detected
(2)	$ROA = \beta_0 + \beta_1 SG + \varepsilon$	0	Heteroskedasticity detected

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(3)	$PBV = \beta_0 + \beta_1 SG + \beta_2 ROA + \varepsilon$	0	Heteroskedasticity detected
(4)	$PBV = \beta_0 + \beta_1 ROA + \varepsilon$	0	Heteroskedasticity detected
(5)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \varepsilon$	0.0024	Heteroskedasticity detected
(6)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \beta_3 ROA \times DIV + \varepsilon$	0	Heteroskedasticity detected

Processed by the author using STATA 17 (2025).

The heteroskedasticity test results for each regression equation are shown in Table 6. Each model has heteroskedasticity since the p-values are less than the 5% significance level. In order to overcome this problem and achieve consistent statistical inference in spite of heteroskedasticity, robust standard errors were used. Regression models are therefore still suitable for testing hypotheses.

d. Autocorrelation Test

Table 7 Autocorrelation Tets Result

Equation	Regression Model	Prob > F	Conclusion
(1)	$PBV = \beta_0 + \beta_1 SG + \varepsilon$	0.0023	Autocorrelation detected
Equation	Regression Model	Prob > F	Conclusion
(2)	$ROA = \beta_0 + \beta_1 SG + \varepsilon$	0.007	Autocorrelation detected
(3)	$PBV = \beta_0 + \beta_1 SG + \beta_2 ROA + \varepsilon$	0.0054	Autocorrelation detected
(4)	$PBV = \beta_0 + \beta_1 ROA + \varepsilon$	0.0042	Autocorrelation detected
(5)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \varepsilon$	0.0043	Autocorrelation detected
(6)	$PBV = \beta_0 + \beta_1 ROA + \beta_2 DIV + \beta_3 ROA \times DIV + \varepsilon$	0.0037	Autocorrelation detected

Processed by the author using STATA 17 (2025).

Table 7 reports the results of the Wooldridge autocorrelation test for all regression models. The p-values are below the 5% significance level, indicating the presence of autocorrelation in each equation. To address this issue, the regression analysis employed cluster-robust standard errors at the firm level, which provide robust statistical inference in the presence of both autocorrelation and heteroskedasticity in panel data. Accordingly, the estimated coefficients and statistical tests remain reliable for hypothesis testing.

3. Regression Model

Equation 1

Table 8 Equation 1 Result

Variable	Coefficient	Robust Std. Error	t-statistic	p-value
Constant	0.1123	0.016	7	0
Sales Growth (SG)	0.0021	0.0015	1.43	0.164

Dependent variable: Price-to-Book Value (PBV). Robust standard errors are clustered at the firm level

The regression findings for Equation (1), which looks at how sales growth affects firm value (PBV), are shown in Table 8. A positive correlation with company value is indicated by the predicted coefficient of sales growth, which is 0.0021. Nevertheless, the relationship is not statistically significant ($p = 0.164$), indicating that business value is not significantly impacted by sales growth. As a result, Hypothesis 1 is unsupported.

Equation 2

Table 9 Equation 2 Result

Variable	Coefficient	Robust Std. Error	z-statistic	p-value
Constant	6.6305	0.8965	7.4	0
Sales Growth (SG)	0.0584	0.0105	5.57	0

Dependent variable: Return on Assets (ROA). Robust standard errors are clustered at the firm level.

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Table 9 presents the estimation results for Equation (2), which examines the effect of sales growth on profitability (ROA). The coefficient of sales growth is 0.0584 and is positive and statistically significant ($p < 0.001$). This finding indicates that firms experiencing higher sales growth tend to achieve higher profitability. Accordingly, Hypothesis 2 is supported.

Equation 3

Table 10 Equation 3 Result

Variable	Coefficient	Robust Std. Error	t-statistic	p-value
Constant	-0.0011	0.0836	-0.01	0.989
Sales Growth (SG)	0.0011	0.0014	0.83	0.414
Return on Assets (ROA)	0.0171	0.0113	1.51	0.144

Dependent variable: Price-to-Book Value (PBV). Robust standard errors are clustered at the firm level.

The estimation findings for Equation (3), which investigates the mediating function of profitability in the link between sales growth and company value, are shown in Table 10. Although statistically insignificant, the coefficient of sales increase is positive ($\beta = 0.0011$, $p = 0.414$). Similarly, company value is positively but not significantly impacted by profitability (ROA) ($\beta = 0.0171$, $p = 0.144$). These results show that while sales growth and firm value are positively correlated, neither the direct influence of sales growth nor the effect of profitability is statistically significant. Thus, the relationship between sales growth and firm value is not mediated by profitability, and Hypothesis 3 is unsupported.

Equation 4

Table 11 Equation 4 Result

Variable	Coefficient	Robust Std. Error	t-statistic	p-value
Constant	-0.0121	0.0864	-0.14	0.89
Return on Assets (ROA)	0.0203	0.0119	1.71	0.1

Dependent variable: Price-to-Book Value (PBV). Robust standard errors are clustered at the firm level.

The regression findings for Equation (4), which looks at how profitability (ROA) affects company value (PBV), are shown in Table 11. A positive correlation between profitability and business value is indicated by the estimated coefficient of profitability of 0.0203. Nevertheless, at the 5% significance level ($p = 0.100$), the coefficient is not statistically significant. This result implies that during the study period, firms in the energy sector did not significantly enhance their firm value in response to increasing profitability. As a result, Hypothesis 4 is unsupported.

Equation 5

Table 12 Equation 5 Result

Variable	Coefficient	Robust Std. Error	z-statistic	p-value
Constant	-0.0121	0.1936	-0.06	0.95
Return on Assets (ROA)	0.0297	0.01	2.99	0.003
Dividend Policy (DIV)	-0.0244	0.128	-0.19	0.849

Dependent variable: Price-to-Book Value (PBV). Robust standard errors are clustered at the firm level.

The regression findings for Equation (5), which looks at how profitability (ROA) and dividend policy (DIV) affect company value (PBV), are shown in Table 12. When dividend policy is incorporated in the model, profitability has a positive and statistically significant effect on company value ($\beta = 0.0297$, $p = 0.003$), suggesting that firms with higher profitability likely to have higher firm value. Dividend policy, on the other hand, shows a negative but statistically insignificant coefficient ($\beta = -0.0244$, $p = 0.849$), indicating that dividend distribution has no discernible direct impact on company value. As a result, Hypothesis 5 is unsupported.

Equation 6

Table 13 Equation 6 Result

Variable	Coefficient	Robust Std. Error	t-statistik	p-value
Konstanta	0.156926	0.030915	5.08	0.000

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Profitabilitas (ROA)	0.0231977	0.012129	1.91	0.067
Keb. Div (dummy variabel)	-0.092803	0.154637	-0.6	0.554
ROA*DIV	-0.019332	0.027697	-0.7	0.492

Dependent variable: Price-to-Book Value (PBV). Robust standard errors are clustered at the firm level.

Table 13 displays the regression results for Equation (6), which looks at the moderating effect of dividend policy (DIV) in the link between profitability (ROA) and company value (PBV). The findings indicate that business value is positively but statistically insignificantly impacted by profitability ($\beta = 0.0232$, $p = 0.067$). Additionally, dividend policy has a negative and negligible impact ($\beta = -0.0928$, $p = 0.554$), suggesting that dividend payments have no direct effect on business value. Additionally, ROA $\times$ DIV, the interaction term between profitability and dividend policy, is statistically insignificant and negative ($\beta = -0.0193$, $p = 0.492$). These results suggest that the relationship between profitability and firm valuation is not moderated by dividend policy.

4. DISCUSSION

A. Effect of sales growth on firm value

The findings reveal that business growth alone is not enough to increase the market value of energy companies, as sales growth has a positive but negligible impact on firm value. Investors may not always view increasing sales as a sign of increased firm value, even though sales growth is a reflection of corporate expansion. As a result, Hypothesis 1 is unsupported.

This finding may be explained by the characteristics of the energy sector, which is highly capital-intensive and subject to commodity price volatility, regulatory changes, and the transition toward sustainable energy. Consequently, investors tend to adopt a forward-looking perspective, emphasizing long-term value creation, financial sustainability, and ESG-related performance rather than short-term sales growth. These findings are consistent with Budiharjo (2023) and Saila and Agustina (2023), who reported that sales growth does not significantly affect firm value (Budiharjo, 2023; Saila & Agustina, 2023), but differ from the findings of Pramesti et al. (Pramesti et al., 2021) and Surasmi et al. (Surasmi et al., 2022).

B. Effect Sales Growth on Profitability

The findings demonstrate that profitability is positively and significantly impacted by sales growth, suggesting that companies with more sales growth typically have larger profits. This result lends credence to Hypothesis 2 and implies that business development helps companies attain economies of scale, boost production capacity, and improve operational efficiency—all of which eventually increase profitability. According to Signaling Theory, firm growth reduces information asymmetry between managers and investors by acting as a positive signal of a company's capacity to develop its operations and enhance future financial performance.

This finding is particularly relevant in the energy sector, where business expansion requires substantial investment and efficient resource utilization. As energy companies increase their sales, they are more likely to optimize asset utilization and spread fixed costs over larger production volumes, leading to improved profitability. The result is consistent with the findings of I Gusti Agung Prabandari Tri Putri (2020) and Fajaria and Isnalita (2018), who reported that firm growth positively contributes to profitability by improving operational performance and production efficiency (Fajaria & Isnalita, 2018; I Gusti Agung Prabandari Tri Putri, 2020).

C. The Mediating Role of Profitability

The findings show that the relationship between sales growth and company value is not mediated by profitability. Profitability is greatly increased by sales growth, but this does not result in a rise in firm value. As a result, Hypothesis 3 is unsupported. According to this research, profitability is not a reliable way for business expansion to increase firm value. Both business growth and profitability should indicate promising future possibilities, according to Signaling Theory. Investors, however, seem to believe that the stated gains do not adequately represent long-term value creation or durable competitive advantages.

This finding may be attributed to the characteristics of the energy sector, where investment decisions are highly influenced by long-term business prospects, commodity price volatility, regulatory changes, and the ongoing energy transition. As a result, investors tend to adopt a forward-looking perspective, evaluating not only current profitability but also the sustainability of growth, investment strategies, and firms' commitment to long-term value creation. These findings differ from Amelia and Anhar (2019) and I Gusti Agung Prabandari Tri Putri (2020), who found that profitability mediates the relationship between firm growth and firm value (Amelia & Anhar, 2019; I Gusti Agung Prabandari Tri Putri, 2020), but are consistent with Andayani and Purbawangsa (2019), who reported that profitability does not significantly mediate this relationship (Andayani & Purbawangsa, 2019).

D. Effect Profitability on firm value

The findings reveal that better profitability does not always translate into higher market valuation among energy companies, since profitability has a positive but negligible impact on company value. As a result, Hypothesis 4 is unsupported. Profitability should be a good indicator of a company's financial performance and future prospects, according to Signaling Theory. The results, however,

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suggest that investors do not view current profitability as sufficiently informative to raise firm value, especially when earnings are impacted by transient factors like changes in commodity prices rather than long-term operational performance.

This finding can be explained by the characteristics of the energy sector, which is capital-intensive and operates under high market uncertainty. Investors tend to adopt a forward-looking perspective by evaluating long-term business sustainability, investment strategies, and firms' ability to adapt to the energy transition, rather than focusing solely on current profitability. The results are inconsistent with previous studies by Natalia et al. (2021), Saila and Agustina (2023), and Kasmawati et al. (2023), which found a significant positive effect of profitability on firm value (Kasmawati et al., 2023; Natalia et al., 2021; Saila & Agustina, 2023). However, they support the findings of Iskandar (2021) and Sulastri et al. (2023), who reported that profitability does not necessarily translate into higher firm value (Iskandar, 2021; Sulastri et al., 2023).

E. Effect Dividend Policy on firm value

The findings show that dividend policy has no discernible impact on firm valuation, indicating that investors do not primarily take dividend distribution into account when evaluating energy companies. As a result, Hypothesis 5 is unsupported. Dividend payments should indicate sound financial standing and promising future prospects, according to Signaling Theory. The results, however, suggest that dividend announcements don't offer enough pertinent information to affect investors' valuation choices. Rather, companies' long-term business prospects, growth potential, and profitability seem to be more important to investors.

This finding can be explained by the characteristics of the energy sector, where firms require substantial capital investment and operate under considerable uncertainty due to commodity price volatility and the ongoing energy transition. Consequently, investors tend to adopt a forward-looking perspective, preferring companies that reinvest earnings to support future growth rather than distribute them as dividends. These findings are consistent with Khuzaini et al. (2017), who reported that dividend policy is not a significant determinant of firm value (Khuzaini et al., 2017), but differ from Amar et al. (Amar et al., 2021) and Akhmadi et al. (Akhmadi & Hardiyanti, 2020). The results also support the Dividend Irrelevance Theory proposed by Miller and Modigliani, which argues that dividend policy does not necessarily affect firm value under certain market conditions. (Gunarianto et al., 2023)

F. Moderating Role Dividend Policy

The findings show that the relationship between profitability and firm value is not moderated by dividend policy. Furthermore, there is no discernible direct impact of dividend policy on business value. These results imply that dividend policy just serves as a possible moderator and neither increases nor decreases the impact of profitability on firm value. Thus, there is no evidence to support Hypothesis 6. Dividend payments are anticipated to strengthen the good signal that profitability conveys, according to Signaling Theory. The findings, however, suggest that investors do not view dividend payments as extra information that increases the significance of a company's earnings when assessing energy companies.

This finding can be explained by the characteristics of the energy sector, where firms require substantial long-term investment and operate under considerable uncertainty due to commodity price fluctuations, regulatory changes, and the transition toward sustainable energy. Consequently, investors tend to adopt a forward-looking perspective, placing greater emphasis on long-term growth opportunities, investment strategies, and sustainable profitability than on dividend payments. The findings are consistent with Stefanie and Yanti (2023), who reported that dividend policy does not moderate the relationship between profitability and firm value (Stefanie & Yanti, 2023), but differ from the results of Akhmadi and Januarsi (Akhmadi & Januarsi, 2021), Fajaria and Isnalita (Fajaria & Isnalita, 2018)), and Kasmawati et al. (Kasmawati et al., 2023)). The results also support the Dividend Irrelevance Theory proposed by Miller and Modigliani, suggesting that dividend policy is not a primary determinant of firm value under certain market conditions (Gunarianto et al., 2023).

VI. CONCLUSION

Using panel data from 26 energy businesses listed on the Indonesia Stock Exchange between 2014 and 2023, this study investigated the link between sales growth and firm value using profitability as a mediating variable and dividend policy as a moderating variable. The findings show that while sales growth has a favorable and large impact on profitability, it has no direct effect on firm value. Additionally, profitability has no appreciable direct impact on company value and does not mediate the relationship between sales growth and firm value. In a similar vein, dividend policy neither directly influences firm value nor modifies the correlation between profitability and firm value. According to these findings, investors in the energy sector should take a forward-looking stance, giving more weight to long-term value creation, business sustainability, strategic investment choices, and firms' capacity to adjust to the energy transition than to short-term financial metrics like profitability, sales growth, or dividend payments. As a result, lasting competitive advantages and potential for future growth seem to be more important factors influencing business value in the energy sector than just present financial success. However, this analysis uses a small number of variables and measurement proxies and is restricted to energy sector businesses listed on the Indonesia Stock Exchange between 2014 and 2023, which may limit the findings' generalizability and comprehensiveness. To provide a more thorough explanation of company value, further research is encouraged to incorporate more firm-specific or macroeconomic factors, alternative proxies, and larger industry coverage.

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