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# The Effect of Eco-Efficiency, Sustainability Reporting, and Dividend Policy on the Value of Mining Companies Listed on the Indonesian Stock Exchange

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## ABSTRACT

Firm value reflects market confidence and long-term corporate sustainability, particularly in environmentally sensitive industries such as mining. This study aims to examine the effect of eco-efficiency, sustainability reporting, and dividend policy on the firm value of mining companies listed on the Indonesia Stock Exchange during the 2021–2024 period. Using secondary data from annual and sustainability reports, this study analyzes 56 observations from 14 companies selected through purposive sampling. Panel data regression analysis is employed to test the proposed relationships. The results indicate that eco-efficiency, sustainability reporting, and dividend policy have insignificant effects on firm value, with eco-efficiency and dividend policy exhibiting negative relationships. These findings suggest that sustainability practices and dividend decisions have not yet been fully perceived by the market as value-enhancing factors. Therefore, mining companies need to strengthen the quality of environmental initiatives, sustainability disclosures, and financial policies to enhance firm value.

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## INTRODUCTION

The acceleration of the digital economy and the rapid pace of growth have intensified competition among businesses, compelling companies to enhance effectiveness and operational efficiency to remain sustainable. In this situation, firm value becomes an essential benchmark as it illustrates market confidence, shareholder wealth, and long-term resilience (Lestari & Khomsiyah, 2023 and Rangkuti et al., 2020). Firms that consistently generate profits and create added value are generally more appealing to investors, while low firm value may raise concerns about business continuity (Hapsari, 2023). In Indonesia, the capital market represented by the Indonesia Stock Exchange (IDX) serves as a key indicator, where movements in stock prices reflect fluctuations in firm value regardless of the presence of explicit financial policies (Ramadani et al., 2023). Thus, strengthening firm value is a strategic priority for companies, as it supports competitiveness in the market and ensures shareholder prosperity.

Firm value can be measured using Tobin's Q ratio, first introduced by James Tobin in 1967, which combines tangible and intangible assets to assess corporate worth. A higher Tobin's Q indicates stronger market confidence in the company's future prospects, suggesting that greater firm value is aligned with higher investor prosperity (Aprianti et al., 2023) dan (Surianti et al., 2024)

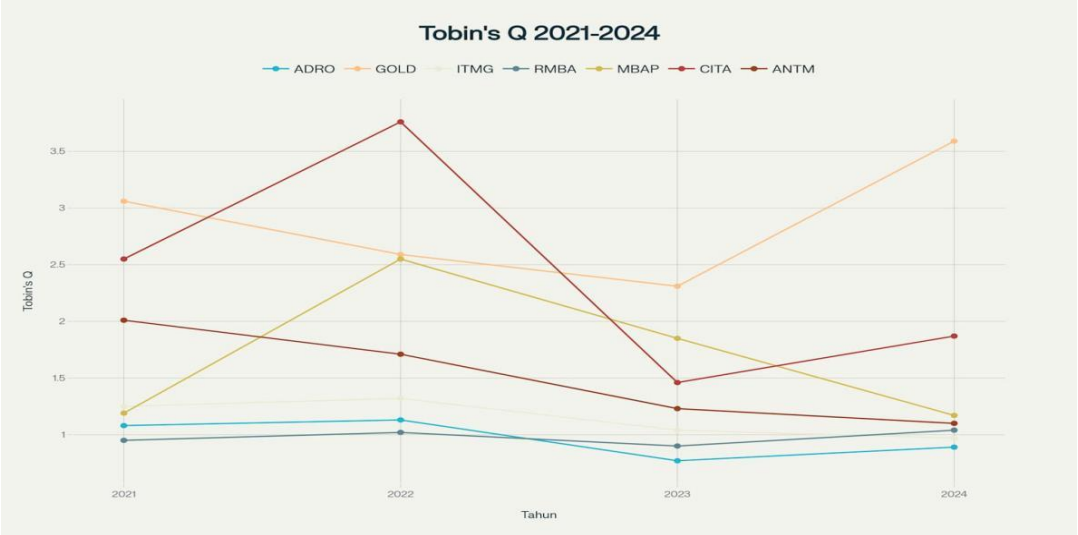


**Figure 1. Tobin's Q of Mining Companies Listed on the Indonesia Stock Exchange, 2021–2024**

*Source: Indonesia Stock Exchange (processed by the author, 2025)*

Based on Figure 1, several mining companies, including ADRO, GOLD, ITMG, RMBA, MBAP, CITA, and ANTM, experienced fluctuations in firm value as measured by Tobin's Q during the 2021–2024 period, with both increases and decreases occurring annually. A Tobin's Q value above one indicates that a company's stock is overvalued, while a value below one suggests that it is undervalued (Aprianti et al., 2023). These fluctuations are primarily influenced by changes in stock prices and investor perceptions of company performance (Ramadani et al., 2023). Undervalued stocks tend to be less attractive to investors because their market value is lower than the book value of assets, whereas overvalued stocks are generally more attractive as they reflect higher market confidence. Consequently, companies continuously seek to enhance firm value in order to attract investor interest and secure capital inflows (Aprianti et al., 2023).

According to Law No. 2 of 2025, mining activities encompass all stages from investigation and exploration to mining, processing, and post-mining operations. To maximize firm value, mining companies intensify business activities such as mineral exploration, extraction, processing, utilization, and sales (Mawaddah et al., 2023). However, the pursuit of higher profits often leads to the neglect of environmental considerations, contributing to environmental degradation and global warming (Rosaline et al., 2020). This condition is reflected in various pollution cases in Indonesia, which indicate relatively low corporate awareness of environmental protection (Sapulette & Limba, 2021).

Given the nature of their operations, mining companies have a high potential to cause environmental problems and therefore require special attention (Mawaddah et al., 2023). Environmental issues arising from mining activities can adversely affect corporate reputation, reduce investor confidence, and ultimately influence firm value through fluctuations in stock prices. For instance, environmental problems related to tailings waste at PT Freeport in Mimika have caused sedimentation, clean water shortages, and river siltation extending to coastal areas, thereby raising investor concerns regarding the company's environmental risk management (VoaIndonesia.com, 2023).

Similarly, in 2024, PT Indonesia Weda Bay Industrial Park (IWIP) in Central Halmahera was reported to have caused environmental damage and human rights issues. The company's nickel downstreaming activities resulted in the deforestation of approximately 5,331 hectares, the loss of carbon reserves, and increased emissions from coal-fired power plants. These impacts damaged river, marine, and agricultural

ecosystems, polluted clean water sources, and threatened the livelihoods of indigenous communities (Kompas.id, 2023). Such environmental issues may increase regulatory pressure and operational risks, which can negatively affect market perceptions and reduce firm value. These phenomena emphasize the importance of environmental performance in shaping firm value, particularly among mining companies included in the research sample.

The government emphasizes the importance of implementing Eco-Efficiency in corporate activities as a form of compliance with environmental regulations (Dewi & Rahmianingsih, 2020). This strategy focuses on energy efficiency, reduction of raw materials, and prevention of pollution by promoting environmentally friendly products (Rofiq et al., 2023). The implementation of Eco-Efficiency not only reduces operational costs but also increases the productivity and environmental performance of companies (Damas et al., 2021). This is in line with the expectations of the public, who demand corporate responsibility for the surrounding environment, while also boosting the reputation and trust of investors, which can increase the value of the company (Fanda & Dwijayanti, 2024). Previous studies have shown mixed results: Yuliandhari et al. (2023) and Sari et al. (2024) found a positive effect of Eco-Efficiency on company value, while Rahelliamelinda & Handoko (2024) concluded that there was a negative effect.

Sustainability Reporting is now seen as an important factor in increasing company value because it is a major concern for investors in their investment decisions (Fanda & Dwijayanti, 2024; Hapsari, 2023). This report shows the integration of environmental, social, and transparency aspects in company operations (Jawas & Sulfitri, 2022) and is interpreted as a form of openness regarding the positive and negative impacts of company activities on the economy, society, and the environment (Atahau & Kausar, 2022). The aim is for shareholders and the public to be aware of the company's social and environmental responsibilities (Julythiawati & Ardiana, 2023). The legal basis is contained in Law No. 40 Article 74 of 2007 concerning Limited Liability Companies and reinforced by POJK No. 51/POJK.03/2017, which requires public companies to prepare sustainability reports. Although still voluntary, its growth shows companies' concern for sustainability aspects (Wibowo, 2020; Jawas & Sulfitri, 2022). The research also produced various findings, where Puspita & Jasman (2022) and Khunkaew et al. (2023) found a positive and significant effect of sustainability reports on company value, while Nguyen (2020) found no significant effect.

In addition to Eco-Efficiency and Sustainability Reporting, Dividend Policy is also a consideration for investors in assessing companies. Dividends are company profits distributed to shareholders (Teo et al., 2022), which are reported through the General Meeting of Shareholders by the board of directors (Ibrahim et al., 2023). An increase in dividends from year to year sends a positive signal about the managers' ability to manage the company, thereby increasing investor confidence (Hidayati & Meidiaswati, 2023). Dividend Policy itself is a decision on whether profits will be distributed as dividends or retained for future investment (Olii et al., 2023). Dividend distribution will reduce retained earnings, while retaining earnings strengthens internal funding sources (Ningrum, 2022). Each company's dividend policy is different, so investors who want stable income tend to choose stocks that provide stable dividends (Hutama & Budhidharma, 2022). This policy affects investors' perceptions of company performance, because large dividends can increase company value, but management must also manage funds efficiently (Rohmatulloh, 2023). Previous studies have found mixed results: Dessriadi et al. (2022) and Purwati (2020) showed that dividend policy has a significant positive effect on company value, while Rohmatulloh (2023) found no effect.

This study contributes to the literature by examining the combined effects of eco-efficiency, sustainability reporting, and dividend policy on firm value within the mining sector, an industry characterized by high environmental risk and capital intensity. Unlike prior studies that primarily focus on environmental factors such as carbon emission disclosure or green innovation, this research integrates environmental performance,

sustainability disclosure, and financial policy within a single empirical framework. In addition, this study employs recent data from mining companies listed on the Indonesia Stock Exchange during the 2021–2024 period, a timeframe marked by increasing ESG awareness, regulatory pressure, and public scrutiny of environmental impacts. The urgency of this research lies in the need to understand whether sustainability initiatives and dividend decisions are perceived by the market as value-enhancing factors in environmentally sensitive industries. Therefore, this study provides timely empirical evidence relevant to investors, regulators, and corporate management in strengthening firm value through sustainable and transparent practices.

## METHODS

The information used in this analysis is quantitative information, which is information presented in the form of numbers or numerical data. The annual reports and sustainability reports of mining companies in the energy sector uploaded on IDX between 2021 and 2024 are the data sources used in this analysis. Data collection in this study was conducted using documentation techniques. Documentation techniques are methods carried out by collecting supporting information such as records, annual reports, sustainability reports, and other data related to the study.

**Table 1. Operationalization Variables**

| Variables | Measurement | Scale |
|---|---|---|
| Firm Value<br>Chung & Pruitt (2015) | $\text{Tobin's Q} = \frac{\text{Market Value Stock} + \text{Liabillities}}{\text{Assets}}$ | Ratio |
| Eco-efficiency<br>Daud et al. (2023) | $\text{Eco} - \text{Efficiency} = \frac{\text{Metric tons of CO2}}{\text{Total Sales (In Millions of Rupiah)}}$ | Ratio |
| Sustainability reporting<br>Febriyanti (2021) | $\text{SRDIz} = \frac{\text{n}}{\text{K}}$ | Ratio |
| Dividend Policy<br>Yudhyani et al. (2022) | $\text{Dividend Payout Ratio} = \frac{\text{Dividen Per Share}}{\text{Earning Per Share}}$ | Ratio |

Source: Data has been processed by author (2025)

In the energy and gas, metals and minerals, coal, oil and gas, coal reinforcement, energy equipment, and vitality equipment subsectors, mining companies listed on the Indonesia Stock Exchange (IDX) constitute the research population, totaling 63 companies. The sample was selected using purposive sampling with the criteria that companies were consistently listed during 2021–2024, published complete annual and sustainability reports, distributed dividends at least once, and provided complete data for all research variables. Based on these criteria, 14 companies were selected, resulting in 56 firm-year observations. The 2021–2024 research period was selected because the Financial Services Authority (OJK) issued Circular Letter No. 16/SEOJK.04/2021, which introduced new guidelines for the format and content of annual reports, including sustainability-related disclosures for listed companies. Since 2021, companies have been expected to disclose sustainability information; however, not all firms have consistently published sustainability reports, making this period relevant for examining sustainability practices and their implications. In addition, the study is limited to 2024 as it uses the most recent available annual and sustainability reports at the time the research was conducted, prior to the publication of the 2025 reports.

The analysis technique used in this study employs panel data regression analysis with the help of EViews (Econometrica Views) software. Panel data regression analysis is data that has time and space dimensions, meaning that the variables in this study consist

of several categories and are collected over a certain period of time. Panel data analysis is also known as a combination of time series data and cross-sectional data. Cross-sectional data is data collected from many individuals over a certain period of time, while time series data is collected from one individual over a certain period of time. Therefore, the use of EViews is the appropriate analysis method to evaluate the relationship between hypotheses and data in studies that use panel data regression analysis (Basuki, 2019).

## RESULTS AND DISCUSSION

The results of data processing in this study include descriptive statistical analysis, classical assumption tests (normality test, heteroscedasticity test, autocorrelation test, and multicollinearity test), model selection tests (Chow test, Hausman test, and LM test), and hypothesis testing using panel data regression. Data processing began with the collection and input of data into Microsoft Office Excel, then the collected data was selected and converted for further processing using EViews 13 software.

### Descriptive Statistical Analysis

Descriptive Statistics. Descriptive statistics are used to analyze data by describing the collected data as it is without drawing conclusions that apply to the public or generalizations. Descriptive statistics can be seen from the mean, standard deviation, maximum value, and minimum value. This study examines three variables: Eco-Efficiency, Sustainability Reporting, and Dividend Policy as independent variables, and Firm Value as a dependent variable. The following is a summary of the descriptive analysis results for each research variable.

**Table 2. Descriptive Statistics**

| | DPR | SDRI | ECO_EFFIC | TOBIN_Q |
|---|---|---|---|---|
| Mean | 0.725357 | 0.673929 | 0.096852 | 2.264643 |
| Median | 0.570000 | 0.670000 | 0.023862 | 1.455000 |
| Maximum | 4.530000 | 0.690000 | 1.301403 | 12.92000 |
| Minimum | 0.040000 | 0.660000 | 0.000000 | 0.750000 |
| Std. Dev. | 0.720586 | 0.008879 | 0.249388 | 2.535174 |
| Skewness | 3.085582 | 0.091876 | 3.645118 | 3.400646 |
| Kurtosis | 15.58634 | 2.294062 | 15.51204 | 13.84461 |
| Jarque-Bera | 458.4981 | 1.241597 | 489.2969 | 382.3475 |
| Probability | 0.000000 | 0.537515 | 0.000000 | 0.000000 |
| Sum | 40.62000 | 37.74000 | 5.423728 | 126.8200 |
| Sum Sq. Dev. | 28.55839 | 0.004336 | 3.420700 | 353.4910 |

Source: Output Eviews (2025)

The descriptive statistics in Table 2 reflect the general condition of the mining sector during the observation period. Firm value, measured by Tobin's Q, has an average of 2.264, indicating that mining companies are valued by the market at more than twice their book value, which suggests relatively strong investor confidence. However, the large standard deviation (2.535) and wide range (0.750–12.920) indicate substantial disparities in firm value across companies.

Eco-efficiency shows a low average value of 0.096, indicating that environmental efficiency practices are not yet optimally implemented across the sector. The high standard deviation (0.249) reflects considerable variation in eco-efficiency performance among

firms.

Sustainability reporting, measured by SRDI, has an average of 0.673, meaning that companies disclose approximately 67% of the expected sustainability indicators. This reflects a moderate level of disclosure, largely driven by regulatory compliance rather than strategic differentiation, as indicated by the low standard deviation (0.008). From an investor perspective, a higher SRDI value closer to 1 is generally preferred, as it signals greater transparency.

Dividend policy, proxied by the DPR, has an average value of 0.725, indicating that companies distribute around 72.5% of their net income as dividends. While this level may appeal to income-oriented investors, a more balanced payout is often preferred to ensure sufficient retained earnings for long-term growth. The wide range of DPR values (0.040–4.530) indicates substantial variation in dividend strategies across firms.

**Panel Data Regression Model Selection**

The panel data regression model selection is divided into the Chow, Hausman, and Lagrange Multiplier Test (LM).

**Chow Test.** The Chow test, commonly called the F statistics test, is a statistical test that aims to determine whether the Fixed Effect or Common Effect model is better. The following are the Chow Test results.

**Tabel 3. Chow Test**

Redundant Fixed Effects Tests
Equation: FEM
Test cross-section fixed effects

| **Effects Test** | **Statistic** | **d.f.** | **Prob.** |
|---|---|---|---|
| Cross-section F | 11.965587 | (13,39) | 0.0000 |
| Cross-section Chi-square | 89.999901 | 13 | 0.0000 |

Source: Output Eviews (2025)

Table 3 shows that the estimation results of the Redundant Fixed Effects Tests obtained a cross-section F-statistic of 11.965587 with a probability value of 0.0000 and a cross-section Chi-square of 89.999901 with a probability value of 0.0000. Since the probability values are less than 0.05, $H_0$ is rejected, which means that the Fixed Effect Model (FEM) is more appropriate to use compared to the Common Effect Model (CEM).

**Hausman Test**. The Hausman test determines which approach is better with the Random Effect or Fixed Effect model. The following results are obtained using Eviews software.

**Tabel 4. Hausman Test**

Correlated Random Effects -Hausman Test
Equation : REM
Test cross - section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|---|---|---|---|
| Cross-section random | 3.243183 | 3 | 0.3556 |

Source: Output Eviews (2025)

Table 4 Hausman test shows that the Chi-Square statistic value is 3.243183 with df = 3 and prob. Chi-Square value of 0.3556. Since the probability value is greater than 0.050, $H_0$ is accepted, which means that the Random Effect Model (REM) is more appropriate to use than the Fixed Effect Model (FEM).

**Lagrange Multiplier Test (LM Test)**. The Lagrange Multiplier Test (LM Test) determines which approach is better with the Random Effect or Common Effect model. The following results are obtained using Eviews software**.**

**Tabel 5. Lagrange Multiplier Test (LM Test)**

| | Test Hypothesis | | |
|---|---|---|---|
| | Cross-section | Time | Both |
| Breusch-Pagan | 39.23464 (0.0000) | 1.869500 (0.1715) | 41.10414 (0.0000) |
| Honda | 6.263756 (0.0000) | -1.367297 (0.9142) | 3.462319 (0.0003) |
| King-Wu | 6.263756 (0.0000) | -1.367297 (0.9142) | 1.479821 (0.0695) |
| Standardized Honda | 7.122516 (0.0000) | -1.169724 (0.8789) | 0.981905 (0.1631) |
| Standardized King-Wu | 7.122516 (0.0000) | -1.169724 (0.8789) | -0.772320 (0.7800) |
| Gourieroux, et al. | - | - | 39.23464 (0.0000) |

Source: Output Eviews (2025)

Table 5 shows that the Breusch-Pagan LM test (Cross-section) value is 39.23464 with a p-value of 0.0000 and the Breusch-Pagan LM test (Both) value is 41.10414 with a p-value of 0.0000. Since the LM test probability value is less than 0.05, $H_0$ is rejected, so it can be concluded that the Random Effect Model (REM) approach is more appropriate than the Common Effect Model (CEM).

**Classical Assumption Test**

This classic assumption test aims to test the quality of the data so that it can be known for its validity and avoid biased data. It contains four tests: normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

**Normality Test.** The normality test is carried out to determine whether the dependent and independent variables are usually distributed in the regression model. This study's data normality test uses Jarque-Bera testing, assuming the data is normally distributed if the probability value is above 0.050. Conversely, the data is not normally distributed if the Jarque-Bera result has a probability below 0.050.

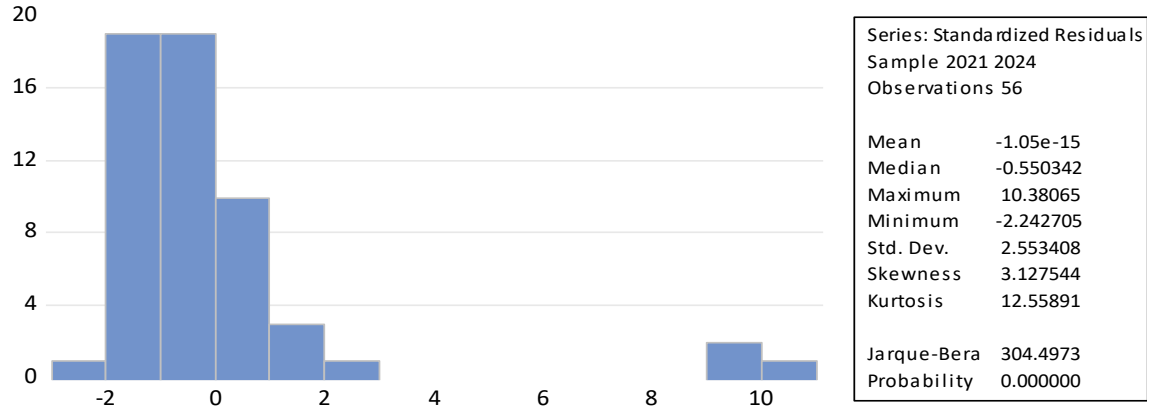


**Figure 2. Normality Test**

*Source: Output Eviews (2025)*

Figure 2 shows the normality test of the residuals using the Jarque-Bera test, which produces a value of 304.4973 with a p-value of 0.000000, indicating that the residuals are not normally distributed. However, in panel data regression, the assumption of normality is not a strict requirement, because the estimator remains consistent and unbiased when the number of observations is large enough (Gujarati & Porter, 2009).

**Multicollinearity Test.** Multicollinearity testing is carried out to determine whether the

regression model found a relationship between independent variables. This study tests the VIF (Variance Inflation Factors) value, which indicates multicollinearity**.**

**Tabel 6. Multicollinearity Test**

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| C | 36.73983 | 5291.317 | NA |
| X1 | 0.115163 | 1.168713 | 1.013131 |
| X2 | 80.29975 | 5264.814 | 1.081261 |
| X3 | 0.014345 | 2.138377 | 1.053056 |

Source: *Output Eviews* (2025)

Table 6 shows that all independent variables have a Centered VIF value below 10, namely Eco-Efficiency 1.013, Sustainability Reporting 1.081, and Dividend Policy 1.053. This indicates that there is no significant multicollinearity, because VIF values close to 1 indicate that the correlation between independent variables is very weak, so that each independent variable stands alone in influencing the dependent variable.

**Autocorrelation Test.** An autocorrelation test is performed to detect systematic patterns between residuals in different periods. Although common in time series data, this test remains important in panel data models. If autocorrelation occurs, the regression coefficients remain unbiased, but the standard errors become biased, rendering the t and F tests invalid.

**Tabel 7. Autocorrelation Test**

| Statistic | Value |
|---|---|
| | 4.074493 |
| Prob. F(2,44) | 0.0238 |
| Obs*R-squared | 8.750758 |
| Prob. Chi-Square(2) | 0.0126 |

Source: *Output Eviews* (2025)

Based on the Breusch-Godfrey Serial Correlation LM Test output, Prob. F(2,44) = 0.0238 and Prob. Chi-Square = 0.0126 (< 0.05), indicating that the residuals are not free from autocorrelation even though the Durbin-Watson value is close to 2. This indicates the presence of autocorrelation in the panel data regression model, which can cause biased residual variance estimates and reduce the accuracy of the t and F tests, although this condition is common in panel data with small samples or short periods.

**Heteroscedasticity Test.** Heteroscedasticity testing is carried out to determine whether there is an inequality of variance from the residuals of one observation to another in the regression model. Heteroscedasticity can be detected with the White Test. White's test looks at the probability value, providing that there is heteroscedasticity if the probability value is less than 0.050. However, there is no heteroscedasticity if the probability value exceeds 0.050.

**Tabel 8. Heteroscedasticity Test**

| Statistik | Nilai | Probabilitas |
|---|---|---|
| F-statistic | 0.256330 | 0.9968 |
| Obs*R-squared | 4.910881 | 0.9929 |
| Scaled explained SS | 6.232122 | 0.9756 |

Source: *Output Eviews* (2025)

The White Test results show that all probability values are > 0.05, so $H_0$ is accepted and the panel regression model does not experience heteroscedasticity. Thus, the residual variance is homoscedastic and the classical assumptions are satisfied, so that the regression parameter estimates are efficient (BLUE).

**Panel Data Regression Equation.**
With the help of E-views 1,3 software, the following test results obtained panel data regression results.

**Tabel 9. Panel Data Regression Equation**

| Variabel | Koefisien | Std. Error | t-Statistik | Prob. |
|---|---|---|---|---|
| C | -25.36001 | 19.75823 | -1.283517 | 0.2050 |
| ECO_EFFICIENCY | -0.841068 | 1.785916 | -0.470945 | 0.6396 |
| SDRI | 41.29135 | 29.13979 | 1.417009 | 0.1624 |
| DPR | -0.167236 | 0.295204 | -0.566509 | 0.5735 |
| Effect Specification | | | | |
| | | | S.D | Rho |
| Cross-section random | | | 2.254825 | 0.7413 |
| Idiosyncratic random | | | 1.332051 | 0.2587 |
| Weighted Statistics | | | | |
| R-squared | | | | |
| Adjusted R-squared | | | | |
| S.E. of regression | | | | |
| F-statistic | | | | |
| Prob(F-statistic) | | | | |
| Unweighted Statistics | | | | |
| R-squared | -0.014436 | Mean dependent var | | 2.264643 |
| Sum squared resid | 358.5940 | Durbin-Watson stat | | 0.374777 |

Source: *Output Eviews* (2025)

Tabel 9 Shows the calculation results where the form of the regression equation is obtained.

$$Tobin's\ Q_{it} = -25.36001 - 0.841068\ ECO\_EFFICIENCY_{it} + 41.29135\ SDRI_{it} - 0.167236\ DPR_{it} + e_{it}$$

The regression coefficient values on the independent variables illustrate that if an independent variable increases by one unit while the others remain constant, the dependent variable (Tobin's Q) will change according to the sign of the regression coefficient of each independent variable.

**Hypothesis Testing**
**Testing the Coefficient of Determination ($R^2$).** The coefficient of determination test is used to measure the extent to which independent variables can explain dependent variables. Its value ranges from 0 to 1; the higher the value, the better the independent variables explain the dependent variables (Ghozali & Ratmono, 2017). Table 9 shows that the R-squared value of 6.94% indicates that the model can only explain a small portion (6.94%) of the variation in company value. Thus, there is 93.06% of variation that is likely explained by factors outside the scope of this study.

**T-test.** The t-test shows how far one independent variable is from the dependent variable by assuming that the other independent variables are constant (Ghozali & Ratmono, 2017). Table 9 shows the results of the t-test indicating that Eco-Efficiency (t = -0.4709; p = 0.6396), Sustainability Reporting (t = 1.4170; p = 0.1624), and Dividend Policy (t = -0.5665; p = 0.5735) did not have a significant partial effect on the value of mining companies. This means that each independent variable was not able to explain changes in company value on its own during the research period.

**The Impact of Eco-Efficiency on Company Value**

The study's results show that Eco-Efficiency has a negative but insignificant effect on firm value, with a coefficient of −0.841 and a significance level of 0.639, indicating that environmental efficiency practices in Indonesian mining companies have not yet been translated into a positive market signal. This condition can be explained by the high initial costs of implementing green technologies and emission controls, which reduce short-term profitability, while most investors still prioritize earnings and dividends over sustainability efforts. This tendency is also reflected in the descriptive statistics, which show a relatively high average Dividend Payout Ratio (DPR) of 0.725, indicating that companies allocate a large proportion of earnings to dividends, potentially reinforcing investor focus on short-term financial returns rather than long-term sustainability initiatives.

In practice, only a few companies, such as PT Bukit Asam Tbk and PT Aneka Tambang Tbk, have begun decarbonization initiatives, while many others lack transparent and consistent sustainability disclosures, weakening the credibility of Eco-Efficiency as a market signal. These findings align with Rahelliamelinda and Handoko (2024) and are consistent with Signaling Theory (Firmansyah & Helmy, 2023), which suggests that sustainability information influences firm value only when it is disclosed credibly and consistently. Unlike studies in the manufacturing sector that report a positive relationship, the mining industry's strong dependence on external factors, such as global commodity prices, reduces the effectiveness of Eco-Efficiency in enhancing firm value, indicating that its potential impact remains limited in this context.

**The Impact of Sustainability Reporting on Company Value**

The results show that Sustainability Reporting has a fairly large positive coefficient (41.291) but is not significant (p = 0.162), which means that theoretically, sustainability reporting has the potential to increase company value because it signals openness and social responsibility, in accordance with Signaling Theory. However, this insignificance can be explained by the high average SRDI index (0.673) but with a narrow range and low standard deviation, so that sustainability reporting between companies tends to be uniform. The majority of mining companies, such as PT Indo Tambang raya Megah Tbk, PT Bayan Resources Tbk, and PT Golden Energy Mines Tbk, do regularly release sustainability reports, but the content of these reports is generally formal and narrative in nature, without measurable performance targets or third-party verification. As a result, the reports do not serve as a strong differentiating signal in the eyes of investors, so the market assesses prospects based on commodity prices, export volumes, and government policies. This supports Nguyen's (2020) finding that Sustainability Reporting in Indonesia is still compliance-based, and is in line with Signaling Theory, which states that signals without high credibility tend to be ignored by the market. Therefore, despite the positive direction of influence, sustainability reporting practices in the mining sector are not yet strong enough to significantly increase company value.

**The Effect of Dividend Policy on Company Value**

The study found that Dividend Policy, measured by Dividend Payout Ratio (DPR), had a negative (-0.167) but insignificant (p = 0.573) effect, indicating that dividend distribution in mining companies was not a major determinant of company value. This

negative direction is in line with Gordon's Theory (1959), which explains that excessive dividend distribution can reduce retained earnings that should be used for mining expansion, technology investment, or new reserve development. This condition is evident in PT Bukit Asam Tbk and PT Indo Tambangraya Megah Tbk, which routinely distribute high dividends when coal prices rise, in contrast to PT Mitrabara Adiperdana Tbk and PT Prima Andalan Mandiri Tbk, which hold back dividends to finance expansion. These variations in strategy make the effect of dividend policy statistically insignificant. Furthermore, investors in the mining sub-sector are more focused on global commodity prices and production volumes than on dividend amounts, unlike in the manufacturing or banking sectors where high dividends are considered a signal of financial stability (Dessriadi et al., 2022; Purwati, 2020). These findings support Rohmatulloh (2023), who states that dividend policy in Indonesia is often short-term and inconsistent, and therefore unable to increase company value in a sustainable manner.

## CONCLUSION

This study investigates the effect of eco-efficiency, sustainability reporting, and dividend policy on firm value in mining companies listed on the Indonesia Stock Exchange during 2021–2024. The results show that none of the proposed hypotheses are supported, as all variables exhibit insignificant effects on firm value. This finding indicates that sustainability practices and dividend decisions have not yet been effectively perceived by the market as value-relevant signals in the mining sector. From a theoretical perspective, this suggests that Signaling Theory may be less applicable in industries characterized by high external uncertainty, such as commodity price fluctuations and regulatory risk. From a measurement perspective, the proxies used may not adequately capture the qualitative and strategic dimensions of sustainability performance and financial policy valued by investors. Therefore, future research is encouraged to reconsider both theoretical frameworks and measurement approaches by extending the observation period, employing alternative indicators such as ESG scores, carbon intensity, or sustainability assurance, and incorporating moderating or mediating variables including profitability, firm size, corporate governance, or commodity price volatility. These improvements are expected to provide a more comprehensive explanation of how sustainability and financial policies influence firm value in the mining industry.

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