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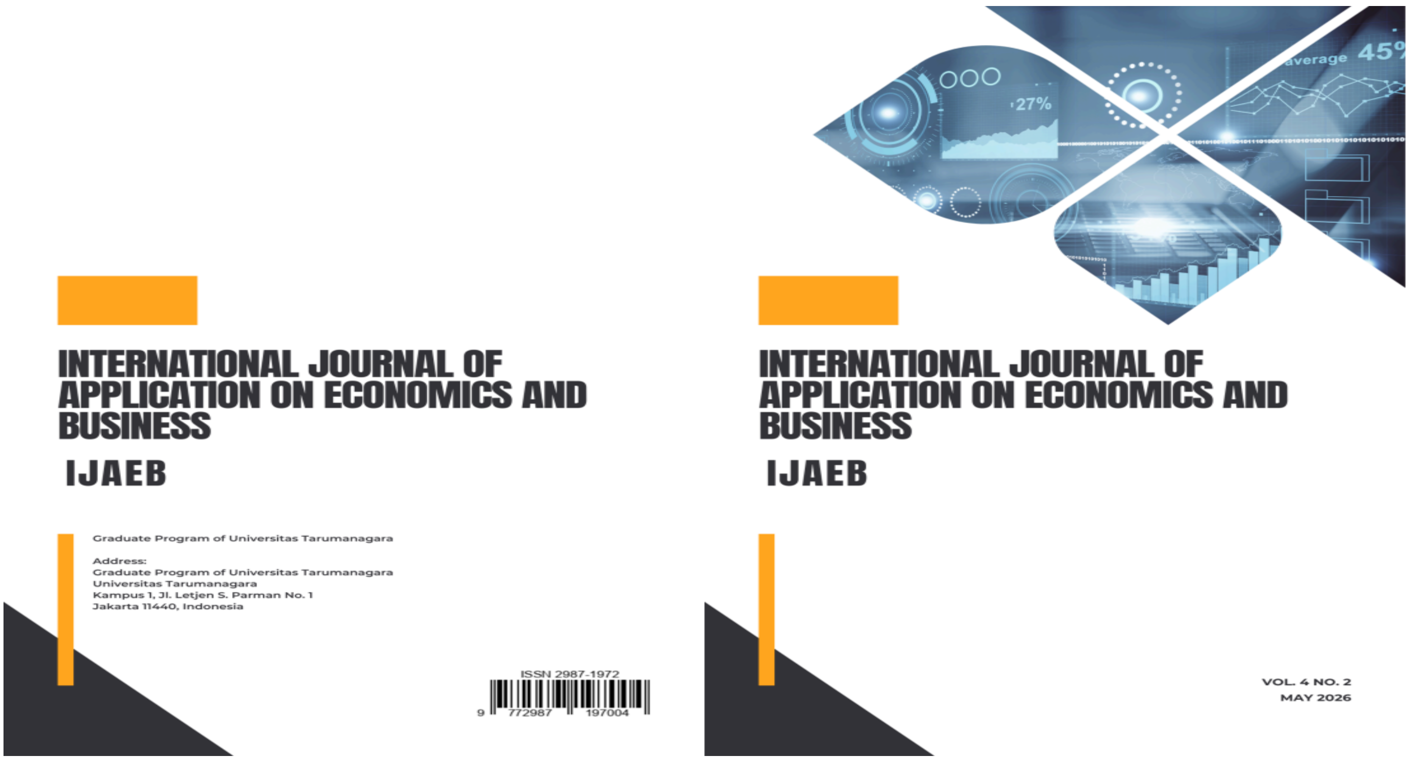

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THE IMPACT OF ESG DISCLOSURE, LEVERAGE, AND FIRM SIZE ON THE COMPANIES' FINANCIAL PERFORMANCE

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ABSTRACT

Sustainability and corporate governance issues are increasingly crucial for investors, while strategic decisions regarding capital structure and scale of operations determine a company's resilience amid fluctuating global commodity prices. The 2020–2022 period reflects a recovery phase that demanded rapid adaptation and efficient resource allocation from energy companies. Therefore, an in-depth study is needed to determine how these internal factors influence the ability of energy companies to generate profits. This study aimed to examine the impact of ESG disclosure, leverage, and firm size on company financial performance, as measured by the ROA proxy. This study used data from 91 energy sector companies listed on the Indonesia Stock Exchange for the period 2022 to 2024. This study employed a quantitative method and a purposive sampling technique. This analysis used panel data regression model with a Random Effects Model (REM) approach, processed using the eViews program. The results of this study indicate that ESG disclosure had a negative but insignificant effect on financial performance. Meanwhile, leverage-as another independent variable-has been shown to have a negative and significant impact on company financial performance. Furthermore, firm size has been shown to have a positive and significant impact on company financial performance. To improve future research, it is recommended that researchers increase the sample size by extending the research period and/or expanding the scope of the company sector, as well as incorporating under-researched variables such as Net Interest Margin or Non Performing Loans, which have the potential to impact the company's financial performance.

Keywords: *ESG Disclosure, Leverage, Firm Size, Financial Performance*

1. INTRODUCTION

The energy sector on the IDX showed a significant upward market trend during the 2020-2024 period along with the enhancement of energy commodity prices and increased investment in renewable energy, making it one of the sectors with an important contribution to the economy (Widayati & Agnes, 2025). The decline in industrial activity due to COVID-19 suppressed coal prices and performance in 2020, but the rapid post-pandemic recovery efforts created a surge in global energy demand, causing coal prices to spike sharply in 2021-2022. According to data from the Kementrian Energi dan Sumber Daya Mineral (ESDM), government revenue from the mineral and coal (minerba) sector in 2024 even exceeded the target, reaching IDR 136.79 trillion, or 120.47% of the initial plan of IDR 113.54 trillion (CNBC Indonesia, 2025).

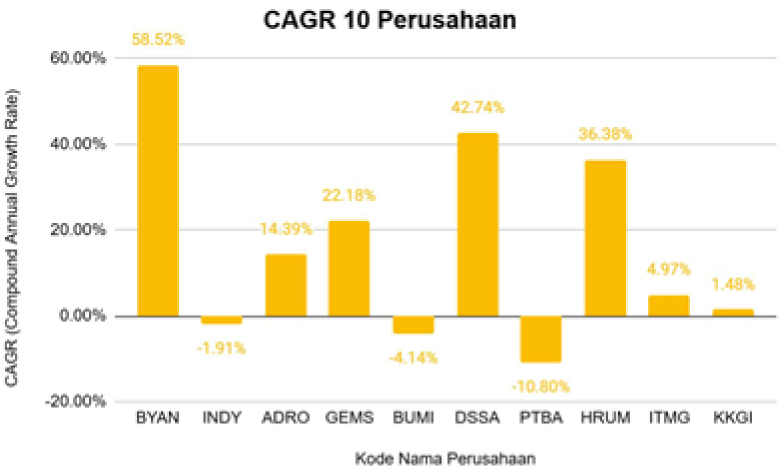

Figure 1. CAGR Rate of Coal Companies Reviewed by CNBC
Source: CNBC Indonesia

Based on Figure 1, the data presents the diverse performance rates among the 10 coal companies analyzed. The company that recorded the highest average annual growth is PT Bayan Resources Tbk (BYAN), with a CAGR of 58,52%. This value is followed by PT Dian Swaistika Sentosa Tbk (DSSA) and PT Harum Energy Tbk (HRUM) with 42.74% and 36.38% respectively, indicating strong profitability growth. In contrast, a decline in average annual growth was observed in PT Bumi Resources Tbk (BUMI) and PT Bukit Asam Tbk (PTBA), with negative CAGRs of -4.14% and -10.80%. Similarly, PT Indika Energy Tbk (INDY)'s CAGR of -1.91% indicates difficulties in maintaining or improving profitability during the reporting period [CNBC Indonesia, 2022].

Several studies have been conducted on factors that influence company financial performance, including finding that ESG disclosure, leverage and firm size can influence company's financial performance. Based on research from Loan et al. (2024), it was found that ESG disclosure had a positive and significant effect on financial performance. Based on research from Putri and Santioso (2019) and Abid et al. (2024), it was found that leverage had a negative and significant effect on financial performance. Based on research from Putri and Santioso (2019), Azzahra and Nasib (2019), and Laurent and Salim (2019), it was found that firm size had a positive and significant effect on financial performance.

The purpose of this research is to analyze the impact of ESG disclosure, leverage and firm size on company financial performance. It is hoped that in the future this research will be able to provide benefits for company management in improving elements that can influence company financial performance. This research is also expected to be able to help shareholders in making the right investment decisions. It is also hoped that this research can become the basis for further research related to company's financial performance.

This research replicates the research of Chung et al. (2023). The differences between this research and Chung et al. (2023) are as follows. First, the independent variable used in this research takes ESG Disclosure, Leverage, and Firm Size, while the one used in research Chung et al. (2023) uses ESG Disclosure. Second, the proxy for the dependent variable financial performance uses ROA, whereas in research Chung et al. (2023) uses share price and ROA. Third, the variable used in this research are independents and dependen variable, while the one used in research Chung et al. (2023) uses independent, dependent, and control variables. Fourth, the esg score at this research measured by the GRI Standards Index 2021, while the one used in research Chung et al. (2023) uses 2019 ESG Reporting Guide launched by HKEX. Fifth, the research sample is energy sector companies listed on the IDX for the 2022-2024 period, while the one used in research Chung et al. (2023) uses all largest firms listed on HSLI. Sixth, the research period is 2022-2024, while the research period Chung et al. (2023) is 2019.

Signalling Theory

This research is based on signaling theory which was first introduced by Spence (1973) explains that managers as information owners provide signals through data reflecting company condition useful for investor assessment (Propheta et al., 2025). Investors typically use the company's performance and historical activity data from the current year's financial and sustainability reports to guide their investment decisions in the next period (Adenina & Sudrajat, 2024). Signaling theory reduce information asymmetry between the firm and its external investors, consequently refining decision-making (Arhinful et al., 2025). The effectiveness of a signal in mitigating information asymmetry should be evaluated not only based on the sender's action but also by taking into account the receiver's perception of the disclosure (Nguyen, 2025).

Agency Theory

Apart from signaling theory, this research is also based on agency theory which was coined by Jensen and Meckling (1976) in Kamsari and Setijaningsih (2020) which explains a contract where the principal hires an agent (manager) to perform duties designed to achieve the principal's goals (Kamsari & Setijaningsih, 2020). The contract grants the agent (manager) the authority to make decisions on behalf of the principal (owner) (Laurent & Salim, 2019). Agents (managers) and stakeholders pursue conflicting goals; managers prioritize personal reputation while stakeholders focus on maximizing profit (Putri et al., 2025). Agency conflict can be resolved by the principal monitoring the agent's actions and behavior (Laurent & Salim, 2019).

Financial Performance

Financial performance is a depiction of a company's financial health, determined through financial analysis tools to assess the firm's condition and reflect its operational achievements over a specific period (Azzahra & Nasib, 2019). Evaluating a company's financial performance is essential for understanding its overall business operations (Abid et al., 2024). Researchers actively explore numerous factors that influence financial performance.

ESG Disclosure

ESG disclosure is essential for communicating the accountability of their investment decisions to key stakeholders (Loan et al., 2024). ESG disclosures are corporate reports highlighting environmental, social, and governance performance, and are typically linked to a lower cost of equity capital (Putri & Puspawati, 2023). Favorable ESG performance contributes to enhanced stakeholder confidence, better resource accessibility, and greater corporate profitability (Adenina & Sudrajat, 2024).

Leverage

Leverage is a ratio that compares a firm's debt to its assets (Husada & Handayani, 2021). Leverage is commonly utilized as a funding source with the aim of generating higher profits (Propheta et al., 2025). Excessive use of debt makes the company unsafe because it leads to extreme leverage, placing the company in danger by trapping it under a debt burden that is difficult to relieve (Putri & Puspawati, 2023).

Firm Size

Company size, measured by total assets, uniquely affects performance and value (Putri & Puspawati, 2023). These total assets are expected to generate profit, thereby increasing the company's profitability (Kamsari & Setijaningsih, 2020). Companies with large total assets is typically more stable, enabling it to increase its profit (profitability) (Kamsari & Setijaningsih, 2020).

The Effect of ESG Disclosure on Financial Performance

The ESG framework is designed to help stakeholders comprehend the methods by which organizations address both the risks and opportunities inherent in environmental, social, and governance issues (Adenina & Sudrajat, 2024). In accordance with signaling theory, ESG disclosure is considered an effective communication tool for reducing information asymmetry between management and investors. Meanwhile in accordance with agency theory, the reporting of ESG data acts as a supervisory tool, helping to minimize the conflicts of interest that often arise between management (the agent) and company owners (the principal). The implementation of ESG principles is a key factor influencing investors' investment decisions because they generally believe that adopting ESG practices can both mitigate risk and demonstrate a commitment to sustainability (Propheta et al., 2025). Several previous studies support a positive relationship between ESG disclosure and financial performance, as evidenced by research from Chung et al. (2023), Loan et al. (2024), Hussain et al. (2024), Fu & Li (2023), Attia & Almoneef (2025).

H_1: ESG Disclosure has a positive and significant effect on Financial Performance

The Effect of Leverage on Financial Performance

From a signaling theory perspective, excessively high leverage signals that the company is exposed to substantial financial risks. Potential investors may hesitate to acquire the equity of companies characterized by significant debt levels (Abid et al., 2024). According to agency theory, leverage is an outside control that stops managers from having too much freedom when making company decisions. Excessive leverage within the capital structure elevates the risk of bankruptcy, which in turn leads to firms being given low credit ratings and often experiencing reduced financial performance (Putri & Santioso, 2019). Several previous studies support a negative relationship between leverage and financial performance, as evidenced by research from Nainggolan et al. (2022), Devi et al. (2024), Putri & Santioso (2019), Putri & Puspawati (2023), Azzahra & Nasib (2019), Abid et al. (2024).

H_2: Leverage has a negative and significant effect on Financial Performance

The Effect of Firm Size on Financial Performance

The size of a company is determined by the magnitude of its total assets, sales, and market capitalization (Azzahra & Nasib, 2019). Company size offers a positive signal to investors, suggesting that the firm has better capabilities and greater stability for managing assets and handling business risks. Large companies are more efficient than smaller firms because they can exploit economies of scale and scope, and once these large firms reach maturity, they are perceived as more stable and better able to generate profit (Putri & Santioso, 2019). According to agency theory, larger firms have better management systems because their complicated work demands strict control. Several previous studies support a positive relationship between firm size and financial performance, as evidenced by research from Azzahra & Nasib (2019), Laurent & Salim (2019), Putri & Santioso (2019), Maryadi & Dermawan (2019).

H_3: Firm Size has a positive and significant effect on Financial Performance

In summary, the hypothesis are shown below:
H_1: ESG Disclosure has a positive and significant effect on Financial Performance
H_2: Leverage has a negative and significant effect on Financial Performance
H_3: Firm Size has a positive and significant effect on Financial Performance

The research model of this study as presented in Figure 2 below:

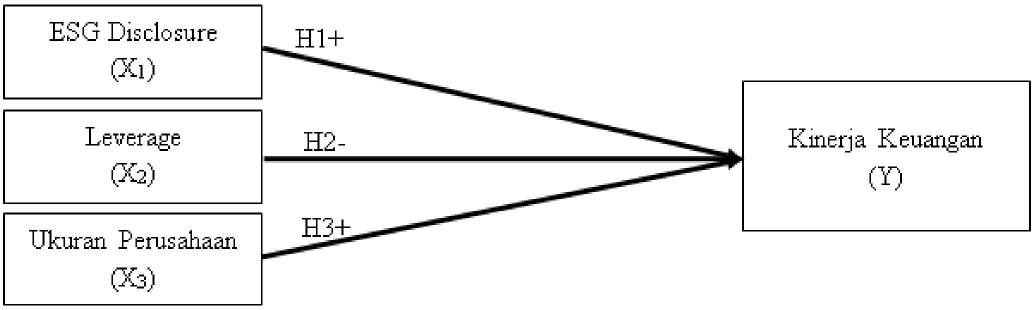

Figure 2. The Research Model

2. RESEARCH METHOD

The research uses all companies in the energy sector listed on the Indonesia Stock Exchange (IDX) for the 2022-2024 period. The research method used is a quantitative method and the sampling method used is a purposive sampling method which means that the sample selection method must have similar characteristics and be based on specific criteria, and there are sample criteria used which are used as sample selection requirements, namely: (1) Energy sector companies listed on the IDX; (2) Companies that went public (IPO) on or before 2022; (3) Companies that publish their financial reports in the 2022-2024 period consecutively at IDX; (4) Companies with a fiscal year ending on December 31; (5) Companies that disclosed information related to the GRI Standards 2021 Index in their Sustainability Report or Annual Report during the 2022–2024 period. From these criteria, 25 of the 91 companies listed on the IDX for the 2022-2024 period were initially selected, and this number was reduced to 22 companies after carrying out an outlier test. The outlier test is conducted using the Z-score method to ensure the validity of the results by identifying and removing overly extreme data points. This research used three years of observations, resulting in 66 panel data from 22 companies. The data was processed and analyzed using the statistical software EViews. Table 1 below summarizes the research variables, showing the proxies and formulas used for their measurement.

Table 1. Variable Operationalization Summary

Variables	Proxies and Formula	Source
Financial Performance	ROA = $\frac{\text{Laba Bersih}}{\text{Total Assets}}$ x 100%	Chung, *et al*. (2023)
ESG Disclosure	Measured using the GRI Standards 2021	Salma, dkk (2024)
Leverage	DAR = $\frac{\text{Total Debt}}{\text{Total Assets}}$ x 100%	Chung, *et al*. (2023)
Firm Size	SIZE = Ln Total Assets	Abid, K. *et al*. (2024)

3. RESULTS AND DISCUSSIONS

The result of descriptive statistical test of 66 samples of dependent and independent variables in energy company can be seen in the following table.

Table 2. Descriptive Statistics
Source: Data Processing using EViews

	Y	X1	X2	X3
Mean	0.094608	0.714933	0.473241	30.34141
Median	0.070699	0.742268	0.518891	30.84767
Maximum	0.296974	0.979381	0.878093	32.76456
Minimum	-0.114902	0.340206	0.055444	27.21897
Std. Dev.	0.091177	0.175314	0.197210	1.570603
Skewness	0.546922	-0.455209	-0.233073	-0.411247
Kurtosis	2.648932	2.242002	2.379241	2.033779
Jarque-Bera	3.629292	3.859411	1.657243	4.427716
Probability	0.162896	0.145191	0.436651	0.109278
Sum	6.244151	47.18556	31.23392	2002.533
Sum Sq. Dev.	0.540367	1.997765	2.527968	160.3415
Observations	66	66	66	66

Based on the results of the table 2 of descriptive statistics above, there are 66 data. The dependent variable, namely company's financial performance, which is proxied by ROA, has an average value of 0.094608 with a maximum value of 0.296974 and a minimum value of -0.114902. Furthermore, the first independent variable (X1), namely ESG Disclosure which is measured using the GRI Standards 2021, has an average value of 0.714933 with a maximum value of 0.979381 and a minimum value of 0.340206. Meanwhile, the next independent variable (X2), namely Leverage which is proxied by DAR, has an average value of 0.473241 with a maximum value of 0.878093 and a minimum value of 0.055444. Moreover, the last independent variable (X3), namely company size, which is proxied by Size, has an average value of 30.34141 with a maximum value of 32.76456 and a minimum value of 27.21897.

Table 3 presents the results of the Chow Test derived from data processing using the EViews software. The Chow test shows a cross-section chi-square probability value of 0.0000. This shows that the results are smaller than the 5% significance level. This shows that Ha is accepted and the estimation model chosen from the Chow test is the Fixed Effect Model (FEM).

Table 3. Chow Test Result
Source: Data Processing using EViews

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.282330	(21,41)	0.0006
Cross-section Chi-square	65.093298	21	0.0000

After carrying out the Chow test, a Hausman test was carried out to prove that the model used to conduct this research was the Fixed Effect Model (FEM). Table 4 presents the results of the Hausman Test derived from data processing using the EViews software. The Hausman test shows a random cross-section probability value of 0.1836. This shows that the results are larger than the 5% significance level. This shows that Ha is rejected and the estimation model chosen from the Hausman test is the Random Effect Model (REM).

Table 4. Hausman Test Result
Source: Data Processing using EViews

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.843470	3	0.1836

After carrying out the Hausman test, a Lagrange Multiplier test was carried out to prove that the model used to conduct this research was the Random Effect Model (REM). Table 5 presents the results of the LM test derived from data processing using the EViews software. The Lagrange Multiplier test shows a Breusch-Pagan cross-section probability value of 0.0027. This shows that the results are smaller than the 5% significance level. This shows that Ha is accepted and the model for this research is the Random Effect Model (REM).

Table 5. Lagrange Multiplier Test Result
Source: Data Processing using EViews

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	8.985348 (0.0027)	2.052658 (0.1519)	11.03801 (0.0009)
Honda	2.997557 (0.0014)	1.432710 (0.0760)	3.132672 (0.0009)
King-Wu	2.997557 (0.0014)	1.432710 (0.0760)	2.252933 (0.0121)
Standardized Honda	3.532780 (0.0002)	2.239808 (0.0126)	-0.031369 (0.5125)
Standardized King-Wu	3.532780 (0.0002)	2.239808 (0.0126)	0.466121 (0.3206)
Gourieroux, et al.	--	--	11.03801 (0.0014)

The data used in this research is panel data from a combination of cross-sectional data and time-series data. The normality test, autocorrelation test, heteroscedasticity test, and multicollinearity test are conventional assumption tests that have been used since panel data was used in research.

According to the output of normality test, it shown that the significance value for probability is 0.827402 > 0.05. These results mean that the data used in this research is normally distributed, so regression testing with a simple linear model can be carried out.

According to the output of autocorellation test, it shown that the significance value in Durbin-Watson is 1.311459 from the condition -2 > x > +2. These results can be concluded that there is no autocorrelation.

According to the output of multicollinearity test, the Centered VIF for each independent variable is less than 10, which means that there is no multicollinearity problem in the correlation between independent variables.

The heteroscedasticity test shows that Obs*R-squared have a probability value of 0.1017, which is greater than 0.5. This means that heteroscedasticity does not occur in the regression model.

Table 6. Regression Analysis Test Result
Source: Data Processing using EViews

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.572926	0.289985	-1.975707	0.0526
X1	-0.145201	0.077159	-1.881841	0.0646
X2	-0.233317	0.064815	-3.599715	0.0006
X3	0.029061	0.010743	2.705113	0.0088

Based on the model results presented in Table 6, the following regression equation is obtained:

ROA = -0.572926 – 0.145201ESG – 0.233317DAR + 0.029061SIZE + e
Based on the result of the regression equation above show that the regression intercept is -0.572926. This means if the variable of ESG disclosure, leverage, and firm size are set to zero, then company financial performance (ROA) will be -0.572926.

The regression coefficient for the first independent variable, ESG disclosure, is -0.145201. This means that if the leverage and firm size variables are held constant (or zero), a one-unit increase in esg disclosure will decrease company financial performance (ROA) by 0.145201.

The regression coefficient for the second independent variable, leverage, is -0.233317. This means that if the ESG disclosure and firm size variables are held constant (or zero), a one-unit increase in leverage will decrease company financial performance (ROA) by 0.233317.

The regression coefficient for the third independent variable, firm size, is 0.029061. This means that if the ESG disclosure and leverage variables are held constant (or zero), a one-unit increase in company size will increase company financial performance (ROA) by 0.029061.

Table 7. Adjusted R-Squared Test Result
Source: Data Processing using EViews

R-squared	0.206924	Mean dependent var	0.050768
Adjusted R-squared	0.168549	S.D. dependent var	0.063615
S.E. of regression	0.058007	Sum squared resid	0.208617
F-statistic	5.392199	Durbin-Watson stat	1.464728
Prob(F-statistic)	0.002312		

According to the results presented in Table 7, the regression model's Adjusted R^2 value is 0.168549, or 16.85%. This result indicates that the independent variables -ESG disclosure, leverage, and company size- explain 16.85% of the changes in the company's financial performance. The remaining 83.15% is influenced by other variables, suggesting the possibility of other factors affecting financial performance.

Table 8. Simultaneous Significance Test (F Test)
Source: Data Processing using EViews

R-squared	0.206924	Mean dependent var	0.050768
Adjusted R-squared	0.168549	S.D. dependent var	0.063615
S.E. of regression	0.058007	Sum squared resid	0.208617
F-statistic	5.392199	Durbin-Watson stat	1.464728
Prob(F-statistic)	0.002312		

According to the results presented in Table 8, the Prob (F-Statistic) value is 0.002312, which is lower than the 5% significance level ($\alpha = 0.05$). This finding indicates that the independent variables in this study simultaneously and significantly influence the dependent variable.

Table 9. Partial Significance Test (t-test)
Source: Data Processing using EViews

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.572926	0.289985	-1.975707	0.0526
X1	-0.145201	0.077159	-1.881841	0.0646
X2	-0.233317	0.064815	-3.599715	0.0006
X3	0.029061	0.010743	2.705113	0.0088

According to the results presented in Table 9, the coefficient for the X1 variable is negative with a Prob. value of 0.0646 (which is greater than the 0.05 significance level). This indicates that the ESG disclosure variable has a negative and insignificant effect on the company's financial performance.

According to the results presented in Table 9, the coefficient for the X2 variable is negative with a Prob. value of 0.0006 (which is lower than the 0.05 significance level). This indicates that the leverage variable has a negative and significant effect on the company's financial performance.

According to the results presented in Table 9, the coefficient for the X3 variable is positive with a Prob. value of 0.0088 (which is lower than the 0.05 significance level). This indicates that the firm size variable has a positive and significant effect on the company's financial performance.

Table 10 presents the conclusive results of the hypothesis testing conducted in this study. The initial results indicate that ESG disclosure has a negative but insignificant effect on financial performance, consistent with Milton Friedman's Classic View, which regards ESG expenditure as a cost burden. Since the energy sector is capital-intensive and high-risk, strong ESG commitments demand high compliance and transition costs, such as investing in green technology, which can curb profitability. This finding is supported by the study of Wiraguna *et al.* (2023) in Indonesia, which showed that environmental performance negatively impacts financial metrics due to increased operational and capital costs for sustainable practices. The research further found that increased leverage negatively and significantly affects financial performance, indicating that higher debt reduces the assets' ability to generate profit. Furthermore, Hasanah & Fauzan (2025) observed that leverage negatively impacts firm value in the energy sector, implying that the market perceives high debt as a risk that reduces long-term profit prospects and sustainability. Finally, the research also found a positive and significant influence of firm size on financial performance, mainly due to the strong concept of economies of scale in the energy sector. Larger companies possess competitive advantages, such as the ability to secure funding at lower costs, achieve better operational efficiency through mass production, and gain stronger bargaining power with suppliers and customers. Consistent with this finding, Sari (2024) also states that companies with larger production capacity have the potential to demonstrate better financial performance.

Table 10. The Results of Hypothesis Testing
Source: Data Processing using EViews

	Hypothesis	Coefficient	Significance	Conclusion
H_1	ESG Disclosure has a positive and significant effect on Financial Performance	-0.145201	0.0646	Rejected
H_2	Leverage has a negative and significant effect on Financial Performance	-0.233317	0.0006	Accepted
H_3	Firm Size has a positive and significant effect on Financial Performance	0.029061	0.0088	Accepted

4. CONCLUSIONS AND SUGGESTIONS

The authors came to various conclusions based on the data collected and supplied by this study.

First, the hypothesis which predicts that ESG disclosure will show a positive and significant influence on company financial performance, is rejected, as the test results indicate a negative but insignificant effect. This finding suggests that a company's ESG practices and disclosure, regardless of their level, have not yet had a substantial impact on financial performance during the observation period. The results of this research are supported by research by Oluwakemi and Mishelle (2025), Putri and Puspawati (2023), and Husada and Handayani (2021).

Second, the hypothesis which predicts that leverage will show a negative and significant influence on company financial performance, is accepted. This result indicates that the higher the level of debt used by the company to finance its assets, the worse or lower its financial performance during the observation period. The results of this research are supported by research by Putri and Santioso (2019) and Abid *et al*. (2024).

Third, the hypothesis which predicts that firm size will show a positive and significant influence on company financial performance, is accepted. This finding confirms that a larger company size, as measured by the natural logarithm of total assets (ln Total Assets), leads to better financial performance during the observation period. The results of this research are supported by research by Putri and Santioso (2019), Azzahra and Nasib (2019), and Laurent and Salim (2019)

This study has several key limitations that affect the generalizability of its findings. Firstly, the sample is restricted to companies in the energy sector and covers only a three-year period

(2022–2024), thus limiting the ability to analyze long-term trends and generalize the results to other sectors. Furthermore, this research relies solely on ROA as the financial performance's proxy. Therefore, future research is advised to broaden the sectoral scope and extend the observation period to enhance external validity. We also recommend diversifying variable measurements by including market-based proxies (such as Tobin's Q) and considering the addition of control variables (like sales growth) or moderating variables to gain a more comprehensive understanding of the relationship between ESG, Leverage, Firm Size, and Financial Performance.

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