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The Impact of ESG disclosure and ESG Financial Materiality Disclosure on Financial Performance: Evidence from the Indonesian Energy Sector (2022–2024)

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ABSTRACT

Purpose – Sustainability reporting has become increasingly important in the energy sector due to growing regulatory requirements and stakeholder expectations. Nevertheless, evidence regarding the financial implications of ESG-related disclosures remains inconclusive. This study examines the impact of ESG disclosure and ESG financial materiality disclosure on the financial performance of energy companies listed on the Indonesia Stock Exchange (IDX) during 2022–2024.
Design/methodology/approach – This study employed a quantitative research design using panel data regression analysis. The sample comprised 19 energy sector companies selected through purposive sampling, resulting in 57 firm-year observations. ESG disclosure was measured based on the GRI Standards 2021, while ESG financial materiality disclosure was assessed using the SASB Materiality Framework. Data were analyzed using the Fixed Effect Model (FEM).
Finding/Results – The results show that ESG disclosure is negatively associated with financial performance, although the relationship is not statistically significant. In contrast, ESG financial materiality disclosure has a negative and significant effect on financial performance, indicating that the costs associated with material ESG reporting may reduce short-term profitability.
Originality/Value – The findings suggest that not all ESG-related disclosures generate similar financial outcomes. This study provides evidence that financially material ESG disclosure may have different implications from general ESG disclosure, offering insights for energy companies in designing sustainability reporting strategies.

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Energy companies; ESG disclosure; ESG financial materiality; Financial performance; Return on assets.

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1. Introduction

The energy sector occupies a strategic position in global sustainability discourse because its business activities are closely linked to environmental risk, carbon emissions, natural resource extraction, and long-term social consequences. In recent years, companies operating in this sector have faced increasing pressure to demonstrate not only financial resilience but also accountability in environmental, social, and governance practices. This pressure has intensified as investors, regulators, and communities increasingly demand transparent information on how firms identify, manage, and report sustainability-related risks. ESG disclosure has therefore evolved from a voluntary reporting practice into a strategic mechanism for improving transparency, strengthening corporate accountability, and supporting responsible investment decisions. In Indonesia, this issue is particularly relevant because the energy sector remains economically important while also being highly exposed to sustainability scrutiny. The growing attention to sustainable finance, carbon disclosure, and responsible business conduct has made ESG reporting an important concern for listed energy companies. Consequently, examining the financial implications of ESG disclosure in this sector is essential for understanding whether sustainability transparency contributes to corporate economic outcomes.

The empirical phenomenon in Indonesia shows that ESG disclosure among energy sector companies is still developing and varies considerably across firms. Although many listed companies have begun to present ESG-related information in annual reports and sustainability reports, the scope, consistency, and comparability of such disclosures remain uneve. Mukti, Hariyanto, and Edward (2025) note that energy companies listed on the Indonesia Stock Exchange have increasingly adopted ESG reporting practices, yet their disclosure levels still differ across reporting indicators. This variation creates practical difficulties for investors because ESG information may not always provide a complete and reliable picture of corporate sustainability performance. The problem becomes more complex when companies disclose broad ESG narratives but provide limited information on sustainability issues that are financially relevant to their operations. In such conditions, stakeholders may find it difficult to distinguish between symbolic disclosure and disclosure that has clear economic relevance. This situation indicates the need to examine not only general ESG disclosure but also ESG financial materiality disclosure in relation to corporate financial performance.

The urgency of this study is strengthened by the increasing use of ESG information in capital market decision-making. Investors today are no longer concerned only with profitability, liquidity, and asset efficiency, but also with how companies manage environmental and social risks that may affect future cash flows. Prior studies indicate that transparent ESG reporting can reduce information asymmetry, improve investor confidence, and support long-term corporate resilience (Ellili 2022; Q. Li, Liu, and Lin 2026; Liang and Cao 2024). However, the benefits of ESG disclosure are not always immediate, particularly in capital-intensive sectors such as energy. Companies may need to allocate substantial resources to data collection, compliance systems, sustainability reporting, internal monitoring, and external assurance before financial benefits can be realized. These costs may create short-term pressure on profitability, especially when ESG practices have not yet been fully integrated into operational efficiency. Therefore, the relationship between ESG disclosure and financial performance needs to be tested empirically rather than assumed to be uniformly positive.

The relationship between sustainability disclosure and financial performance remains theoretically and empirically debatable. From the perspective of legitimacy theory and stakeholder theory, ESG disclosure may improve corporate reputation, reduce uncertainty, and strengthen stakeholder trust. In contrast, trade-off theory suggests that ESG disclosure may impose additional costs that reduce short-term financial returns. This tension is particularly relevant for energy companies because sustainability reporting may simultaneously function as a legitimacy-building mechanism and as a cost-intensive managerial activity. Previous empirical findings also remain inconsistent. Some studies report that ESG disclosure improves financial performance by enhancing transparency and risk management, while others find insignificant or negative effects due to high compliance and reporting costs (Al Amosh 2025; Fagbemi et al. 2025; Oluwakemi and Mishelle 2025; Sun et al. 2026). These mixed results indicate that the financial consequences of ESG disclosure may depend on sectoral characteristics, measurement approach, and the type of ESG information disclosed.

A more specific research gap emerges from the distinction between general ESG disclosure and ESG financial materiality disclosure. Most previous studies have examined ESG disclosure as an aggregate construct, while relatively few have separated broad sustainability disclosure from disclosure that is financially material to corporate performance. ESG financial materiality disclosure focuses on sustainability issues that may affect revenue, costs, assets, liabilities, risk exposure, and long-term firm value. Del Gesso and Lodhi (2024) argue that the financial relevance of ESG information depends not only on the amount of disclosure but also on whether the disclosed information is material to business performance. Similarly, Eng and Fikru et al. (2022) suggest that SASB-based materiality disclosure may provide more decision-useful information than general sustainability narratives. However, in capital-intensive energy companies, disclosing financially material ESG issues may require more rigorous measurement systems, risk modeling, internal control, and verification processes. This creates a critical gap because the same disclosure practice that improves decision usefulness for investors may also increase short-term reporting and compliance costs for companies.

Based on these gaps, this study aims to examine the effect of ESG disclosure and ESG financial materiality disclosure on the financial performance of energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. Financial performance is measured using return on assets, while ESG disclosure and ESG financial materiality disclosure are examined as the main explanatory variables. This study contributes theoretically by clarifying the different roles of general ESG disclosure and financially material ESG disclosure in explaining financial performance. It also contributes empirically by providing recent evidence from the Indonesian energy sector, a capital-intensive industry facing strong sustainability pressure and high reporting demands. Practically, the findings are expected to help corporate managers evaluate whether sustainability disclosure practices are aligned with financial efficiency and strategic resource allocation. For investors, this study offers insights into how different types of ESG disclosure may be interpreted when assessing profitability and sustainability-related risks. Overall, this study provides a more nuanced understanding of ESG reporting by distinguishing between disclosure breadth and disclosure materiality in relation to financial performance.

2. Literature Review and Hypothesis Development

2.1 Legitimacy Theory

Legitimacy theory provides a relevant foundation for explaining why companies disclose sustainability-related information to external stakeholders. This theory assumes that companies operate within a broader social system and must ensure that their activities are consistent with societal values, norms, and expectations (Berrone et al. 2023; Senadjki et al. 2023). When corporate activities create environmental or social impacts, companies are expected to communicate how they manage those impacts in order to maintain public acceptance. ESG disclosure can therefore be understood as a mechanism through which firms demonstrate accountability and justify their continued operation. This is particularly important for energy sector companies because their activities are closely associated with carbon emissions, resource extraction, environmental degradation, and community impacts. By disclosing environmental, social, and governance information, firms attempt to show that they are responsive to sustainability concerns and regulatory expectations. In this sense, ESG disclosure functions not only as a reporting practice but also as a strategic tool for maintaining corporate legitimacy.

The relevance of legitimacy theory becomes stronger in the context of industries with high environmental sensitivity. Hummel and Bauernhofer (2024) argue that sustainability disclosure enables companies to present themselves as socially responsible organizations and to reduce the legitimacy gap between corporate operations and stakeholder expectations. Dechow (2023) also emphasize that sustainability reporting may strengthen public trust when companies provide clear information about their social and environmental responsibilities. From this perspective, ESG disclosure may help firms reduce reputational risk and improve their standing in the eyes of stakeholders. However, legitimacy-oriented disclosure may also become symbolic when companies disclose sustainability information merely to satisfy external expectations without integrating ESG principles into operational practices. Therefore, legitimacy theory helps explain both the potential benefits and limitations of ESG disclosure in relation to financial performance.

2.2 Stakeholder Theory

Stakeholder theory complements legitimacy theory by emphasizing that companies are accountable not only to shareholders but also to broader stakeholder groups. These stakeholders include investors, creditors, employees, customers, regulators, local communities, and other parties affected by corporate activities. According to this theory, firms need to manage stakeholder relationships because stakeholder support can influence corporate survival, reputation, access to resources, and long-term performance. ESG disclosure is one way for companies to respond to stakeholder demands for transparent, relevant, and reliable information. When companies disclose ESG information, they reduce information asymmetry and provide stakeholders with a clearer basis for evaluating corporate sustainability practices. This is particularly important for investors who increasingly incorporate ESG considerations into investment decision-making. Therefore, from the stakeholder perspective, ESG disclosure may contribute to financial performance by improving stakeholder confidence and strengthening corporate reputation.

In the energy sector, stakeholder expectations are often more complex because companies operate in an industry with significant environmental and social consequences. Ferdous, Rana, and Yeboah et al. (2025) suggest that ESG disclosure can enhance financial performance by

improving transparency, strengthening investor trust, and supporting more responsible corporate governance. Boulton (2024) also show that ESG disclosure may provide useful signals to the market by reducing asymmetric information between corporate management and investors. These arguments indicate that ESG information can become economically valuable when stakeholders perceive it as credible and relevant. However, stakeholder theory also implies that disclosure must be substantive rather than merely formal. If ESG disclosure is broad but lacks material relevance, stakeholders may not interpret it as strong evidence of corporate quality. Thus, the stakeholder perspective supports the importance of distinguishing between general ESG disclosure and ESG financial materiality disclosure.

2.3 Trade-Off Theory

While legitimacy theory and stakeholder theory emphasize the potential benefits of ESG disclosure, trade-off theory provides a more cautious explanation. This theory suggests that companies may face a conflict between allocating resources to sustainability-related activities and maintaining short-term profitability. ESG disclosure requires investment in reporting systems, data collection, internal monitoring, external verification, and compliance activities. These activities may generate long-term benefits, but they can also increase operating costs in the short run. Sheehan et al. (2023) argue that ESG practices may impose financial burdens when companies allocate substantial resources to activities that do not immediately generate revenue. Wu and Abeysekera (2023) further explain that ESG reporting may influence firms' financial outcomes because disclosure quality is closely related to risk assessment, compliance costs, and capital market expectations. Therefore, ESG disclosure may not always produce immediate financial advantages.

Trade-off theory is particularly relevant for capital-intensive industries such as energy. Energy companies often require large investments in assets, technology, safety systems, environmental management, and regulatory compliance. When these companies expand ESG disclosure, they may need additional resources to identify, measure, verify, and report sustainability-related information. Arvidsson and Dumay (2022) notes that ESG reporting may produce different financial consequences across sectors because the costs and benefits of disclosure depend on industry characteristics. In the energy sector, financially material ESG issues such as emissions, health and safety, resource management, community relations, and climate-related transition risk may require more complex reporting systems than general narrative disclosures. As a result, disclosure of financially material ESG information may place pressure on short-term profitability, particularly when companies have not yet transformed disclosure practices into operational efficiency. This theoretical explanation supports the possibility that ESG financial materiality disclosure may have a negative relationship with financial performance.

2.4 ESG Disclosure and Financial Performance

ESG disclosure refers to the communication of corporate information related to environmental, social, and governance practices. Environmental disclosure generally includes information on energy use, emissions, waste management, biodiversity, water consumption, and climate-related risks. Social disclosure covers issues such as employee welfare, occupational health and safety, human rights, customer responsibility, and community engagement. Governance disclosure includes information on board structure, ethics, risk management, anti-corruption policies, and shareholder rights. In this study, ESG disclosure is measured based on the GRI Standards 2021, which provide a comprehensive framework for

sustainability reporting. The use of GRI-based disclosure indicators allows this study to evaluate the extent to which companies report sustainability information across broad ESG dimensions. As a disclosure construct, ESG disclosure reflects the breadth of sustainability information communicated by companies to external stakeholders.

Prior studies indicate that ESG disclosure may influence financial performance through several mechanisms. First, ESG disclosure may improve corporate reputation because companies that disclose sustainability information are perceived as more transparent and accountable. Second, ESG disclosure may reduce information asymmetry by providing investors with additional non-financial information that supports risk assessment. Third, ESG disclosure may encourage internal improvements in risk management, operational efficiency, and governance practices. Aydoğmuş, Gülay, and Ergun (2022) find that ESG disclosure is associated with profitability in companies exposed to environmental and workplace safety issues. Ramadika and Putikadea (2025) also report that ESG disclosure contributes to financial performance in Indonesian mining companies. Similarly, Rabaya and Saleh (2022) argue that ESG disclosure can enhance competitive advantage and support firm performance. These findings suggest that ESG disclosure may produce financial benefits when it is supported by substantive sustainability practices.

Nevertheless, the relationship between ESG disclosure and financial performance is not always consistent. Some studies report insignificant or negative effects, indicating that the market may not immediately reward firms for broader ESG reporting. Alfalih (2023) find that ESG disclosure does not necessarily improve financial performance, while Buallay (2022) show that sustainability disclosure may have different effects depending on the reporting dimension and sectoral context. Han et al. (2024) also suggest that ESG disclosure in high-carbon sectors may not directly increase profitability because companies face high environmental compliance costs. These findings imply that ESG disclosure may improve transparency but not automatically generate higher accounting returns. However, based on legitimacy theory and stakeholder theory, broader ESG disclosure is still expected to provide positive signals, enhance stakeholder trust, and support corporate financial outcomes. Therefore, the first hypothesis is formulated as follows:

H1: ESG disclosure has a positive and significant effect on financial performance.

2.5 ESG Financial Materiality Disclosure and Financial Performance

ESG financial materiality disclosure refers to the disclosure of sustainability issues that are expected to have direct financial implications for a company. Unlike general ESG disclosure, which focuses on broad sustainability transparency, ESG financial materiality disclosure emphasizes ESG topics that may affect revenue, costs, assets, liabilities, risk exposure, and firm value. In this study, ESG financial materiality disclosure is measured using the SASB Materiality Map Framework because this framework identifies sustainability issues that are financially relevant to specific industries. For energy companies, financially material ESG issues may include greenhouse gas emissions, air quality, water management, operational safety, community impacts, regulatory risk, and climate-related transition risk. Disclosure of these issues is important because it provides investors with more decision-useful information than general ESG narratives. Therefore, ESG financial materiality disclosure represents a more focused and financially oriented form of sustainability reporting.

Theoretically, ESG financial materiality disclosure may create benefits because it helps stakeholders understand the financial relevance of sustainability risks. Del Gesso and Lodhi

(2024) argue that the usefulness of ESG disclosure depends not only on the amount of information disclosed but also on whether the information is financially material. Pizzi, Principale, and de Nuccio (2022) further emphasize that SASB-based materiality disclosure may enhance the value relevance of sustainability information because it focuses on issues that are more closely related to firm performance. From an investor perspective, materiality-based disclosure can improve risk assessment, reduce uncertainty, and support more efficient capital allocation. However, the financial consequences of ESG financial materiality disclosure may differ from those of general ESG disclosure. Because materiality-based disclosure requires more detailed measurement, monitoring, verification, and risk analysis, it may impose higher reporting and compliance costs. This distinction is important because a disclosure practice that is useful for investors may still reduce short-term accounting performance if its implementation is costly.

In the energy sector, the cost implications of ESG financial materiality disclosure may be particularly strong. Companies that disclose financially material ESG issues are often required to develop more sophisticated internal systems to measure emissions, safety performance, environmental risk, and regulatory exposure. These processes may require additional investment in data infrastructure, expert consultation, assurance services, and sustainability risk management. Van der Zahn (2022) indicate that ESG reporting may influence financial outcomes through compliance and capital-related costs. Chen et al. (2026) also suggest that ESG-related activities may create a trade-off when sustainability investments reduce short-term profitability. In line with this argument, Chen et al. (2025) finds that the relationship between ESG disclosure and financial performance may vary across contexts because reporting costs and sector characteristics influence financial outcomes. Therefore, based on trade-off theory, ESG financial materiality disclosure is expected to have a negative effect on short-term financial performance in capital-intensive energy companies.

H2: ESG financial materiality disclosure has a negative and significant effect on financial performance.

2.6 Research Framework

Based on the theoretical review and hypothesis development, this study examines the relationship between ESG disclosure, ESG financial materiality disclosure, and financial performance. ESG disclosure is positioned as the first independent variable because it reflects the breadth of sustainability information disclosed by companies based on the GRI Standards 2021. ESG financial materiality disclosure is positioned as the second independent variable because it reflects the extent to which companies disclose sustainability issues that are financially relevant based on the SASB Materiality Map Framework. Financial performance is positioned as the dependent variable and is measured using return on assets. The proposed research framework is developed to clarify whether general ESG disclosure and financially material ESG disclosure have different implications for corporate financial performance. The conceptual framework of this study is presented in Figure 1.

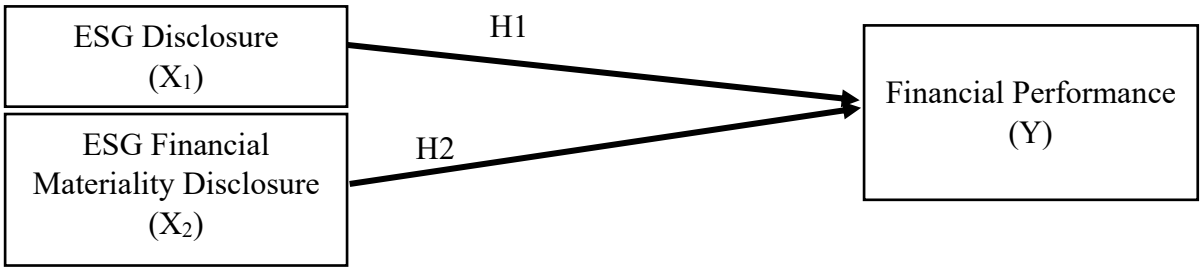

Figure 1. Research Framework

The research framework illustrates two hypothesized relationships. First, ESG disclosure is expected to have a positive and significant effect on financial performance. Second, ESG financial materiality disclosure is expected to have a negative and significant effect on financial performance. These two hypotheses reflect the theoretical tension between legitimacy and stakeholder benefits on the one hand, and short-term cost trade-offs on the other. By separating general ESG disclosure from ESG financial materiality disclosure, this study provides a more specific framework for examining how different types of sustainability disclosure are associated with financial performance in the energy sector.

3. Methodology

3.1 Research Design

This study employed a quantitative explanatory research design to examine the effect of ESG disclosure and ESG financial materiality disclosure on corporate financial performance. The quantitative approach was selected because the study tested measurable relationships among variables using numerical firm-level data. The explanatory design was considered appropriate because the main objective was not merely to describe ESG reporting practices, but to explain whether variations in ESG disclosure and ESG financial materiality disclosure affect financial performance. The study used panel data regression because the dataset combined cross-sectional observations from several companies and time-series observations across three fiscal years. This approach enabled the analysis to capture differences across firms as well as changes over time, making it suitable for evaluating disclosure practices and financial performance in listed companies.

3.2 Research Setting and Period

The research was conducted in the context of energy sector companies listed on the Indonesia Stock Exchange. The energy sector was selected because it is closely associated with environmental risk, carbon-intensive operations, natural resource use, and increasing pressure for sustainability transparency. Companies in this sector are also highly relevant for ESG research because their operations are frequently exposed to public scrutiny, regulatory demands, and investor concerns regarding long-term sustainability risks. The observation period covered three fiscal years, from 2022 to 2024. This period was chosen to reflect recent ESG reporting practices in Indonesia, particularly during a period when sustainable finance, carbon disclosure, and sustainability reporting have received growing attention from regulators, investors, and corporate stakeholders.

3.3 Population and Sample

The population of this study consisted of all energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. The sample was selected using purposive sampling, as this technique allows researchers to select companies that meet specific criteria relevant to the research objectives. The inclusion criteria required companies to be consistently listed in the IDX energy sector during the observation period, publish complete annual reports and financial statements, have a fiscal year ending on December 31, and provide sufficient ESG-related information in annual reports or sustainability reports. Companies were excluded if they conducted an initial public offering after the beginning of the observation period, had incomplete financial data, used a fiscal year-end other than December 31, or did not provide sufficient disclosure information required for measuring ESG disclosure and ESG financial materiality disclosure. Based on these criteria, 25 companies were initially identified as eligible samples. After conducting an outlier screening using the Z-score method, the final sample consisted of 19 companies, resulting in 57 firm-year observations.

3.4 Data Sources and Measurement Instrument

This study used secondary data obtained from publicly available corporate reports. The primary data sources consisted of annual reports, sustainability reports, and financial statements published by energy sector companies through the Indonesia Stock Exchange website and the official websites of each company. These documents were selected because they provide verified and publicly accessible information regarding financial performance, ESG reporting practices, and sustainability-related disclosures. The measurement instrument used in this study was a structured documentation checklist developed based on the GRI Standards 2021 and the SASB Materiality Map Framework. The checklist was used to code the presence or absence of ESG disclosure items and financially material ESG disclosure items in each company report.

Financial performance was measured using return on assets, which reflects the company's ability to generate net income from its total assets. ROA was calculated by dividing net income by total assets. ESG disclosure was measured using disclosure items derived from the GRI Standards 2021, which cover environmental, social, and governance reporting aspects. Each disclosed item was assigned a score of 1, while each undisclosed item was assigned a score of 0. The ESG disclosure score was calculated by dividing the number of disclosed items by the total number of relevant GRI disclosure items. ESG financial materiality disclosure was measured using the SASB Materiality Map Framework, which identifies sustainability issues that are financially relevant to firms within specific industries. Similar to ESG disclosure, each financially material item disclosed by the company was coded as 1, while undisclosed items were coded as 0. The final ESG financial materiality disclosure score was calculated as the ratio between the number of disclosed financially material items and the total number of relevant materiality items.

3.5 Data Quality Assurance

Several procedures were applied to ensure the quality, consistency, and reliability of the data. First, the measurement of ESG disclosure was based on the GRI Standards 2021, while ESG financial materiality disclosure was based on the SASB Materiality Map Framework. The use of these internationally recognized frameworks strengthened the content validity of the disclosure indicators because both frameworks provide structured criteria for sustainability reporting. Second, a standardized coding sheet was prepared before the data extraction process to ensure that all company reports were assessed using the same criteria. Third, each

disclosure item was coded only when explicit and relevant information was found in the annual report or sustainability report, thereby reducing subjective interpretation. Fourth, the coded results were rechecked by comparing information across annual reports, sustainability reports, and financial statements. Fifth, outlier detection was conducted using the Z-score method to identify extreme values that could distort the regression results. These procedures were applied to improve the accuracy, consistency, and replicability of the dataset.

3.6 Data Collection Procedure

The data collection process was conducted in several systematic stages. First, the researcher identified all energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. Second, the companies were screened based on the inclusion and exclusion criteria to ensure that only firms with complete and comparable data were included in the sample. Third, annual reports, sustainability reports, and financial statements were collected from the IDX website and the official websites of each company. Fourth, financial data were extracted to calculate return on assets as the proxy for financial performance. Fifth, ESG disclosure items were coded using the GRI Standards 2021, while ESG financial materiality disclosure items were coded using the SASB Materiality Map Framework. Sixth, all coded data were compiled into a panel dataset consisting of firm-year observations. Finally, the dataset was checked for completeness, consistency, and outliers before being analyzed using EViews.

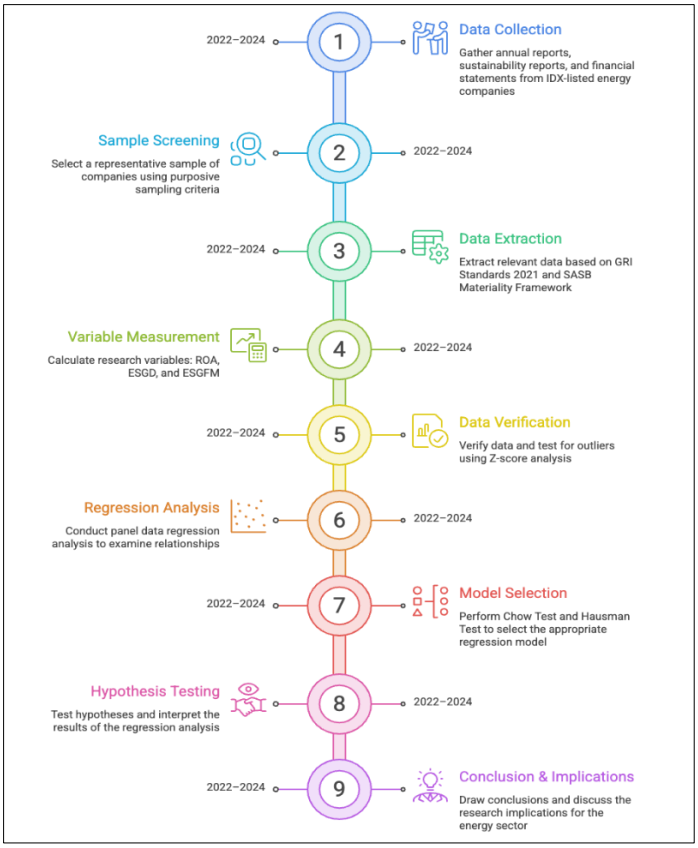

Figure 1. Research Methodology gor Energy Sector Company Analysis (2022-2024)

3.7 Data Analysis Technique

The data were analyzed using panel data regression with EViews software. Descriptive statistical analysis was first performed to provide an overview of the characteristics and

distribution of the research variables. Subsequently, panel model selection tests were conducted to determine the most appropriate estimation model. The Chow test was used to compare the Common Effect Model and Fixed Effect Model, while the Hausman test was employed to determine whether the Fixed Effect Model or Random Effect Model was more suitable. Classical assumption testing was then conducted to evaluate the adequacy of the regression model. The hypotheses were tested using t-tests to assess the individual effects of each independent variable and F-tests to examine the simultaneous effects of the independent variables on financial performance. Statistical significance was evaluated at the 5% significance level (α = 0.05). In addition, the coefficient of determination (Adjusted R^2) was used to assess the explanatory power of the model.

This study adhered to academic research ethics by utilizing publicly available secondary data and ensuring accurate representation of all reported information. No personal or confidential information was collected, and no direct interaction with human participants occurred during the research process. All data sources were properly acknowledged, and the analysis was conducted objectively to maintain transparency, integrity, and scientific rigor throughout the study.

4. Result and Discussion

4.1 Descriptive Statistics Test

Based on the established sampling criteria, this study obtained 57 firm-year observations for the 2022–2024 period. Table 1 presents the descriptive statistics for each research variable. In this study, ROA represents financial performance as the dependent variable, while ESGD represents ESG disclosure and ESGFM represents ESG financial materiality disclosure as the independent variables.

Table 1. Descriptive Statistic

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
ROA	0.115496	0.074384	0.616346	-0.114902	0.130925
ESGD	0.726895	0.773196	1.000000	0.092784	0.201325
ESGFM	0.976608	1.000000	1.000000	0.833333	0.058406

The ROA variable has a minimum value of -0.114902, recorded by Buana Lintas Lautan Tbk. This value indicates that the company experienced a net loss, resulting in a negative return on assets. Conversely, the maximum ROA value of 0.616346 was recorded by Golden Energy Mines Tbk, indicating a relatively high level of profitability compared with its total asset base. This result reflects the company's ability to utilize its assets efficiently in generating net income.

The minimum ESGD value of 0.092784 indicates that Mitrabahtera Segera Sejati Tbk disclosed only 9 out of 97 ESG items in 2022. In contrast, the maximum ESGD value of 1.000000 shows that Indo Tambangraya Megah Tbk achieved full disclosure by reporting all 97 ESG items in both 2023 and 2024. These results indicate that ESG disclosure practices among the sampled companies varied considerably during the observation period.

The minimum ESGFM value of 0.833333 indicates that several companies disclosed only five out of six ESG financial materiality items. Meanwhile, the maximum value of 1.000000 indicates that some companies fully disclosed all required ESG financial materiality items. Compared with general ESG disclosure, ESG financial materiality disclosure shows a smaller variation, as reflected in its lower standard deviation.

4.3 Panel Data Model Selection

The panel model selection process began with the Chow test to determine whether the Common Effect Model or Fixed Effect Model was more appropriate. As shown in Table 2, the probability value of the cross-section Chi-square is 0.0000, which is lower than the 5% significance level. Therefore, the Fixed Effect Model (FEM) was selected over the Common Effect Model. The analysis then proceeded to the Hausman test to determine whether the Fixed Effect Model or Random Effect Model should be used.

Table 2. Chow Test Results

Effect Test	Statistic	d.f.	Prob.
Cross-section F	9.797260	(18,36)	0.0000
Cross-section Chi-square	101.159045	18	0.0000

As presented in Table 3, the probability value of the cross-section random is 0.0273, which is lower than 0.05. This result indicates that the Fixed Effect Model is more appropriate than the Random Effect Model. Since the Chow test and Hausman test both support the use of the Fixed Effect Model, the Lagrange Multiplier test was not required. Thus, the Fixed Effect Model was used as the final estimation model in this study.

Table 3. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.202822	2	0.0273

4.4 Classical Assumption Test Results

The classical assumption test was conducted to ensure that the regression model was statistically appropriate for hypothesis testing. The results indicated no serious violations of the normality, autocorrelation, multicollinearity, and heteroskedasticity assumptions. In addition, the Fixed Effect Model had been selected through the panel model selection procedures, namely the Chow test and the Hausman test. Therefore, the regression model was considered suitable for further analysis.

4.5 Panel Regression Results

Before conducting regression analysis, panel model testing was performed to identify the most appropriate estimation model. The results confirmed that the Fixed Effect Model (FEM) was suitable for this study. The estimated regression equation is as follows:

$$ROA = 0.857031 - 0.296654ESGD - 0.538495ESGFM$$

The regression equation illustrates the relationship between financial performance, measured by ROA, and the two independent variables, namely ESG disclosure and ESG financial materiality disclosure. The constant value of 0.857031 indicates the estimated ROA value when ESGD and ESGFM are assumed to be zero. The coefficient of ESGD is -0.296654, indicating a negative relationship between ESG disclosure and ROA. This suggests that an increase in general ESG disclosure is associated with a decrease in financial performance, although the statistical significance of this relationship must be interpreted through the t-test. Similarly, the coefficient of ESGFM is -0.538495, indicating a negative relationship between ESG financial materiality disclosure and ROA. The larger negative coefficient of ESGFM suggests that ESG financial materiality disclosure has a stronger negative association with return on assets than general ESG disclosure.

4.6 F-Test and T-test

As shown in Table 4, the probability value of the F-statistic is 0.000000, which is lower than 0.05. This result indicates that ESG disclosure and ESG financial materiality disclosure simultaneously have a significant effect on financial performance. Therefore, the independent variables jointly explain variations in ROA among the sampled energy sector companies.

Table 4. F-Test

Statistic	Value
F-Statistic	9.947209
Prob(F-Statistic)	0.000000

Table 5 presents the results of the partial significance test for each independent variable. The ESG disclosure variable has a coefficient of -0.296654, a t-statistic of -1.976413, and a probability value of 0.0558. Since the probability value is greater than 0.05, ESG disclosure does not have a statistically significant effect on financial performance. Although the direction of the relationship is negative, the effect is not strong enough to be considered statistically significant.

The ESG financial materiality disclosure variable has a coefficient of -0.538495, a t-statistic of -2.768726, and a probability value of 0.0088. Since the probability value is lower than 0.05, ESG financial materiality disclosure has a negative and statistically significant effect on financial performance. This result supports the finding that higher disclosure of financially material ESG items is associated with lower ROA.

Table 5. t-Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.857031	0.202802	4.225942	0.0002
ESGD	-0.296654	0.150097	-1.976413	0.0558
ESGFM	-0.538495	0.194492	-2.768726	0.0088

The regression results table should be placed immediately after the paragraph explaining the regression equation. This table should include the coefficient, standard error, t-statistic, and probability value for each variable, namely the constant, ESG disclosure, and ESG financial materiality disclosure. Presenting the regression table in this position allows readers to directly compare the narrative interpretation with the statistical output.

4.6 Multiple Coefficient of Determination Test

Table 7 shows an R-squared value of 0.846772 and an adjusted R-squared value of 0.761646. The adjusted R-squared value indicates that 76.16% of the variation in financial performance can be explained by ESG disclosure and ESG financial materiality disclosure. Meanwhile, the remaining 23.84% is explained by other variables that are not included in this study. These variables may include firm size, leverage, liquidity, sales growth, capital intensity, operational efficiency, or other financial and non-financial factors.

Table 6. Multiple Coefficient of Determination Test

Statistic	Value
R-square	0.846772
Adjusted R-squared	0.761646

Table 7. Hypotheiss Test Result

No	Hypothesis	Result
H_1	ESG disclosure has a positive and significant effect on financial performance	Rejected
H_2	ESG financial materiality disclosure has a negative and significant effect on financial performance	Accepted

4.10 Discussion

The findings of this study indicate that ESG disclosure has a negative but statistically insignificant effect on financial performance, suggesting that broader sustainability reporting does not automatically translate into higher return on assets among Indonesian energy sector companies. This result implies that the extent of ESG information disclosed by companies may not yet be strong enough to influence accounting-based profitability in the short term. From the perspective of legitimacy theory, ESG disclosure can help companies demonstrate conformity with social expectations, but legitimacy-oriented reporting does not necessarily generate immediate financial returns when stakeholders perceive the disclosure as procedural rather than strategic. This finding partly challenges the optimistic view of stakeholder theory, which assumes that greater transparency improves stakeholder trust and eventually enhances performance. The result is consistent with Darnall et al. (2022), Ellili (2022), and Vichitsarawong (2021), who found that ESG or sustainability disclosure does not always produce significant financial benefits. However, it differs from Murwaningsari (2025) and Mukti (2025), who reported positive effects of ESG disclosure on firm performance. This difference suggests that ESG disclosure in the Indonesian energy sector may still be in a transitional stage, where reporting practices have improved but have not yet been fully converted into operational efficiency or profitability.

The insignificant effect of ESG disclosure also indicates that disclosure breadth alone may have limited explanatory power when the disclosed information is not sufficiently connected to financially relevant business risks. Although companies may disclose a large number of ESG items, investors and other stakeholders may not interpret such disclosure as value-enhancing if it is too general, fragmented, or narrative in nature. This finding extends stakeholder theory by showing that transparency is not only a matter of how much information is disclosed, but also whether the information is credible, comparable, and useful for assessing corporate risk. In the context of energy companies, broad ESG disclosure may be viewed as a compliance response rather than evidence of substantive sustainability transformation. This interpretation is supported by Eng, Fikru, and Vichitsarawong (2021), who note that ESG reporting practices among Indonesian energy companies remain uneven across indicators. It also aligns with Al Amosh (2025), who argues that the usefulness of ESG reports depends on transparency quality rather than disclosure volume alone. Therefore, the finding suggests that companies should not treat ESG reporting as a checklist activity, but as a communication mechanism that must be linked to measurable risk management and financial relevance.

In contrast, ESG financial materiality disclosure was found to have a negative and significant effect on financial performance, indicating that disclosure of financially material ESG issues is associated with lower return on assets. This finding is conceptually important because it shows that materiality-based ESG disclosure may have different financial consequences from general ESG disclosure. From the perspective of trade-off theory, companies that disclose financially material ESG issues may incur higher costs related to measurement systems, internal controls,

risk modeling, assurance, regulatory compliance, and sustainability monitoring. These costs can reduce short-term profitability, particularly in capital-intensive sectors where firms already face high operational and investment expenditures. The result supports the arguments of Arvidsson and Dumay (2022) and Choi (2025), who suggest that ESG-related practices may create financial pressure when their implementation requires substantial corporate resources. However, it contrasts with Huq and Mohammadrezaei (2024) and Raith (2022), who emphasize the value relevance of materiality-based disclosure for investors and corporate value. This difference indicates that financial materiality disclosure may be informative for the market, but its short-term accounting impact can still be negative when disclosure costs exceed immediate operational benefits.

The negative effect of ESG financial materiality disclosure should not be interpreted simply as evidence that materiality-based disclosure is harmful. Rather, it reflects a timing problem between the cost of producing high-quality ESG information and the delayed realization of its economic benefits. Energy companies that disclose material ESG issues such as emissions, operational safety, environmental risk, and community impacts may need to invest in data infrastructure, technical expertise, third-party verification, and risk management systems before those disclosures produce measurable financial value. In the short run, these investments may reduce ROA because they increase operating expenses or require additional capital allocation. This interpretation is consistent with Ivascu et al. (2022), who show that ESG reporting can affect firms through compliance and capital-related costs, and with Li, Liu, and Lin (2026), who emphasize that financially material ESG information has economic relevance but may depend on transparency quality and firm capability. The finding therefore modifies trade-off theory by suggesting that the negative impact of materiality disclosure is not necessarily permanent, but may occur during the early stage of disclosure institutionalization. For managers, this means that materiality-based ESG reporting should be integrated into operational strategy rather than treated as a separate reporting burden.

The simultaneous significance of ESG disclosure and ESG financial materiality disclosure indicates that sustainability reporting variables jointly explain financial performance, even though their individual effects differ in strength and significance. This finding suggests that ESG-related disclosure cannot be ignored in assessing the financial condition of energy companies, but the financial meaning of disclosure depends on its type and depth. The high explanatory power of the model implies that disclosure practices are closely associated with variations in ROA among the sampled firms, although other factors such as firm size, leverage, liquidity, sales growth, capital intensity, and operational efficiency may also influence performance. From a theoretical standpoint, this result shows that legitimacy theory, stakeholder theory, and trade-off theory should not be treated as mutually exclusive explanations. ESG disclosure may simultaneously function as a legitimacy instrument, a stakeholder communication tool, and a cost-generating activity. This interpretation helps reconcile the mixed findings reported by Khandelwal (2023), Pinelli (2024), Wyse and Bradbury (2022).The implication is that future ESG research should move beyond the simple question of whether ESG disclosure is beneficial and instead examine under what conditions, through which mechanisms, and over what time horizon ESG disclosure affects financial performance.

The Indonesian energy sector provides an important context for understanding why ESG disclosure does not produce uniformly positive financial outcomes. Companies in this sector operate under high environmental scrutiny, but they also face commodity price volatility,

large fixed assets, regulatory pressure, and high costs of environmental compliance. These structural conditions may weaken the immediate financial benefits of ESG reporting because profitability is strongly influenced by operational scale, market cycles, asset utilization, and production costs. In such a context, ESG disclosure may improve transparency without directly improving ROA in the same reporting period. This explains why the present findings differ from studies that report positive ESG effects in broader or less capital-intensive samples, such Guo (2023), and S. Li (2026).It also supports the argument of Nuhu and Alam (2023) that sectoral characteristics shape the relationship between ESG disclosure and corporate performance. Therefore, this study contributes to the global ESG literature by showing that evidence from emerging-market energy companies may differ from findings in more diversified samples or mature capital markets.

Overall, the findings provide a more nuanced understanding of ESG reporting by distinguishing between general ESG disclosure and ESG financial materiality disclosure. General ESG disclosure appears insufficient to improve financial performance when it is not perceived as economically substantive, while financial materiality disclosure has a significant negative association with profitability because it likely reflects higher reporting and compliance costs. This distinction contributes conceptually by extending legitimacy and stakeholder theories: disclosure may strengthen accountability, but its financial effect depends on materiality, credibility, and the firm's ability to convert ESG information into operational value. At the same time, the findings reinforce trade-off theory by showing that financially material ESG disclosure can impose short-term costs in capital-intensive industries. Compared with previous studies that examine ESG disclosure as a single aggregate construct, this study offers a more differentiated perspective on how disclosure breadth and disclosure materiality relate to financial performance. The practical implication is that energy companies should prioritize ESG disclosures that are not only comprehensive but also strategically integrated with risk management, efficiency improvement, and long-term value creation. For investors, the findings suggest that ESG disclosure should be evaluated critically by considering both its informational benefits and its potential cost implications for short-term profitability.

5. Conclusion and Suggestion

This study concludes that ESG disclosure and ESG financial materiality disclosure have different implications for the financial performance of energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. ESG disclosure has a negative but insignificant effect on financial performance, indicating that broader sustainability reporting does not automatically improve return on assets in the short term. This finding suggests that general ESG disclosure may still function mainly as a transparency and legitimacy mechanism rather than as a direct driver of profitability. In contrast, ESG financial materiality disclosure has a negative and significant effect on financial performance, implying that the disclosure of financially material ESG issues may create short-term financial pressure due to higher reporting, monitoring, verification, and compliance costs.

Theoretically, the findings support the relevance of trade-off theory in explaining the financial consequences of ESG reporting in capital-intensive industries. Although legitimacy theory and stakeholder theory suggest that ESG disclosure may strengthen corporate reputation, transparency, and stakeholder trust, these benefits may not be immediately reflected in accounting-based financial performance. This study also contributes to the ESG literature by distinguishing between general ESG disclosure and ESG financial materiality disclosure,

which are often treated as a single construct in previous studies. Practically, the results suggest that energy companies should integrate ESG reporting with risk management, operational efficiency, and long-term strategic planning so that sustainability disclosure does not merely increase administrative costs but also supports value creation.

This study has several limitations, including the relatively short observation period, the limited sample of energy sector companies, and the use of return on assets as the only proxy for financial performance. Future research is encouraged to extend the observation period, include companies from other sectors, and use alternative financial performance indicators such as return on equity, profit margin, Tobin's Q, or market-based measures. Future studies may also include control, moderating, or mediating variables such as firm size, leverage, liquidity, audit quality, corporate governance, sustainability assurance, and capital intensity. In addition, separating ESG disclosure into environmental, social, and governance dimensions may provide deeper insights into which ESG component has the strongest influence on corporate financial performance.

6. Limitations and Future Research

This study has several limitations that should be considered when interpreting the findings. First, the observation period was limited to three fiscal years, from 2022 to 2024, so the results may not fully capture the long-term financial consequences of ESG disclosure and ESG financial materiality disclosure. Second, the sample was restricted to energy sector companies listed on the Indonesia Stock Exchange, which may limit the generalizability of the findings to other sectors with different sustainability risks, reporting practices, and capital structures. Third, financial performance was measured only by return on assets, while other accounting-based and market-based indicators may provide different perspectives on corporate performance. Future research is therefore encouraged to extend the observation period, include broader industry sectors, and use alternative performance measures such as return on equity, net profit margin, Tobin's Q, or firm value. Further studies may also incorporate control, moderating, or mediating variables such as firm size, leverage, liquidity, capital intensity, audit quality, corporate governance, or sustainability assurance to provide a more comprehensive explanation of the relationship between ESG disclosure and financial performance.

7. Declaration of AI and AI-assisted technologies in the writing

During the preparation of this manuscript, the authors used AI-assisted technology to support language refinement, improve sentence clarity, enhance academic coherence, and organize several sections of the manuscript. The AI tool was used only as a writing assistance tool and did not replace the authors' intellectual contribution, research design, data collection, data analysis, interpretation of findings, or final scholarly judgment. All AI-assisted outputs were critically reviewed, revised, verified, and approved by the authors to ensure accuracy, originality, and alignment with the objectives of the study. The authors take full responsibility for the content, validity, and integrity of the final manuscript.

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