

THE EFFECT OF ESG DISCLOSURE AND CARBON EMISSION DISCLOSURE ON COMPANY INVESTMENT DECISIONS: A STUDY OF THE ENERGY AND MINING SECTORS IN INDONESIA

Zakiyatun Fajariyah^{1*}, Najmudin²

¹²Master of Management Study Program, Jenderal Soedirman University, Indonesia

*Email corresponding author: zakiyatun.fajariyah@mhs.unsoed.ac.id

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Abstract

This study aims to analyze the influence of ESG disclosure and carbon emission disclosure on investment decisions of companies in the energy and mining sectors in Indonesia. With increasing attention to sustainability issues, environmental disclosure has become a crucial factor considered by investors in making investment decisions. Previous research has shown that ESG and carbon emission disclosure can improve investment efficiency by reducing information asymmetry. However, recent research indicates a potential mismatch between disclosure and actual environmental performance, raising doubts about the credibility of the information provided. This study uses panel data from energy and mining sector companies listed in the LQ45 index for the 2021–2024 period. The analytical method used is multiple linear regression to examine the relationship between ESG disclosure, carbon emission disclosure, and corporate investment decisions. The results are expected to indicate whether these disclosures serve as informative signals for investors or are merely symbolic and do not reflect actual company performance. This study contributes by integrating the perspectives of signaling theory and the phenomenon of mismatch between disclosure and actual performance. Furthermore, this study also provides practical implications for investors, regulators, and corporate management in evaluating the quality of sustainability disclosure in emerging markets.

Keywords: ESG disclosure, carbon emission disclosure, investment decisions, signaling theory, emerging markets

INTRODUCTION

The increasing urgency of climate change and sustainability issues is driving companies to disclose more extensive environmental information, particularly regarding carbon emissions and ESG (Environmental, Social, and Governance) practices. Investors and stakeholders increasingly rely on this information as a basis for assessing a company's transparency, environmental responsibility, and long-term performance prospects. In this context, ESG and carbon emission disclosures are seen as playing a crucial role in influencing corporate investment decisions.

Several previous studies have shown that environmental disclosure can reduce information asymmetry and improve investment efficiency by conveying relevant signals to the market. Companies with high levels of ESG disclosure tend to gain greater investor confidence and lower financing costs, thereby improving the quality of investment decisions. These findings are generally based on signaling theory, which states that information disclosure serves as a credible signal regarding company quality.

However, recent research has begun to question the effectiveness of such disclosures, highlighting a potential gap between disclosed information and actual environmental performance.

Companies may make symbolic disclosures without following up with concrete environmental management actions. This phenomenon, known as carbon disclosure catering, suggests that disclosures do not always reflect a company's true condition. Therefore, the influence of ESG disclosure and carbon emission disclosure on investment decisions remains a matter of debate and requires further study.

Based on this gap, this study aims to examine whether ESG and carbon emission disclosures actually influence corporate investment decisions or are merely symbolic. This research focuses on companies in the energy and mining sectors in Indonesia, which are high-emission sectors facing regulatory pressure and high public expectations regarding sustainability.

This research contributes in three aspects. First, it expands on previous research by simultaneously examining ESG disclosure and carbon emission disclosure. Second, it integrates the perspective of the discrepancy between disclosure and actual performance, which is still limited in the literature. Third, it provides empirical evidence from the context of developing countries, particularly Indonesia, which has different market and regulatory characteristics than developed countries.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

ESG Disclosure and Investment Decisions

ESG (Environmental, Social, and Governance) disclosure is a form of corporate transparency in conveying non-financial information to stakeholders. From a signaling theory perspective, companies with high-quality ESG disclosure tend to send positive signals to investors regarding their commitment to sustainability and long-term risk management.

Numerous empirical studies have shown that ESG disclosure has a positive impact on investment decisions and investment efficiency. High-quality ESG disclosure can reduce information asymmetry between companies and investors, thereby increasing investor confidence and encouraging more efficient capital allocation (Elili, 2022). Furthermore, ESG disclosure also contributes to lowering funding costs and improving the quality of corporate investment decisions (Mula, 2026).

Thus, the higher the level of ESG disclosure, the more likely investors are to view the company as a transparent and sustainable entity, which ultimately influences investment decisions..

H1: ESG disclosure has a positive effect on corporate investment decisions.

Carbon Emission Disclosure and Investment Decisions

Carbon emission disclosure is a specific component of environmental disclosure that relates to a company's carbon emissions. This disclosure is becoming increasingly important as global attention to climate change and regulations related to carbon emissions increases.

Based on information asymmetry theory, carbon emissions disclosure can provide investors with additional information about a company's environmental risks and sustainability strategies. Research shows that environmental disclosure can improve investment efficiency by reducing uncertainty and increasing transparency (Li et al., 2025).

However, not all carbon disclosures reflect actual environmental performance. Some companies tend to make symbolic disclosures without following up with concrete actions, a phenomenon known as carbon disclosure catering. This demonstrates that carbon disclosures can be both informative and symbolic, depending on the quality and credibility of the information provided.

Despite the potential for bias, carbon emission disclosure is generally considered a factor influencing investor perceptions in investment decision-making.

H2: Carbon emission disclosure influences company investment decisions.

RESEARCH METHODS

Research Design

This research uses a quantitative approach with panel data analysis. The objective of the study is to examine the influence of ESG disclosure and carbon emission disclosure on corporate investment decisions. A quantitative approach was chosen because it can empirically test causal relationships between variables using statistical models.

Population and Sample

The population in this study is all companies listed in the LQ45 index on the Indonesia Stock Exchange. The sampling technique used is purposive sampling with the following criteria:

1. Companies included in the energy and mining sector
2. Companies that are consistently listed in the LQ45 index during the research period
3. Companies that have complete ESG disclosure and carbon emission disclosure data

Based on these criteria, a sample of several companies was obtained with an observation period of 2021–2024, resulting in panel data of 32 observations.

Data Types and Sources

The type of data used in this study is secondary data obtained from:

1. Company annual report
2. Sustainability report
3. ESG score and carbon emission score data
4. Company financial data related to investment decisions

Data collected through the official website of the Indonesia Stock Exchange and company publications.

Operational Definition of Variables

This study uses three main variables, namely:

1. Dependent Variable (Y): Investment Decision
Investment decisions are measured using specific proxies (e.g., capital expenditure, asset growth, or other investment indicators). These variables reflect a company's ability to allocate resources to investment projects.
2. Independent Variables
 - a. *ESG Disclosure (X1)*
ESG disclosure is measured using an ESG score, which reflects a company's level of disclosure of environmental, social, and governance information. The higher the ESG score, the higher the company's level of transparency.
 - b. *Carbon Emission Disclosure (X2)*
Carbon emission disclosure is measured using a carbon emission score or a company's carbon emission disclosure indicator. This variable reflects the extent to which a company discloses information related to carbon emissions.

Analysis Model

This study uses multiple linear regression analysis with the following model:

$$Investment = \beta_0 + \beta_1 ESG + \beta_2 CED + \epsilon$$

Information:

Investment = investment decision

ESG = ESG disclosure

CED = carbon emission disclosure

ϵ = error term

Data Analysis Techniques

Data analysis is carried out in several stages, namely:

1. Analysisdescriptive statistics
To describe the characteristics of research data
1. Correlation test
To see the relationship between variables
2. Multiple linear regression test
To test the influence of ESG disclosure and carbon emission disclosure on investment decisions

Data processing is carried outusing EViews statistical software.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Based on the results of data processing using EViews, descriptive statistics were obtained for the ESG disclosure variables (X1), carbon emission disclosure (X2), and investment decisions (Y) as presented in Table 1.

Table 1. Descriptive Statistics

Variables	Mean	Median	Min	Max	Std. Dev
ESG (X1)	63.19	68.00	0.00	81.00	17.72
CED (X2)	0.79	0.93	0.00	1.00	0.27
Investment (Y)	0.11	0.09	-0.49	0.70	0.21

The average ESG disclosure score of 63.19 indicates a relatively high level of disclosure but with large variations (min 0; max 81), indicating heterogeneity between companies. Carbon emission disclosure has an average of 0.79, indicating that most companies have disclosed carbon emissions, although some still do not (minimum value 0). Investment decisions (Y) have an average of 0.11 with a wide range (-0.49 to 0.70), indicating fluctuating investment dynamics during the study period.

Correlation Analysis

Correlation analysis is used to see the initial relationship between variables before conducting causality testing through regression.

Table 2. Matrix Correlation

Variables	ESG	CED	Investment
ESG	1.00	0.65	-0.10
CED	0.65	1.00	-0.05
Investment	-0.10	-0.05	1.00

ESG disclosure is positively correlated with carbon emission disclosure (0.65), indicating that companies with high ESG disclosure tend to also have high carbon emission disclosure. However, the correlations between ESG–Investment (–0.10) and CED–Investment (–0.05) are weak and tend to be negative. This indicates that the relationship between disclosure and investment decisions is not robust, requiring regression analysis to examine the influence in more depth.

Regression Analysis Results

Testing hypothesis conducted using multiple linear regression with the model:

$$\text{Investment} = \beta_0 + \beta_1 \text{ESG} + \beta_2 \text{CED} + \varepsilon(1)$$

Table 3. Multiple Linear Regression Results

Variables	Coefficient	Direction
Constant	0.195	Positive
ESG (X1)	-0.083	Negative
CED (X2)	-0.025	Negative
R ²	0.011	Low

An R² value of 0.011 indicates that ESG disclosure and carbon emission disclosure variables only explain approximately 1.1% of the variation in investment decisions. Therefore, other factors outside the model significantly influence corporate investment decisions.

Discussion

The Influence of ESG Disclosure on Investment Decisions (H1)

The ESG disclosure coefficient is negative (–0.083), indicating that increased ESG disclosure is not accompanied by increased investment decisions. This finding does not support hypothesis H1, which expects a positive effect.

Theoretically, signaling theory states that ESG disclosure should be a positive signal for investors. However, these results indicate that investors have not yet fully utilized ESG disclosure as a primary basis for their investment decisions. One possible explanation is that the quality of ESG disclosure does not fully reflect actual sustainability performance, thus rendering the information less credible.

Influence Carbon Emission Disclosure on Investment Decisions (H2)

The findings of this study point to the existence of a disclosure-performance gap, a mismatch between the level of disclosure and a company's actual performance. Although companies demonstrate relatively high levels of ESG and carbon disclosure, this does not directly influence investment decisions.

These results also support the view that sustainability disclosure can be:

- a. **Informative**, if it reflects the real condition of the company
- b. **Symbolic**, if only used as a reputation tool (greenwashing)

Thus, this study extends the literature by showing that in the context of emerging markets such as Indonesia, ESG disclosure and carbon emission disclosure are not necessarily strong signals in influencing investment decisions

CONCLUSION

This study aims to analyze the influence of ESG disclosure and carbon emission disclosure on corporate investment decisions in the energy and mining sectors in Indonesia for the period 2021–2024.

Based on the analysis, several key findings were obtained. First, ESG disclosure did not significantly influence corporate investment decisions. This suggests that a high level of ESG disclosure is not necessarily a primary consideration for investors when making investment decisions.

Second, carbon emission disclosure also does not significantly influence investment decisions. Despite increasing carbon emission disclosures, this information has not yet significantly impacted corporate investment decisions.

Third, overall, the research results show that sustainability disclosures, whether through ESG disclosures or carbon emissions disclosures, do not yet fully function as a strong signal in influencing investment decisions. This indicates the possibility that such disclosures are symbolic and do not fully reflect the company's actual performance. Actually.

Theoretically, this research contributes by demonstrating that signaling theory does not always apply consistently in the context of emerging markets. ESG and carbon emissions disclosures are not always interpreted as positive signals by investors.

Practically, the results of this study provide implications for investors to be more careful in assessing sustainability information provided by companies. Investors should pay attention not only to the level of disclosure but also to the quality and credibility of that information.

For companies, these results indicate that sustainability disclosure should not be merely a formality, but should be followed by real implementation in order to increase investor confidence.

Regulators need to strengthen standards and oversight of ESG and carbon emissions disclosures to ensure more transparent and reliable information.

This study has several limitations. First, the sample size is relatively limited, so the results cannot be broadly generalized. Second, the relatively short study period, 2021–2024, means the long-term impact of sustainability disclosure may not yet be apparent. Third, the research model uses only two independent variables without considering other variables that may have a greater influence on investment decisions.

Further research is recommended to add other variables such as financial performance, company size, or profitability to obtain a more comprehensive model. Furthermore, further research could expand the sample size and research period to achieve more representative results. Testing using a moderation or mediation model approach could also be conducted to examine more complex relationships between variables

BIBLIOGRAPHY

- Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, 48(2–3), 112–131. <https://doi.org/10.1016/j.jacceco.2009.09.001>
- Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2011). Does it really pay to be green? Determinants and consequences of proactive environmental strategies. *Journal of Accounting and Public Policy*, 30(2), 122–144. <https://doi.org/10.1016/j.jaccpubpol.2010.09.013>
- Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The case of corporate social responsibility reporting. *The Accounting Review*, 86(1), 59–100. <https://doi.org/10.2308/accr.00000005>
- Ellili, N. O. D. (2022). Impact of ESG disclosure and financial reporting quality on investment efficiency. *Corporate Governance: The International Journal of Business in Society*, 22(5), 1094–1111. <https://doi.org/10.1108/CG-06-2021-0209>
- Feng, X., Liu, Y., & Wang, Z. (2026). Carbon disclosure catering. *Journal of Accounting and Economics*. <https://doi.org/10.1016/j.eap.2026.02.027>
- Gao, J., Liu, P., & Xie, H. (2025). Carbon risk and foreign direct investment: Evidence from global markets. *Journal of International Business Studies*. <https://doi.org/10.1016/j.eneco.2025.108715>
- Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1–3), 405–440. [https://doi.org/10.1016/S0165-4101\(01\)00018-0](https://doi.org/10.1016/S0165-4101(01)00018-0)
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Kookkaew, P., Suttipun, M., & Sae-Lim, P. (2026). ESG reporting quality and investment efficiency: Evidence from emerging markets. *Sustainability Accounting, Management and Policy Journal*. <https://doi-org.ezproxy.ugm.ac.id/10.1108/IJMF-06-2025-0327>
- Li, X., Zhang, Y., & Zhou, L. (2025). Environmental disclosure and investment efficiency: The role of green finance. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.frl.2025.107594>
- Mula, M.J. (2026). ESG reporting quality and its impact on investment and debt financing decisions: evidence from emerging market firms. <https://doi.org/10.1108/IJMF-06-2025-0327>
- Xue, R., Wang, H., Yang, Y., Linnenluecke, M.K., Jin, K. and Cai, C.W. (2023), “The adverse impact of corporate ESG controversies on sustainable investment”, *Journal of Cleaner Production*, Vol. 427, 139237, <https://doi.org/10.1016/j.jclepro.2023.139237>