Journal of Economics, Entrepreneurship, Management Business and Accounting, 2026, 4(6),794-813.
https://doi.org/10.61255/jeemba.v4i6.1710

Between Green Demands and Financial Gains

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ABSTRACT

Purpose - This study aims to analyze the influence of environmental performance and *good corporate governance* on the disclosure of carbon emissions in energy sector companies and basic materials listed on the Indonesia Stock Exchange in 2022–2024. This study uses a quantitative approach with secondary data types obtained from annual reports and company sustainability reports.
Design/methodology/approach - The sampling technique uses purposive sampling so that a sample of 48 companies was obtained during 2022-2024.
Finding – The results show that environmental performance, managerial ownership, independent commissioners, and audit committees have a positive effect on carbon emission disclosure. On the other hand, institutional ownership and the board of directors have a negative effect. These findings indicate that carbon emission transparency is driven by sustainability commitments and the effectiveness of internal oversight, while the orientation on short-term financial performance tends to limit the disclosure of environmental information
Originality/Value – A major novelty is demonstrated by the finding that increased internal oversight (such as the number of boards of directors and the encouragement of institutional investors) is not necessarily directly proportional to environmental transparency, but is largely determined by the orientation of decision-makers' priorities.

ARTICLE INFO

Keywords:
Environmental Performance, Ownership Institusional, Disclosure of Karbon Emissions

Article Information:
Received:
Review:
Accepted:

ISSN:
2985-3168 (Online)
2985-3222 (Print)

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1. Introduction

Climate change and global warming are important topics that have captured the world's attention. This phenomenon has triggered various natural disasters in various locations, including droughts, crop failures, floods, and the emergence of typhoons and storms. This condition is caused by an increase in the world's average temperature (Augesti, 2018). Study (WMO, 2023) shows that global surface temperature anomalies in 2023 were recorded to reach 1.45°C (± 0.12°C) above pre-industrial levels, where this warming trend is followed by an increase in sea level globally. Referring to official records from the National Aeronautics and Space Administration (NASA), it shows that greenhouse gas emissions have increased by more than 95% in the last 50 years. The issue of climate change should not be ignored, as it has significant consequences both at the national and global levels.

The main factor contributing to the rise in global temperatures is the release of a set of gases in the atmosphere that have unique characteristics in absorbing and re-releasing infrared radiation. The existence of these gases is naturally formed through various processes on earth and anthropogenic activity. All countries, including Indonesia, contribute to increasing carbon emissions. Indonesia is among the largest polluting countries in the world. Globally, Indonesia ranks seventh as the highest contributor of carbon dioxide, with accumulated emissions reaching around 839.6 million tons. From 2012 to 2022, Indonesia's CO_2 emissions increased by 3.3% (Shafina, 2023).

Indonesia's ranking among the ten largest CO_2 emitting countries underscores the substantial impact of the energy and industrial sectors on the control and reporting of entities' carbon emissions. The energy and raw materials sectors, which are intrinsically linked to the use and management of natural resources, make a major contribution to carbon emissions. Examples of environmental pollution associated with companies such as PT Adaro Indonesia, PT Arutmin Indonesia, and PT Bantala Coal Mining show that coal mining operations in South Kalimantan have had a detrimental impact on the ecology. This problem occurred due to inadequate management of mining waste (tailings) and improper closure of previous excavation sites (Habibi, 2022). In addition, the Ministry of Environment and Forestry (MoEF) has suspended the activities of four companies, including PT Pindo Deli Pulp and Paper Mills. This action began after the Ministry of Environment and Forestry (MoEF) found that the installation of sampling pits at Fly Ash Bottom Ash (FABA) and chimney operations at PT Pindo Deli 3 failed to meet technical specifications. Such violations include inadequate sampling techniques, poor installation of sampling pits, and dilution practices that allegedly fail to comply with relevant technical standards (Hartawan, 2023).

Disclosure of carbon emissions signifies corporate accountability to the environment and stakeholders, as well as the importance of enforcing global and national obligations to mitigate climate change. The implementation of the Paris Agreement in Indonesia through Law No. 16 of 2016 and the formulation of emission reduction goals in Nationally Determined Contributions (NDCs) encourage increased transparency in carbon emission reporting among companies. As a result, increased carbon emissions disclosure is critical to facilitate the achievement of national goals, while strengthening stakeholder accountability and trust (Karuniasa, 2025).

Environmental performance is a series of actions taken by organizations as proof of their concern for the surrounding environmental conditions (Nihayatuzzainia & Tumirin, 2025). The Ministry of Environment and Forestry (MoEF) evaluates the effectiveness of managing the company's ecosystem in Indonesia through the OWN scheme. In this assessment, quality

standards are divided into five color tiers, where the gold rating symbolizes the best performance, followed by green, blue, red, and black for the entities with the lowest environmental reputation (Amalia & Mubarok, 2024). The main focus is to motivate corporations to be more responsible for the environment by opening access to data transparency and performance reports. so that companies are encouraged to comply with applicable regulations with the help of incentive and disincentive mechanisms related to reputation (Asjuwita & Agustin, 2020). Effective environmental implementation motivates companies to increase transparency in implementing sustainability standards consistently. The practice of disclosing carbon emissions represents transparency as well as the company's compliance with sustainability regulatory instruments. This step is used by the company to strengthen the company's image, attract investors who have concerns about environmental issues, in order to accommodate the interests of stakeholders in the context of the company's environmental obligations. (Purnayudha & Hadiprajitno, 2022). Environmental performance is important information for investors *(stakeholder),* In order to explore the current situation of business entities as well as map their sustainability potential in the future (Sukmawati, 2021). To ensure that carbon emissions disclosure can run effectively, companies need to demonstrate good environmental performance. This is because optimal environmental performance is able to provide long-term benefits for the company, especially through its contribution as an effort to minimize the adverse impacts of climate change and the increase in global temperature. (Angelina & Handoko, 2023).

Previous research Anggraini & Hermi (2025), Yesiani et al., (2023) and Maryono & Ermawati, (2024) proving that environmental performance affects the disclosure of carbon emissions. This gives the impression that organizations with qualified environmental performance have a tendency to show greater transparency in publishing emissions data, entities show a proactive attitude through the transparent delivery of carbon footprint information to the public. However, contradictory results were found by Sukmawati, (2021) and (Amaliyah & Solikhah, 2019) reveals that environmental performance has no effect on the disclosure of carbon emissions. These findings indicate that an organization's performance or PROPER is not a driving factor for them in their carbon emission disclosure.

In addition, the entity's policy in disclosing carbon emissions is also estimated to be influenced by other factors, namely the implementation of good corporate governance or *Good Corporate Governance* (GCG). Effective implementation (GCG) is considered important in supporting the sustainability of the company (Manurung et al., 2022) GCG is a system set by an entity to maintain the sustainability of its business. CGC encompasses independence, transparency, accountability, accountability and equality (Ogan et al., 2024). To increase a company's accountability to its environmental impact, the integrity of the GCG system is essential. Businesses that apply principles tend to be more accountable in their environmental reporting, including carbon emissions disclosures (Wilasittha et al., 2025). GCG plays a crucial role in ensuring that business operations are carried out in accordance with applicable regulations in increasing transparency about environmental impacts, including the disclosure of carbon emissions. (Rizky & Aini, 2023). The effectiveness of corporate governance is reflected in GCG Includes managerial ownership, institutional ownership, independent commissioners, board of directors and audit committees. The use of these mechanisms is in line with research Amaliyah & Solikhah (2019), Ramadan & Riwayadi (2025), Princess & Saraswati (2024), (Fazwah & Khomsiyah., 2023) and (Jannah & Maryanti, 2020) which states that the GCG Mechanism is declared to be able to strengthen internal supervision and minimize information

gaps. Consequently, the effectiveness of GCG stimulates entities to increase transparency in reporting their environmental performance, which includes the presentation of detailed data related to carbon emission disclosure.

Managerial ownership describes the extent to which the company's management also acts as shareholders in the entity's capital structure (Aniktia & Khafid, 2015). The management's large level of shareholding reflects that the control of the company is on the management side. The higher the portion of share ownership by management, the more their responsibility and involvement in managing the company will be. Referring to a theoretical perspective *Squirrel*, entities face pressure from external parties to proactively implement social and environmental responsibility. Thus, high managerial ownership will strengthen management's control over company performance, thereby ultimately stimulating business entities to present carbon emission disclosure in a more in-depth and comprehensive manner.

Based on research conducted (Aniktia & Khafid, 2015) and (Khalimatussa'diah. et al., 2024) There is a positive influence of the influence of ASIO between the number of shares controlled by the management on the disclosure of the company's carbon emissions, which implies that the larger the portion of equity controlled by the management, the higher the tendency of the entity to disseminate information related to carbon emissions in a transparent manner. In contrast to research (Akhiroh & Kiswanto, 2016) and (Amaliyah & Solikhah, 2019) reveal the proportion of the amount of capital involvement from the management is proven to be not correlated with the extensiveness of the company's carbon emission disclosure.

In addition to managerial ownership, institutional ownership is identified as one of the factors that have the potential to affect the intensity of carbon emissions disclosure. Institutional ownership represents the portion of shares of a corporation owned by an organization or entity, collective, or institutional, and legal entity of the total shares outstanding. This ownership has a crucial role in realizing effective corporate governance through strengthening the supervisory function of management. The larger the portion of shares owned by an institution, the greater the control that institutional investors have, so that companies are encouraged to provide more comprehensive disclosure of carbon emissions.

Based on research (Angelina & Handoko, 2023) and (Wibowo et al., 2022) The results of the study confirm that institutional ownership has an effect on carbon emission disclosure, indicating that the strong influence of institutional shareholders spurs corporations to improve environmental accountability. In addition, disclosure of institutional ownership in financial statements can also improve the quality of the company and attract investors. In contrast to research Rosita (2024) and Princess (2022) prove that institutional ownership has no effect on the disclosure of a company's carbon emissions

In addition to institutional ownership, there are independent Commissioners who are one of the indicators of carbon emission disclosure. An independent commissioner is an individual who is elected without representing a particular party, but based on his knowledge, experience, and professional expertise, so that he can carry out his duties optimally for the benefit of the company (Nurhalisah & Trisnaningsih, 2024). The existence of a proportional independent commissioner plays a crucial role in increasing corporate accountability through extensive disclosure of carbon emissions. This transparency practice is a strategic instrument for entities to maintain the support and loyalty of stakeholders.

According to research (Oyewo, 2023) and (Saraswati et al., 2021) stated that there is a positive influence of the existence of independent commissioners on the level of disclosure of carbon emissions. The findings imply that the greater the percentage of independent commissioner

members, the higher the company's commitment to disclosing carbon emissions reports in its annual reporting. In contrast to research (Ramadan & Riwayadi, 2025) and (Amaliyah & Solikhah, 2019) The findings indicate that the proportion of independent commissioners in the board structure has no effect on the extent of disclosure of a company's carbon emissions
In addition to independent commissioners, at the top management level there is a board of directors that holds executive authority in formulating and implementing the company's strategic policies (Wiransyah et al., 2024). To formulate strategies, oversee management, and ensure business continuity in the long term, a board of directors is essential. Since all members of the board of directors participate in decision-making, the size of the board of directors shows how good the company's governance is (Krisna & Suhardianto, 2016).
According to research (Wiransyah et al., 2024) and Zanra (2020) These results indicate the influence of the Board of Directors on the level of carbon emission disclosure. This means confirming that the larger the composition of the Board of Directors, the more effective the company's management process becomes, thereby encouraging the strengthening of the entity's capabilities in carrying out its commitment to environmental sustainability. The size of the composition of the board of directors is an indicator of the quality of GCG, which presents the company's capabilities in managing various strategic interests effectively, because every decision taken is the result of consideration and input from all board members. In contrast to research Squirting (2017) and Ramadan & Riwayadi (2025) The study revealed that the board size variable had no effect on the disclosure of carbon emissions in corporate reporting
In addition to the board of directors, there is an audit committee which is one of the indicators of carbon emission disclosure. The audit committee of the company's established body is tasked with supporting the board of commissioners in maximizing supervision of the entity's operational performance (Aniktia & Khafid, 2015). The existence of an audit committee encourages companies to implement GCG more effectively, which encourages the creation of information disclosure for stakeholders. This is because companies are required to be open to all activities carried out and prepare reports on these activities.
Based on research conducted Anggraini & Hermi (2025) and Simamora (2022) Proving that the role of the audit committee has an effect on the breadth of disclosure of carbon emission information. The high intensity of audit committee meetings facilitates more in-depth discussions as well as a comprehensive exchange of perspectives. This enables optimal strategic decision-making to accommodate the interests of stakeholders, including in increasing transparency through carbon disclosure. Different from research Ramadan & Riwayadi (2025) and Amaliyah & Solikhah (2019) The research revealed that the audit committee variables did not have an effect on the disclosure of carbon emissions in company reporting.

2. Literature Review & Hypothesis Development

2.1 Stakeholder Theory

Based on views Ghozali (2020) theory *Stakeholders* emphasizing that the company's orientation is not limited to internal interests alone, but also to providing added value for all related parties. The existence of an organization is largely determined by the support provided by elements such as the government, suppliers, employees, the community, and the capital market that interact with those business activities

2.2 Carbon Emissions Disclosure.

According to Khalimatussa'diah. (2024) As part of the company's reporting, the carbon emissions disclosure contains strategic information about the climate and the future prospects of the entity for stakeholders. Accounting practices, especially through carbon emission reporting, are a real contribution in supporting sustainable development targets in Indonesia. This report, which is an integral part of the sustainability report, represents the company's environmental concern and serves as a mechanism to minimize the impact of carbon emissions sourced from operational activities. (Khotimah & Sari, S., 2024).

Measurement of emissions disclosure is proxied by content *analysis* which refers to the *Global Reporting Initiative* (GRI) standard. The assessment stage is carried out by reviewing the ratio between the number of points published by the entity compared to the total standard of predetermined disclosure items. The assessment specifically refers to emission indicators in the environmental category based on the GRI framework.

2.3 Environmental Performance

Environmental performance is an entity's effort to show concern for the surrounding environment (Khoiriyah & Wirawan, 2021). In Indonesia, environmental performance assessments usually use the PROP instrument, a monitoring scheme whose regulations are stipulated through the Regulation of the Minister of Environment of the Republic of Indonesia Number 3 of 2014. According to Dardjono, (2021) The Public Disclosure Program for Environmental Compliance (PROPER) is a government policy made with the aim of spurring the strengthening of corporate operational efficiency within the framework of environmental conservation to be in line with the standards mandated by legal instruments and government regulations.

Freeman 's (1984) stakeholder theory emphasizes that corporate accountability must extend to include all constituents, from creditors to the wider community. In this perspective, the dissemination of environmental performance information is a fundamental instrument to demonstrate the openness of the company. Intensive environmental reporting practices, particularly in terms of carbon emission reduction, serve as tangible evidence of an entity's ecological commitment that in turn will strengthen social legitimacy in the eyes of the public. In line with this statement, this is in line with research Arsjah (2025), Maryono & Ermawati (2024) Annisa & Ersyafdi (2025) & Anggraini & Hermi (2025) It is asserted that business entities with good environmental performance typically show higher accountability in disseminating the details of a company's carbon emissions. This research reinforces the notion that stakeholder expectations are met by entities that have stable environmental performance tend to disclose carbon emissions more comprehensively.

H1 = Environmental Performance affects Carbon Emission Disclosure

2.4 Managerial Ownership

Managerial ownership is the ownership of a company's shareholders who actively play a role in the company's decision-making (Pasaribu et al., 2016). Theory *Squirrel* explained that the company operates not only for its own benefit but also provides benefits to stakeholders. The existence of a manager as well as the owner of the company, makes the company more controllable by the manager, because the manager will act for the company and its investment (Aniktia & Khafid, 2015).

According to (Lindawati & Puspita, 2015) To improve business performance, companies need to pay attention to financial and non-financial information, including carbon emissions. In the disclosure of carbon emissions, managers act as controllers to increase the disclosure of these carbon emissions. More control by managers makes him make efforts to be able to provide

benefits to the *stakeholder,* and conduct carbon emission disclosure. So high managerial ownership will tend to encourage companies to disclose carbon emissions in their reports (Amaliyah & Solikhah, 2019).

In line with the statement based on research by (Ayu et al., 2025), (Khalimatussa'diah. et al., 2024) and (Wibowo et al., 2022) Managerial ownership shows that positively significantly affects carbon emissions disclosure

H2= Managerial ownership affects carbon emissions disclosure

2.5 Institutional Ownership

According to (Handayani et al., 2024) Institutional ownership is the percentage of a company's share ownership owned by a particular institution or institution. Theory *Squirrel* Describe the relationship between the company and stakeholders. This relationship makes the management try to be transparent about the company's activities (Maqfirah & Fahrianta, 2020). Institutional ownership provides optimal oversight of management and the pressure to disclose environmental social responsibility is also high (Akhiroh & Kiswanto, 2016)

(Amaliyah & Solikhah, 2019) The higher the institutional ownership, the greater the amount of loyalty in carrying out social and environmental responsibilities. Therefore, institutional investors tend to encourage companies to be more transparent in disclosing carbon emissions as a form of accountability and environmental risk management (Bakti 2022). Increased institutional ownership has implications for more effective supervision of the company, which is geared towards improving a positive image in the eyes of shareholders related to the company's activities.

In line with the research conducted by the Researcher by (Angelina & Handoko, 2023), (Dwicahyani et al., 2024) and (Wibowo et al., 2022) Carbon emissions disclosure is significantly influenced by institutional ownership. Thus, the following hypotheses are formulated:

H3 = Institutional ownership has an effect on carbon emissions disclosure

2.6 Commissioner Indepeneden

According to (Candradewi & Sedana, 2016) An independent board of commissioners is a member of the commissioner who has no affiliation with management and is not involved in business relationships that may affect his or her ability to make decisions objectively in the interests of the company.

The company's relationship with *Squirrel* create a company to provide benefits to stakeholders. The existence of an independent commissioner will lead companies to implement good corporate governance, thus encouraging companies to uphold the principle of transparency by making more disclosures to their stakeholders, through the disclosure of carbon emissions(Amaliyah & Solikhah, 2019). This effort is made to maintain the support of the *Squirrel*The greater the proportion of independent commissioners, the more likely the company will be to disclose the scope of the (Akhiroh & Kiswanto, 2016).

This is in line with research (Jannah & Maryanti, 2020), (Fernandes et al., 2018) and (Wibowo et al., 2022) which found that independent commissioners had a positive effect on the disclosure of carbon emissions.

H4= independent commissioner has a positive effect on carbon emissions disclosure

2.7 Board of Directors

According to (Syahputri & Saragih, 2024) Explains that the Board of Directors is a central element in the company's organizational structure that is responsible for the achievement of the company's interests. The board of directors has an important role in good corporate

governance. The board of directors is responsible for carbon emissions reporting and the structure of their board so that it can manage GHG emissions and other climate change-related risks (Hollindale et al., 2022). Research Liao et al., (2015) It shows that the larger size of the board of directors acts as an intermediary to the expectations and demands of stakeholders in addressing issues related to environmental issues.

In line with theory *Squirrel* states that companies that carry out activities must always provide benefits as a basis for accountability in meeting the interests of the *Squirrel* (Liao et al., 2015). A larger board size will create better and broader disclosure of information regarding carbon emissions disclosure by leveraging the capabilities and knowledge of directors (Yadikarsa & Ng, 2025)

(Amaliyah & Solikhah, 2019) stated that the increase in the number of board of directors improves the quality of the company's environmental management, thereby strengthening the company's ability to account for activities that have an impact on the environment. This is in line with research (Wiransyah et al., 2024), (Habibba, 2025) and (Kim & Kim, 2023) which states that the board of directors has a positive effect on the disclosure of carbon emissions.

H5= the board of directors has a positive effect on the disclosure of carbon emissions.

2.8 Audit Committee

The audit committee encourages the application of transparency principles by ensuring management pays attention to environmental management and is responsible for the implementation of good governance practices for the company through a broader level of carbon emission disclosure.

The Stakeholder *Theory* states that companies have a responsibility to protect and benefit all stakeholders. The audit committee plays a role in maintaining business continuity and maintaining communication with all *stakeholders* through the disclosure of carbon emissions.

Companies that operate with an audit committee encourage companies to implement corporate governance principles, including transparency principles. The company is required to be open to all activities carried out by the company. The effectiveness of the audit committee is biased from the number of meetings because the more often they exchange ideas, the more decisions will be made to maximize the interests of the *Squirrel* One of the companies with the disclosure of carbon emissions (Ramadhan & Riwayadi, 2025b). In line with research (Angelina & Handoko, 2023), (Putri et al., 2024) and (Saptiwi, 2019) found evidence that audit committees had a positive impact on carbon emissions.

H6= audit committee has a positive effect on carbon emission disclosure

3. Methodology

This study applies a quantitative method to analyze the relationship between environmental performance and GCG on carbon emission disclosure. The population used includes all issuers in the energy sector and *Basic Materials* listed on the Indonesia Stock Exchange (IDX) for the 2022–2024 period. Sample selection was carried out through purposive sampling technique with availability criteria *Annual Report* and *Sustaability Report* comprehensive and contains data on related variables in its entirety. The research data is secondary data obtained through the IDX official website and the official website of each company.

The dependent variable in this study is carbon emission disclosure, whose level of transparency of carbon emissions is measured using a disclosure index that calculates the total items of information published by an entity. Meanwhile, environmental performance as an independent variable is proxied through ratings obtained from the PROPER program, and

aspects of effective corporate governance, such as managerial ownership, institutional ownership, ratio of independent commissioners, number of directors, and the existence of an audit committee.

The analysis model used in this study is multiple linear regression processed using SPSS version 26 application. In order to ensure the validity of the model before hypothesis testing, the researcher first conducted a series of classical assumption tests, which included normality, multicollinearity, heteroscedasticity, and autocorrelation tests using the F test to evaluate the simultaneous effects, the R^2 determination coefficient to ensure the model's explanatory power to the dependent variable, and the t-test to distinguish the partial impact of each variable

4. Result and Discussion

The object of this research focuses on companies in the raw materials and energy sectors listed on the Indonesia Stock Exchange (IDX) for the period 2022–2024. Through the observation for three years, a total of 198 samples were observed. The researcher applied descriptive statistical analysis including averages, standard deviations, and extreme values (minimum and maximum) to provide a clearer picture of the data. The variables studied include carbon emission transparency, environmental achievements, ownership structures (managerial and institutional), and corporate governance mechanisms (independent commissioners, board of directors, and audit committees).

4.1 Descriptive analysis test

Table 1. Descriptive statistics

Variable	N	Minimum	Maximum	Red	Std. Deviation
Environmental Performance	198	3.00	5.00	3.6319	.73615
Managerial Ownership	198	.01	5.95	.8256	1.50160
Institutional Ownership	198	.01	1572.47	20.5863	150.68794
Independent Commissioner	198	.25	5.00	.4867	.40460
Board of Directors	198	1.00	75.00	3.2118	6.10072
Audit Committee	198	.66	26.66	3.2560	3.61751
Carbon Emissions Disclosure	198	.14	1.00	.7531	.22953
Valid N (listwise)	198				

Data source: processed by researchers 2026

Referring to Table I, the carbon emission disclosure variable recorded an average of 0.7531, with a range of values from the lowest of 0.14 to the peak of 1.00. This data indicates that the majority of entities have implemented carbon information transparency at a significant level. Meanwhile, environmental performance showed an average value of 3.6319 (min. 3.00; max. 5.00), which reflects that the dominance of the sample companies is in the PROPER classification of blue to green categories. The average managerial ownership is at 0.8256, with a value distribution between 0.01 and 5.95. This data indicates that in general, the portion of shares held by management is relatively small, although there are exceptions for a number of companies with a significant percentage. On the other hand, institutional ownership recorded an average value of 20.5863 with a very wide range between 0.01 and 1572.47, which reflects the diversity of ownership structures between companies in the sampleThe average proportion of independent commissioners was recorded at 0.4867 with a value range between 0.25 to 5.00. This reflects that the presence of independent commissioners in the company is quite proportional, despite fluctuations between entities. For the board of directors variable,

the average value of 3.2118 (min. 1.00; max. 75.00) indicates that most of the sample has a lean board structure, although there are some companies with a very large number of members. Meanwhile, the audit committee has an average score of 3.2560 with a low score of 0.66 and a high of 26.66, which shows that the effectiveness of the audit committee's functions in general is in the good category with varying intensities in each company.

4.2 Classic Assumption Test

4.2.1 Normality test

Table 2. Results of the Kolmogorov-Smirnov Normality Test

Models	N	Sig Kolmogorov-smirnov
Model 1	198	0,200

Source: Data processed by researchers, 2026

Referring to Table 2 through the Kolmogorov-Smirnov test, a significance value of 0.200 was obtained in model 1. Given that the gain exceeds the criterion of 0.05, the assumption of normality has been fulfilled because the residues in this regression model are normally distributed.

4.2.2 Multicoloniality Test

Table 3. Multicolonial Test Results

Variable	*Tolerance*	VIVID	Remarks
Environmental Performance (X1)	0,849	1,178	There is no multicollinearity
Managerial Ownership (X2)	0,949	1,054	There is no multicollinearity
Institutional Ownership (X3)	0,969	1,032	There is no multicollinearity
Independent Commissioner (X4)	0,954	1,048	There is no multicollinearity
Board of Directors (X5)	0,983	1,017	There is no multicollinearity
Audit Committee (X6)	0,818	1,223	There is no multicollinearity

Source: Data processed by researchers, 2026

The results of the multicollinearity test in Table 3 prove that all research variables have a tolerance value that exceeds 0.1 and a Variance Inflation Factor (VIF) value that is less than 10. These findings confirm the absence of multicollinearity problems, so that the regression model is declared valid and all independent variables can be included in the next stage of analysis.

4.2.3 AutoColation Test

Table 4. AutoColation Test Results

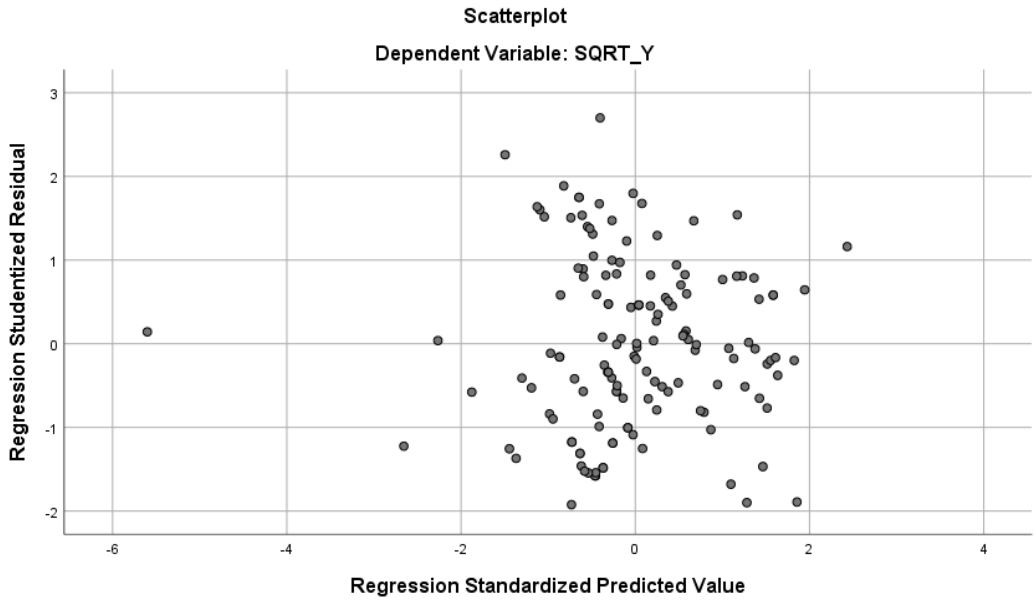
Models	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.924a	.854	.847	.02085	1.120

Source: Data processed by researchers, 2026

Based on Table 4.12, it indicates the absence of autocorrelation problems, because the number is still within the range of a minimum value of -2 and a maximum of +2.

4.2.4 Heteroscedasticity Test

Figure 1. Heteroscedasticity Test Results



Source: Data processed by researchers, 2026

Based on Figure 4.8, the findings show that the residues spread irregularly without forming a linear pattern or the absence of a systematic trend around the zero point on the Y-axis suggests that this regression model qualifies homoscedasticity. Thus, the study parameters were declared valid and free from residual variance or heteroscedasticity inequality.

4.2.5 Multiple Linear Analysis Test

Table 5. Results of Multiple Linear Analysis Test

Models	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	.597	.030	
X1 Environmental Performance	.161	.010	.577
Managerial Ownership X2	.045	.005	.318
Institutional Ownership X3	-.002	.001	-.129
Independent Commissioner X4	-.179	.010	-.615
Board of Directors X5	.007	.003	.085
Audit Committee X6	.026	.003	.340

Data source: processed by researchers 2026

Based on Table 5 of the results of multiple linear regression testing, the following equation model was obtained:

PEK= 0.597 + 0.161KL+ 0.045KM+ -0.002KI+ -0.179KIN+ 0.007DD+ 0.026KA+0.030

Multiple linear regression analysis yields the following equation:

a. A constant value of 0.597 indicates that if all independent variables consisting of environmental performance, ownership structure, and governance mechanisms are assumed to be non-existent or zero, then the amount of carbon emission disclosure is expected to reach 0.597.
b. The environmental performance coefficient (X1) is 0.161, which affects the disclosure of carbon emissions. A 1% increase in environmental performance value (X1) results in a 0.161 increase in carbon emission disclosure. This corresponds to the assumption that the variable is equal to zero.

c. The managerial ownership coefficient (X2) is 0.045, which affects the disclosure of carbon emissions. A 1% increase in management ownership value (X2) resulted in a 0.045 increase in carbon emissions disclosures. This corresponds to the assumption that the variable is equal to zero.
d. The institutional ownership coefficient (X3) is -0.002, which indicates that, with other independent variables remaining constant, carbon emission disclosures will decrease by -0.002.
e. The independent commissioner's coefficient (X4) is -0.179, which indicates that, assuming the other variables remain constant, carbon emission disclosures will be reduced by -0.179.
f. The coefficient for the board of directors (X5) is set at 0.007, which affects the disclosure of carbon emissions. A 1% increase in the board of directors (X6) resulted in a 0.007 increase in carbon emissions disclosures.
g. The audit committee coefficient (X6) is 0.026, which affects the disclosure of carbon emissions. A 1% increase in the audit committee (X6) resulted in a 0.026 increase in carbon emissions disclosures.

4.2.6 Test F (Anova)

Table 6. F Test Results (Anova)

Models		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.347	6	.058	133.174	.000b
	Residual	.060	197	.000		
	Total	407	198			

Source: Data processed by researchers, 2026

The results in Table 6 Simultaneous testing (F Test) resulted in a value of 133.174 with a significance level below 5% (0.000 < 0.05), so that H1 in this study was verified. These results confirm that environmental performance, ownership structures, and governance mechanisms collectively have a significant effect on the transparency level of a company's carbon emissions.

4.2.7 Determination Test

Table 7. Determination Test Results

Models	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.924a	.854	.847	.02085

Source: Data processed by researchers, 2026

The determination coefficient (R^2) yielded a value of 0.854, indicating that 85.4% variation in the transparency level of carbon emissions was determined by the contribution of environmental performance, ownership structure (managerial and institutional), as well as the company's governance mechanisms. Meanwhile, the remaining 14.6% is explained by other variables beyond the scope of this study model. Other variables that can affect carbon emission disclosure are profitability and media exposure. Profitability has a positive effect on carbon emission disclosure because companies with high levels of profits have greater financial ability to support environmental activities, such as reducing carbon emissions, preparing sustainability reports, and disclosing environmental information more widely and transparently. The existence of media regarding environmental information is an external attribute of the company that can help the company in influencing the public's view of the company's commitment to the environment (Nuranisa, 2020). With the media, the company will not carry out activities that can damage the company's image, but on the contrary, the company will try to carry out activities that are acceptable to the public, one of which is by

disclosing carbon emissions. This is in line with the research of Liyundira (2026) and Sukmawati (2021) which states that profitability and media exposure have an effect on the disclosure of carbon emissions. The study explains that companies with high levels of profitability have a greater financial capacity to invest in the implementation of sustainable business practices, including the management and reporting of carbon emissions. In addition, media exposure encourages companies to maintain their image and reputation in the eyes of stakeholders through the delivery of more transparent environmental information and more comprehensive disclosure of carbon emissions.

4.2.8 Partial Test (T Test

Table 8. Partial Test Results (T Test)

Variable	t	Sig.	Remarks
(*Constant*)	19.718	.000	
Performance Lingkungan_X1	16.250	.000	Positive Effect
Ownership of Manajerial_X2	9.490	.000	Positive Effect
Ownership of Institusional_X3	-3.889	.000	Negative Effects
Commissioner Independen_X4	-18.378	.000	Negative Effects
Direksi_X5 Hall	2.585	.011	Positive Effect
Committee Audit_X6	9.394	.000	Positive Effect

Data source: processed by researchers 2026

a. The initial hypothesis was found that environmental performance positively affects the extent of carbon emission reporting, thus supporting the H1 hypothesis in this study. With a regression coefficient of 16.250 and a significance value of 0.000, this effect was proven to be significant at the level of 5%. The findings confirm that the better the company's environmental achievements, the more open the company is in conveying information about carbon emissions.
b. Testing on the second hypothesis (H2) shows that managerial ownership has a positive impact on carbon emission transparency. This result was reinforced by a regression coefficient value of 9.490 and a significance level of 0.000, which was below the standard of 5% (0.05). Thus, it can be concluded that the managerial ownership variable significantly influences carbon emission reporting, so the second hypothesis in this study is accepted.
c. Testing of the third hypothesis (H3) proves that institutional ownership has a negative influence on carbon emission disclosure. This is validated by the acquisition of a regression coefficient of -3.889 with a significance level of 0.000. Since the significance value is far below the threshold of 5% (0.000 < 0.05), it can be concluded that this variable has a statistically significant impact, so the third hypothesis in this study is accepted.
d. The fourth hypothesis (H4) confirms the existence of a negative relationship between the existence of an independent commissioner and the disclosure of carbon emissions. These findings were validated by a regression coefficient value of -18.378 and a significance value of 0.000 (< 0.05), which confirms that the role of independent commissioners markedly lowers the level of transparency of corporate carbon information.
e. The fifth hypothesis (H5) was accepted, which showed a positive correlation between the board of directors and the transparency of carbon emissions. With a regression coefficient

of 2.585 and a significance value of 0.011 which is below the level of 0.05, the role of the board of directors is clearly proven in improving the quality of the company's carbon emission reporting.

f. The sixth hypothesis (H6) proved to be true, where the audit committee showed a positive contribution to the disclosure of carbon emission information. This support can be seen from the regression coefficient of 9.394 and the significance of 0.000 which is smaller than 0.05, so that the role of the audit committee is certain to have a significant impact on these variables.

4.3 Discussion

4.3.1 The Effect of Environmental Performance on Carbon Emission Reduction

Environmental performance has a positive effect on the disclosure of carbon emissions. These findings confirm that companies with good environmental performance will encourage the expansion of the scope of information on carbon emissions that is communicated to the public. The results of this study reinforce the findings of the Arsjah (2025), Maryono & Ermawati (2024), Annisa & Ersyafdi (2025) & Anggraini & Hermi (2025) which states the influence of environmental performance on carbon emission reporting. This phenomenon confirms that entities with superior environmental achievements have a greater tendency to be transparent in presenting information about their carbon emissions. Organizations that demonstrate superior environmental performance are dedicated to sustainability and strive to maintain their reputation among stakeholders. In addition, entities that have succeeded in achieving a satisfactory predicate in environmental aspects are usually more encouraged to present a comprehensive carbon emission report as a form of proof of their social responsibility (PROPER) and are encouraged to show openness as a means of accountability to *Stakeholders*, which has implications for more detailed and comprehensive information on carbon emissions. As a result, superior environmental performance by a company correlates with higher levels of carbon emission reporting.

4.3.2 The Effect of Managerial Ownership on Carbon Emission Reduction

Managerial ownership has a positive effect on the disclosure of carbon emissions. This fact suggests that a larger percentage of shareholding by management correlates with a higher incentive to increase the disclosure of company information. The findings of this study are in line with the findings of Aniktia & Khafid (2015) and Khalimatussa'diah et al. (2024), suggesting that managerial ownership influences the disclosure of carbon emissions. From a stakeholder theory perspective, managerial shareholding aligns the interests of managers with the interests of diverse stakeholders, thereby encouraging more responsibility and transparency in management's disclosure of corporate information. In addition, management, as shareholders, tends to be more careful in decision-making and seeks to meet stakeholder expectations to maintain the company's reputation and sustainability. As a result, carbon emissions disclosure is enacted as a means of accountability to stakeholders and an effort to enhance the legitimacy and long-term value of the company.

4.3.3 The Effect of Institutional Ownership on Carbon Emission Reduction

Institutional ownership has a negative effect on carbon emission disclosure. This suggests that increased institutional ownership correlates with lower carbon emission coverage. These findings are in line with studies conducted by Rosita (2024) and Putri (2022), which stated that institutional ownership has a negative effect on carbon emission disclosure. In reality, institutional investors prioritize financial performance over environmental considerations. As a result, companies are no longer required to publish carbon emissions data, especially if the

information is deemed not directly relevant to profitability. This situation has caused companies to reduce their carbon emissions disclosure priorities, despite high levels of institutional ownership.

4.3.4 Independent commissioners have an impact on carbon emissions disclosure

Independent Commissioners have a negative effect on the disclosure of carbon emissions. These findings suggest that an increase in the number of independent commissioners correlates with a decrease in carbon emissions disclosure. The results of this study are in line with the study conducted by (Oyewo, 2023) and (Saraswati et al., 2021) This finding shows that the existence of an independent commissioner has a negative effect on the disclosure of carbon emissions. This indicates that the increase in the number of independent commissioners does not guarantee an increase in the effectiveness of supervision over the reporting of corporate environmental issues. The study confirms that a large proportion of independent commissioners actually negatively impacts the publication of carbon emissions data. This phenomenon indicates that the position of independent commissioners is likely to be solely to meet administrative regulations (formalities) alone, without making a real contribution to the oversight of environmental reports, which do not adequately fulfill their oversight responsibilities. In addition, a lack of knowledge and lack of experience in the environment can lead to independent commissioners being less than optimal in promoting carbon emission disclosure.

4.3.5 The Influence of the Board of Directors on the Reduction of Carbon Emissions

The board of directors has a positive effect on the disclosure of carbon emissions. These findings suggest that the effectiveness of decision-making in increasing company openness correlates with the size of the board of directors. The results of this study have relevance to previous research by (Wiransyah et al., 2024) and Zanra (2020) confirming the Board of Directors has an effect on the disclosure of carbon emissions. A larger board of directors improves corporate governance and increases capacity to meet environmental obligations. A broader board of directors that has a diverse range of experience, competencies, and decision-making perspectives. This can improve the quality of governance and decision-making related to sustainability. Larger boards of directors are generally more responsive to stakeholder pressure, thus encouraging broader disclosure of carbon emissions information as a means of accountability.

4.3.6 The Audit Committee's Influence on Carbon Emission Reduction

The audit committee has a positive effect on the disclosure of carbon emissions. These findings underscore that the active role of audit committees is a driver for companies to publish their carbon emission data. The results of this study are in line with research conducted by Anggraini & Hermi (2025) and Simamora (2022) which also identifies audit committees as having an impact on carbon emission disclosure. The increase in the number of audit committee meetings increases the intensity of discussions and the exchange of perspectives, leading to assessments that are more in line with the interests of stakeholders, particularly regarding carbon emission disclosure. The existence of an audit committee shows the level of rigor and commitment in carrying out its supervisory role related to corporate reporting. The audit committee can assess the internal control system, reporting quality, and compliance with regulations, including environmental factors, through rigorous meetings. In addition, the increased frequency of talks facilitates a more in-depth exchange of information and ideas, leading to a more precise assessment of carbon emissions disclosure as a means of accountability to stakeholders.

5. Conclusion

Carbon emission disclosure is significantly influenced by environmental performance and corporate governance factors. Environmental performance, managerial ownership, board of directors, and audit committee have proven to have a positive effect. This indicates that sustainability commitments, alignment of management incentives, diversity of board competencies, and active oversight of audit committees are able to increase transparency and accountability in carbon emission reporting to stakeholders. In contrast, institutional ownership and independent commissioners have a negative effect. This condition indicates that institutional investors are still focused on short-term profitability, while the existence of independent commissioners risks being merely a formality of regulatory compliance.

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