Asian Journal of Applied Business and Management (AJABM)
Vol. 4, No. 4, 2025: 1619-1632

The Influence of Carbon Performance, Green Strategy, and Institutional Ownership on Carbon Emission Disclosure

Nabila Islamiah[1], Irma Paramita Sofia[2*]
Department of Accounting, Faculty of Humanities and Business, Pembangunan Jaya University, Indonesia
Corresponding Author: Irma Paramita Sofia irma.paramita@upj.ac.id

A R T I C L E I N F O
Keywords: Carbon Emissions, Institutional Ownership, Carbon Performance, Green Strategy

Received : 16, October
Revised : 30, October
Accepted: 24, November

A B S T R A C T
Carbon emissions represent a major component of Greenhouse Gases (GHG). This study aims to provide empirical evidence on the extent to which carbon performance, green strategy, and institutional ownership influence carbon emission disclosure. The population in this study comprises companies in the transportation and industrial sectors listed on the Indonesia Stock Exchange during the 2021–2023 reporting period, spanning three years. A total of 60 companies were selected using purposive sampling. This study adopts a quantitative research approach, with data analysis performed using EViews 12 software. The implication of this research expected to serve as additional data and a guideline for corporate social responsibility disclosures, so that the reports contain broader and more detailed information and can be used as evaluation material for the related industries.

DOI: https://doi.org/10.55927/ajabm.v4i4.541
ISSN-E: 2964-7932
https://npaformosapublisher.org/index.php/ajabm

INTRODUCTION

Global carbon emissions from fossil fuels reached an all-time high in 2024. According to the latest report by the Global Carbon Project, titled The 2024 Global Carbon Budget, carbon dioxide (CO_2) emissions from fossil fuel combustion and usage increased to 37.4 billion tons—up approximately 0.8% from 2023. The report also indicates that in the same year, CO_2 emissions from land use are projected to rise (Braun, 2024). In 2023, total global CO_2 emissions reached 39 gigatons ($GtCO_2$), with three main sectors contributing the most to fossil fuel combustion. The top contributor was the electricity generation sector, accounting for 38.24% of emissions, stemming from the combustion of fossil fuels such as coal, gas, and oil for electricity production. The transportation sector ranked second, contributing 21.11%, with emissions primarily from motor vehicles (land, air, and sea), which heavily rely on petroleum-based fuels such as gasoline and diesel—fuels whose demand has significantly increased. Lastly, the industrial combustion sector contributed 16.42%, producing emissions through the combustion of fuel in manufacturing and production processes.

This issue particularly focuses on the transportation and industrial sectors. In Indonesia, the transportation sector is the primary consumer of fossil fuels, driven by increasing vehicle demand and relatively low fuel prices. According to a report from the Institute for Essential Services Reform (IESR), in 2021, approximately 23% of the 600 million tons of CO_2-equivalent greenhouse gas emissions from Indonesia's energy sector originated from transportation. Moreover, the industrial sector also significantly contributes to emissions due to fuel combustion during production activities. Data from the Asian Development Bank shows that globally, the industrial sector accounts for approximately 37% of total energy consumption and contributes 25% of total CO_2 emissions from the energy sector. In the Asia-Pacific region, industrial activities—especially cement, iron, and steel production—were responsible for over 50% of global emissions in 2022 (Putri, 2025).

The Indonesian government has committed to reducing greenhouse gas (GHG) emissions by 32%, equivalent to 358 million tons of CO_2, through independent efforts, and up to 41%, or 446 million tons of CO_2, with international assistance by 2030. This initiative aligns with the global agreements outlined in the Enhanced Nationally Determined Contribution (E-NDC) document. Despite these national policies, corporate carbon disclosure remains limited, as carbon emission disclosure in Indonesia is still voluntary, as stipulated in Presidential Regulation No. 61 of 2011. Consequently, companies are not required to report emissions publicly, and many do not adhere to standardized carbon emission reporting frameworks.

Empirical studies have shown mixed findings. Lestari et al. (2024) found a significant relationship between carbon performance and carbon emission disclosure. In contrast, Harits and Mutasowifin (2024) reported no significant effect. Maharani and Dewi (2024) showed that green strategies positively affect carbon disclosure, while Candra and Lindrianasari (2024) concluded that green strategies primarily serve to encourage greater carbon disclosure efforts. Furthermore, Bedi and Singh (2024) found that institutional ownership has a

positive influence on carbon emission disclosure. However, this finding was not supported by Rosita et al. (2024), who found no significant relationship.

Based on the findings of previous studies, there exists a research gap or inconsistency in the evidence regarding the variables that influence carbon emission disclosure. This indicates the need for further exploration of the factors that may affect the disclosure of carbon emissions. Therefore, this research is considered highly important, particularly within the transportation and industrial sectors in Indonesia. The objective of this study is to analyze the influence of Carbon Performance, Green Strategy, and Institutional Ownership on Carbon Emission Disclosure.

LITERATURE REVIEW

Legitimacy Theory

Legitimacy theory was adopted by Dowling and Pfeffer (1975). This theory explains that organizations are part of society, the importance of recognizing that there are social norms that must be adhered to, because compliance with these norms will increase the company's legitimacy. In reflecting on environmental responsibility, companies use the publication of their annual reports so that they are accepted by the community and stakeholders. Legitimacy is considered crucial for organizations because public acceptance serves as a strategic element for their future growth, which means that legitimacy helps the company's sustainability and supports it in achieving future goals (Emalia & Shauki, 2023) .

This theory aligns with carbon performance and carbon emissions disclosure. Companies with good performance in managing carbon emissions tend to be more proactive and will be encouraged to report their efforts to reduce the environmental impact of their operations. These achievements and efforts will be widely communicated by companies to the public through carbon emissions disclosure (Ladista et al., 2023) .

Stakeholder theory by Freeman (1984) relates to the relationship of companies to stakeholders including shareholders, government, employees, customers, suppliers, and local communities (Saputri et al., 2024) . This theory states that companies are expected to voluntarily disclose information about their environmental, social, and intellectual performance beyond the requirements set by regulations, in order to align with the expectations of actual or recognized stakeholders. Collaboration between companies and stakeholders in achieving sustainability goals highlights the importance of this theory (Tuti & Sisdianto, 2024) .

The application of stakeholder theory to green strategies and institutional ownership will enable companies to provide information on emissions management, which contributes to the sustainability of their operations, to the affected communities and the environment. Likewise, all stakeholders have the right to comprehensive information about the company's performance to gain support and influence its decisions. This information aspect is included in the performance disclosures contained in company reports, which are one of the disclosures of carbon emissions.

Carbon Emission Disclosure

Disclosure of carbon emissions follows the international standard guidelines of the Carbon Disclosure Project (CDP) or uses the Greenhouse Gas (GHG) protocol approach with emission divisions through Scope 1, Scope 2, and Scope 3. Therefore, companies that participate in carbon emission calculations through CDP will report all carbon emission data information based on applicable standards, which include the mitigation flow implemented, the sources of emissions produced, and calculation methods.

Carbon Performance

Carbon performance refers to measurable greenhouse gas emissions that contribute to climate change, along with the steps and procedures a company implements to reduce these emissions (Trimuliani & Febrianto, 2023) . Many companies seek to take proactive steps in addressing environmental change to secure a competitive advantage over their competitors. According to (Velte et al., 2020) , organizations that engage with the Carbon Disclosure Project (CDP) and choose to disclose important information regarding carbon performance and related issues will comply with the frameworks and standards established by the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and/or the Climate Disclosure Standards Board (CSB).

Green Strategy

A green strategy is a systematic approach adopted by companies to incorporate sustainability principles into their operations and business planning (Maharani & Dewi, 2024) , encompassing company policies and initiatives aimed at minimizing environmental impact while generating sustainable value (Rizqillah et al., 2024) . By incorporating sustainability into their business strategy, companies not only help protect the environment but also open new avenues for innovation and growth.

Institutional Ownership

Institutional investors with shareholdings will increase their monitoring of company activities, which will encourage companies to disclose information about their activities. Based on this information, investors will have a basis for making their investment decisions (Cohen et al., 2023) . Disclosure of information by a company will create a positive impression on investors.

Hypothesis Development

The Impact of Carbon Performance on Carbon Emission Disclosure

Managing your carbon footprint can be done through carbon performance calculations. Carbon performance itself reflects how effectively a company is reducing carbon emissions and the environmental impact of its operational activities. Companies with good carbon performance tend to implement a variety of strategies, such as environmentally friendly technological innovation, energy efficiency, and the use of New and Renewable Energy (NRE). The better a company discloses its carbon performance, the smaller its carbon footprint tends

to be, potentially increasing its competitiveness and establishing a good reputation among stakeholders. According to legitimacy theory, corporate social responsibility and transparency in disclosing carbon emissions are closely linked to carbon performance. Investors and customers are increasingly concerned about considering sustainability aspects in decision-making. Transparency of information will be an added value, as companies will be more confident in reporting their emissions data to the public because the emissions produced show positive figures.

The analysis of information confirms that carbon performance and carbon emission disclosure are interconnected, consistent with legitimacy theory. The better a company manages its carbon emissions, the more likely it is to be transparent in its emission disclosures (Datt et al., 2019) . Meanwhile, companies with poor carbon performance choose not to disclose their carbon footprint information to avoid additional costs and threatened legitimacy from the public. This is consistent with research by Lestari et al., 2024 and Rahmawaty & Harahap, 2024, which found that carbon performance has a positive and significant influence on carbon emission disclosure. Based on this relationship, the following hypothesis can be formulated:

H 1: Carbon performance has an influence on carbon emission disclosure.

The Impact of Green Strategy on Carbon Emission Disclosure

Awareness of renewable energy remains minimal, with the industrial sector relying heavily on fossil fuels such as oil, natural gas, and coal, whose use can drive economic growth. The downside is that excessive use of these fossil fuels leads to increased carbon emissions, resulting in various negative impacts, including global warming, air pollution, and even increasingly extreme climate change. This has raised awareness among all parties, especially governments, investors, and the public, who are urging companies to find effective ways to mitigate the impacts of their operations without damaging the environment. Companies that recognize the risks and opportunities that may arise from emissions will disclose information, both mandatory and voluntary.

The company finally developed a sustainable strategy by implementing a green strategy. In line with stakeholder theory, to gain stakeholder support, companies are required to strive to provide rights through transparency of information regarding their performance to stakeholders. A green strategy is considered one component that influences and supports carbon emission disclosure. (Ramadhani & Astuti, 2023) Companies can employ various green strategies to reduce carbon emissions, such as increasing energy efficiency, managing waste sustainably, and using more environmentally friendly materials (Rizqillah et al., 2024) . This is the company's first step in reducing its negative impact on the environment. According to (Andrian & Kevin, 2021), disclosing this information is a manifestation of "the company's ability to manage carbon emissions to manage the risks and opportunities resulting from climate change." This is in line with research by (Jaenudin et al., 2024) and (Maharani & Dewi, 2024) which states that green strategies have a positive influence on carbon

emission disclosure. Based on the information above, the following hypothesis can be formulated:

H 2: Green Strategy has an influence on carbon emission disclosure

The Influence of Institutional Ownership on Carbon Emission Disclosure

Institutional ownership has the right to influence a company's strategic decisions, including those related to sustainability performance policies. This is the basis for institutions to be more selective in investing in companies. Companies that demonstrate a commitment to social and environmental responsibility are preferred. This is because they want clarity about the company's contribution to climate change and the steps it has taken to reduce emissions. Companies will be more open in disclosing carbon emissions if they are monitored by institutions (Pratama, 2021) .

According to stakeholder theory, a company has a relationship with its stakeholders, and because of this relationship, management must remain transparent about everything the company does (Amaliyah & Solikhah, 2019) . From this, institutional ownership and carbon emission disclosure are closely related. The greater involvement of institutional investors will increase the transparency of companies in reporting their carbon emissions. This becomes a driving factor for companies to be open and responsible regarding their carbon footprint. Referring to research (Bedi & Singh, 2024) , (Budanti et al., 2025) , and (Salsabilla et al., 2024) found that institutional ownership has a positive influence on carbon emission disclosure. Therefore, the hypothesis in this study is stated as follows:

H 3: Institutional ownership has an influence on carbon emission disclosure

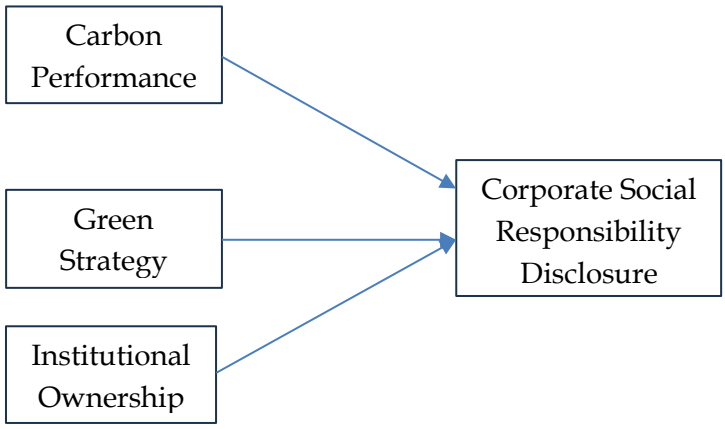

Figure 1. Conceptual Framework

The equation in this study is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Description:

Y = CSR Disclosure

α = Constant

β_1, β_2, β_3 = Regression Coefficients

X_1 = Profitability

X_2 = Good Corporate Governance

X_3 = Firm Size
e = Error Term

METHODOLOGY

This study uses a quantitative approach. The data used are secondary. The sample selection in this study will analyze data related to research variables such as carbon emission disclosures, carbon performance, green strategies, and institutional ownership published by transportation and industrial companies from 2021 to 2023, as outlined in annual reports and sustainability reports selected using a purposive sampling technique . The sample criteria in this study include the following points:

Table 1. The sample criteria

No	Sampling Determination Criteria	Amount
1	Transportation and industrial sector companies *listed* on the Indonesia Stock Exchange (IDX) in the period 2021 to 2023	104
2	Companies in the transportation and industrial sectors that did not publish *Annual Reports* and *Sustainability Reports* consistently during the period 2021 to 2023	(64)
3	Companies in the transportation and industrial sectors do not explicitly disclose their carbon emissions based on the 18- *item* carbon emissions disclosure checklist. (Minimum 1 disclosure category)	(20)
	Number of companies as samples	20
	Observation period (3 years)	3
	Total sample	60

Source: Data processed by researchers, 2025

RESEARCH RESULT

Data Analysis

This study conducted descriptive statistics, classical assumption tests, and hypothesis tests to determine the analysis of the research data. The classical assumption tests only included heteroscedasticity and multicollinearity tests, followed by three hypothesis tests: a t-test to determine partial significance, a coefficient of determination (R2) test for linear regression results, and an F-test to evaluate the relationship between variables simultaneously.

Descriptive Statistical Analysis

The following table is the result of descriptive statistics that explain each variable.

Table 2. Descriptive Statistical Analysis

Variables	N	Minimum	Maximum	Mean	Standard Deviation
Carbon Emission Disclosure (Y)	60	0.22	0.78	0.5285	0.137370
Carbon Performance (X1)	60	1.04	9.57	3,916	2.681472
Green Strategy (X2)	60	0.67	0.89	0.8233	0.071181
Institutional Ownership (X3)	60	0.0042	0.92	0.5876	0.275797

Source: Data processed by Eviews 12

Table 2 above explains the results of the descriptive statistical test. It is known that the sample size (N) is 60 observations. The following will describe the test results in a descriptive statistical table. The statistical analysis of carbon emission disclosure (CED) showed a *minimum score* of 0.22 for PT Cahaya Putra Keramik Tbk. The company only disclosed four of the 18 carbon emission disclosure indicators, the lowest score among the sample studied. Consequently, the published 2022 *sustainability report did not provide much detail on emission or environmental management activities. The maximum score for* this variable was 0.78 for PT United Tractors Tbk, indicating that the company disclosed 14 of the 18 carbon emission disclosure indicators, the highest score. Furthermore, the mean score for this variable, 0.5285, indicates that, on average, companies in the sample disclosed 52.85% of the total carbon emission disclosure indicators, and were at the medium to low carbon disclosure level, indicating that carbon emission disclosure was still suboptimal, although there was variation among the companies assessed.

The results of a statistical analysis for carbon performance using the formula calculation of total carbon emissions / total sales. The *minimum value* of 1.04 was obtained from PT. Keramik Indonesia Association Tbk (KIAS) in two consecutive years in 2021 and 2022. This value illustrates that the carbon emissions generated during those years were relatively high with low total sales, so the company still produced a lot of carbon emissions per rupiah of sales. Then, the *maximum value* of 9.57 from PT. Citatah Tbk in 2023. This company was able to manage its emissions production from year to year remained stable, so that carbon emissions generated remained low with quite high total sales. Furthermore, the *mean value* of this carbon performance of 3.916 indicates that performance with high sales does not necessarily mean that the company is able to manage its emissions well.

The results of the statistical analysis for green strategy, the *minimum value* in this disclosure result is 0.670000 (0.67) from PT Sidomulyo Selaras Tbk in 2021, possibly the company still lacks understanding or commitment to environmental issues, in addition to the high cost and complexity constraints in implementing green strategies make companies choose not to implement green strategies in their operational activities. The *maximum value* of 0.89 consecutively in 2021-2023 was produced by companies such as BIRD, GIAA, TRJA, ASII, UNTR, IMPC, ABMM, ARNA and several other companies that produced the same value in 2022 and 2023 from ASSA and ASGR. These companies have a high value of concern for environmental issues by disclosing their green strategies that are pursued comprehensively, based on GRI standards and reporting sustainability indicators. Furthermore, the *mean value* of green strategy is 0.8233 which indicates that the implementation of green strategies by most of the companies observed in this study sample has a relatively high and consistent level of disclosure.

The results of the statistical analysis for institutional ownership, the *minimum value* in this calculation is 0.0042 from PT Adi Sarana Armada in 2022, a difference from 0.0043 in 2023, this could be due to external factors that influence institutional investors' decisions to invest from economic uncertainty and regulatory changes, especially risks in the company's transportation and

logistics sector. Then, the *maximum value* of 0.92 from PT Keramik Indonesia Asosiasi Tbk which has recorded results of 0.92 consecutively for 3 years, this company has high institutional investors and supports the company's initiative to participate in every sustainability performance decision. Furthermore, the *mean value* is 0.5876 which means that institutional investors greatly influence the sustainability of the company's performance, especially investors who support the company to report its sustainability performance to the public, so that transparency and responsibility are maintained.

Determinant Coefficient Test (R^2)

The coefficient of determination indicates how well the regression model functions to explain how the dependent variable is affected by variations in the independent variable. The R-squared value should range between 0 and 1; if the R-squared value is equal to 1, it means that the dependent variable (Y) is influenced by the independent variable (X) by 100%.

Table 3. Determinant Coefficient Test (R^2)

R-Squared	**0.178555**
Adjusted R-Squared	**0.134549**
F-Statistic	4.057503
Prob (F-statistic)	0.011142

The results shown in R-Squared are 0.178555, meaning that only 17.85% of the independent variables studied, such as carbon performance (CP), green strategy (GS), and institutional ownership (KI), can influence carbon emission disclosure, while the remaining 82% can be influenced by other factors.

Simultaneous Significance Test (F Test)

In this f-test stage, it will show whether the independent variables used can have an overall (simultaneous) impact.

Table 4. F Test

R-Squared	0.178555
Adjusted R-Squared	0.134549
F-Statistic	**4.057503**
Prob (F-statistic)	**0.011142**

Based on the values in table 4.12, the f-test has a *probability value* (F-*statistic*) of 0.011142 < 0.05. Thus, it can be interpreted that all independent variables including carbon performance (CP), green strategy (GS), and institutional ownership (KI) have a simultaneous effect on the dependent variable of carbon emission disclosure (CED).

Partial Significance Test (t -Test)

In the next stage, a partial significance test (t-test) is carried out to see whether there is an impact of the independent variable on the dependent variable.

Table 5. Determinant Coefficient Test (R^2)

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.122869	0.204856	-0.599783	0.5511
CP	-0.000836	0.006293	0.132776	0.8948
GS	0.686775	0.236296	2.906421	0.0052
KI	0.140651	0.061756	2.277530	0.0266

DISCUSSION

Based on the results of hypothesis testing using the t-test, Carbon Performance (CP) as a variable yielded a p-value of 0.894, which is greater than 0.05. This indicates that carbon performance does not have a significant effect on carbon emission disclosure. Therefore, it can be concluded that Hypothesis 1 (H1) is rejected. Carbon performance does not fully influence the extent of carbon emission disclosure, even if the company has reported its emissions. This may be because disclosure is more strongly driven by external pressures such as legitimacy strategies, company size, stakeholder demands, or merely as a response to the growing trend of sustainability reporting, rather than being based on actual carbon emission management efforts by the company. A high volume of disclosed emissions does not automatically indicate that the company is positively contributing to carbon emission transparency.

These findings are consistent with the studies by Priliana & Ermaya (2023) and Iratiwi & Sulfitri (2023), who also found no correlation between carbon performance and carbon emission disclosure. This suggests that the present study does not support the legitimacy theory as outlined in the hypothesis. Companies may take various considerations into account when deciding whether to disclose carbon emissions, especially when emission levels are high and may potentially harm the company's public image.

The results of this study demonstrate that carbon performance does not significantly influence carbon emission disclosure, as shown by the high p-value. This finding suggests that firms may not be disclosing their emissions as a direct consequence of their environmental performance, but rather as a response to external factors such as stakeholder expectations, institutional pressures, or efforts to enhance corporate legitimacy. This finding challenges the assumptions of legitimacy theory, which posits that organizations disclose environmental information to align with societal expectations and gain legitimacy.

Moreover, the lack of correlation indicates that companies with poor carbon performance may still disclose emissions extensively, not as a reflection of accountability, but to project transparency or meet normative reporting standards. Conversely, companies with strong carbon performance may choose limited disclosure to avoid scrutiny or reputational risk, especially if high emission figures are perceived negatively by the public or investors.

This discrepancy highlights the voluntary nature of carbon disclosure in Indonesia, where regulatory enforcement is minimal, and reporting standards are inconsistent across sectors. It underlines the need for stronger regulatory frameworks that not only mandate carbon disclosure but also ensure that the disclosures are relevant, comparable, and tied to actual performance metrics.

Hypothesis testing in the t-test, GS as a green strategy variable has a p-value of 0.0052 is smaller than 0.05, meaning that green strategy has a significant influence on carbon emission disclosure. Thus, it is concluded that H2 is accepted. Companies that are aware of the risks and opportunities that may arise from emissions will implement a green strategy as the company's first step in reducing their negative impact on the environment. The higher the value of the green strategy, the higher the level of carbon emission disclosure. This finding is consistent with research by (Jaenudin et al., 2024) and (Maharani & Dewi, 2024) . The results of this study are in line with stakeholder theory, both of which emphasize the importance of companies paying attention to the interests of various stakeholders involved, including environmental aspects, which are increasingly becoming a public concern.

Hypothesis testing in the t-test, KI as an institutional ownership variable has a p- value of 0.0266 smaller than 0.05, meaning that institutional ownership has a significant influence on carbon emission disclosure. Thus, it is concluded that H3 is accepted. Institutional ownership has the right to influence the company's strategic decisions, one of which is related to sustainability performance policies. This is the basis for institutions to be more selective in investing in companies, companies that demonstrate their commitment to social and environmental responsibility will be more preferred. The results of this study are in line with stakeholder theory, institutional ownership increases the application of stakeholder theory in companies because these institutions have the ability and incentives to encourage management to be more responsive to the interests of various parties.

Based on the test results on the F test, the results on the Prob. (F- statistic) value on the independent variable test or simultaneously with the acquisition of a value of 0.011142 smaller than 0.05, meaning that the variables of carbon performance (CP), green strategy (GS), and institutional ownership (KI) simultaneously have an influence on carbon emission disclosure (CED). The results show that the regression model used is valid and can explain variations in the dependent variable (CED) based on the independent variables tested. This is in line with stakeholder theory which emphasizes that companies must consider the desires and needs of all stakeholders, not just shareholders. To increase the transparency of a company's carbon emission disclosure, it is necessary to consider many factors. Carbon performance, implementation of green strategies, and institutional ownership must all be considered. These three variables work together and help encourage companies to be more transparent and responsible in reporting their carbon emissions.

CONCLUSIONS AND RECOMMENDATIONS

Based on the overall test results of this study, which aimed to examine the effect of independent variables on the dependent variable both partially and simultaneously, as well as to analyze and provide empirical evidence regarding the influence of profitability, good corporate governance, and firm size on corporate social responsibility (CSR) disclosure, the findings are as follows:

1. Profitability (X1) — The level of a company's profit, measured using the Net Profit Margin (NPM), does not affect the extent of CSR disclosure among companies in the consumer non-cyclicals sector.
2. Board of Commissioners Size (X2) — The number of commissioners in a company does not affect the extent of CSR disclosure among companies in the consumer non-cyclicals sector.
3. Firm Size (X3) — Firm size has a positive effect on CSR disclosure, meaning that the total assets owned by a company influence the extent of its CSR disclosure in the consumer non-cyclicals sector.

Although profitability and board of commissioners size individually do not have a significant effect on CSR disclosure, the simultaneous significance test shows that profitability, board of commissioners size, and firm size together have a significant influence on CSR disclosure.

ADVANCED RESEARCH

This study has several limitations, namely the total number of companies in the research sector officially listed on the IDX is very small, and not all companies in the transportation and industrial sectors disclose *Sustainability Reports* and *Annual Reports* consecutively for the 2021-2023 period, limited information released by companies on institutional ownership variables that are not clearly stated in the reports, so it is necessary to explore information from financial and stock websites. Based on the existing limitations, suggestions that can be given to future researchers are to use other factor variances that have been tested in previous studies such as company size, media exposure, profitability, managerial ownership, and/or vary factors used by researchers such as carbon performance and green strategies as moderators in research that impact carbon emission disclosure so that future research can produce new research.

For companies, disclosing each of their sustainability performance in *the Sustainability Report* and *Annual Report,* it is expected to be able to disclose their performance consistently and relevantly. One of them in disclosing the performance of carbon emissions produced, the company should not just be a formality in informing the total emissions produced without using calculations or measurements in accordance with GRI guidelines or applicable emission disclosure standards . In addition, if the company is indeed difficult to achieve emission reduction figures, the company can balance it by implementing a green strategy that can replace non-renewable energy with renewable energy so that the company has a real commitment to environmental improvement.

REFERENCES

Amaliyah, I., & Solikhah, B. (2019). The Influence of Environmental Performance and Corporate Governance Characteristics on Carbon Emission Disclosure. *Journal of Economic, Management, Accounting and Technology*, *2* (2), 129–141. https://doi.org/10.32500/jematech.v2i2.720

Adrian, T., & Kevin. (2021). Determinant Factors of Carbon Emisson Disclosure in Indonesia. *Journal of Southwest Jiatong University*, *56* (1). https://doi.org/https://doi.org/10.35741/issn.0258-2724.56.1.32

Bedi, A., & Singh, B. (2024). Does ownership structure affect carbon emission disclosure? *Asian Review Journal*, *33* (1), 72–88. https://doi.org/https://doi.org/10.1108/ARA-11-2023-0307

Braun, S. (2024). *Global Carbon Emissions to Reach Record High in 2024*. DW . https://www.dw.com/id/cop29-emisi-karbon-global-capai-rekor-tertinggi-pada-2024/a-70774083

Budanti, NPL, Rustiarini, NW, & Putra, IGC (2025). Institutional Ownership, Board Diversity, and Carbon Emission Disclosure. *Airlangga Journal of Accounting and Business Research*, *9* (2), 210–223. https://doi.org/10.20473/jraba.v9i2.62591

Candra, JF, & Lindrianasari. (2024). Corporate governance in Basic Material and Energy Sector Companies, green strategy, and carbon emissions disclosure. *Earth and Environmental Science*, *1324*. https://doi.org/10.1088/1755-1315/1324/1/012085

Cohen, S., Kadach, I., & Ormazabal, G. (2023). Institutional investors, climate disclosure, and carbon emissions. *Journal of Accounting and Economics*, *76* (2–3), 101640. https://doi.org/10.1016/j.jacceco.2023.101640

Datt, R.R., Luo, L., & Tang, Q. (2019). Corporate voluntary carbon disclosure strategy and carbon performance in the USA. *Accounting Research Journal* , *32* (3), 417–435. https://doi.org/https://doi.org/10.1108/ARJ-02-2017-0031

Emalia, D., & Shauki, ER (2023). Analysis of the Legitimacy Crisis and Sustainable Development of PT Pelindo Bengkulu Due to Land Conflicts with the Community. *Owner*, *7* (2), 1612–1623. https://doi.org/10.33395/owner.v7i2.1399

Harits, MR, & Mutasowifin, A. (2024). Analysis of the influence of financial, carbon, and environmental performance on carbon emission disclosure. *Earth and Environmental Science*. https://doi.org/10.1088/1755-1315/1359/1/012095

Iratiwi, H., & Sulfitri, V. (2023). The Effect of Carbon Performance, Stakeholder Pressure, and ISO 14001 Certification on Carbon Emission Disclosure. *Postgraduate Management Journal*, *3* (1), 9–20. https://doi.org/10.36352/pmj.v3i1.429

Jaenudin, Ruhiyat, E., & Sugiyanto. (2024). Factors Affecting Carbon Emission Disclosure: Good Corporate Governance as a Moderating Variable. *Journal of Economics and Finance*, *8* (4), 613–631. https://doi.org/https://doi.org/10.24034/j25485024.y2024.v8.i4.6670

Ladista, R.D., Lindrianasari, L., & Syaipudin, U. (2023). Determinants of Carbon Emission Disclosure and Its Effect on Financial Performance. *Owner* , *7* (3), 2262–2283. https://doi.org/10.33395/owner.v7i3.1535

Lestari, L., Mukhzarudfa, & Kusumastuti, R. (2024). Factors Affecting Carbon Emission Disclosure and Its Impact on Company Financial Performance (Study of Energy Sector Companies Listed on the IDX in 2020-2022). *Journal of Economics, Technology, and Business*, *3* (6), 917–936. https://doi.org/https://doi.org/10.57185/jetbis.v3i6.115

Maharani, D., & Dewi, RR (2024). The Influence of Firm Governance Structure, Green Innovation, and Green Strategy on Carbon Emission Disclosure.

Scientific Journal of Accounting and Business, *5* (1), 2723–6951. https://doi.org/https://doi.org/10.36490/value.v5i1.1294

Priliana, SA, & Ermaya, HNL (2023). Carbon Emission Disclosure: Environmental Performance, Carbon Performance, and Board Diversity. *JAK (Jurnal Akuntansi) Accounting Scientific Studies*, *10* (2), 216–233. https://doi.org/10.30656/jak.v10i2.4482

Putri, AN (2025). *Encouraging Decarbonization of the Industrial Sector in Indonesia Through Renewable Energy and Energy Efficiency*. Indonesia Research Institute for Decarbonization. https://irid.or.id/mendorong-dekarbonisasi-sektor-industri-di-indonesia- melalui-energi-terbarukan-dan-efisiensi-energi/

Rahmawaty, LA, & Harahap, CD (2024). The Effect of Industry Classification, Carbon Performance, and Environmental Performance on Carbon Emission Disclosure in Manufacturing Companies in Indonesia. *Trisakti Journal of Economics* , *4* (2), 1005–1014. https://doi.org/10.25105/y9yt6a22

Ramadhani, K., & Astuti, CD (2023). The Effect of Green Strategy and Green Investment on Carbon Emission Disclosure with Media Exposure as a Moderating Variable. *Journal of Information, Taxation, Accounting, and Public Finance*, *18* (2), 323–338. https://doi.org/https://doi.org/10.25105/jipak.v18i2.17244

Rizqillah, F., Suripto, & Rosini, I. (2024). Green Strategy Moderates Carbon Emission Disclosure and Environmental Performance on Firm Value. *Journal of Applied Accounting Research* , *8* (2), 486–497.

Rosita, V.M., Purnamawati, I., & Mulyono, R.D.A.P. (2024). The Effect of Company Size, Institutional Ownership, and Leverage on Carbon Emission Disclosure. *Journal of Applied and Business Accounting*, *4* (2), 116–124. https://doi.org/10.25047/asersi.v4i2.5240

Salsabilla, C., Adrianto, F., & Alfarisi, M.F. (2024). Carbon Emissions Disclosure: Study of Companies Classified as Carbon-Intensive Industries on the Indonesian Stock Exchange. *Journal of Business Economics Informatics* , *6* , 2–7. https://doi.org/10.37034/infeb.v6i2.874

Saputri, M., Abigail, HKC, & Livana, M. (2024). Application of Stakeholder Theory to Corporate Social Responsibility (CSR) Practices. *Journal of Management and Accounting*, *1* (4), 461–475. https://doi.org/https://doi.org/10.62017/wanargi

Trimuliani, D., & Febrianto, R. (2023). Journal of Business Economics Informatics: Carbon Emission Disclosure and Carbon Performance on Company Value: Moderation of State Ownership. *Journal of Business Economics Informatics*, *5* (3), 900–906. https://doi.org/https://doi.org/10.37034/infeb.v5i3.681

Tuti, R., & Sisdianto, E. (2024). The Role of Green Accounting in Improving Energy Efficiency and Waste Management. *JICN: Indonesian Journal of Intellectuals and Scholars*, *1* (5). https://doi.org/https://jicnusantara.com/index.php/jicn

Velte, P., Stawinoga, M., & Lueg, R. (2020). Carbon performance and disclosure: A systematic review of governance-related determinants and financial consequences. *Journal of Cleaner Production*, *254*, 120063. https://doi.org/10.1016/j.jclepro.2020.120063