



THE INFLUENCE OF FIRM SIZE, PROFITABILITY, AND ENVIRONMENTAL PERFORMANCE ON CARBON EMISSION DISCLOSURE

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ABSTRACT

This study aims to review and synthesize the findings of previous empirical research that examines the effect of firm size, profitability, and environmental performance on carbon emission disclosure among companies in Indonesia. The study employs a Systematic Literature Review (SLR) approach by identifying and analyzing quantitative research articles published between 2020 and 2025. The literature search was conducted through Google Scholar and the SINTA portal. Based on predetermined inclusion criteria—such as relevance of research variables, focus on the Indonesian context, and the use of quantitative methods—19 core articles were selected for analysis and synthesis. The review results indicate that prior studies report mixed findings. Firm size and profitability show inconsistent effects on carbon emission disclosure, as several studies find a positive influence, while others report no significant relationship. In contrast, environmental performance demonstrates a more consistent and positive effect on carbon emission disclosure. These findings suggest that a company's commitment to environmental management plays a more critical role in encouraging transparency in carbon emission reporting than financial characteristics alone. Overall, this study supports legitimacy theory and stakeholder theory and contributes to the development of environmental accounting literature in Indonesia.

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INTRODUCTION

Carbon emissions have become a globally discussed topic because they contribute to the acceleration of global warming. Researchers from the Global Carbon Project have shown that Indonesia is among the ten countries in the world with the highest levels of carbon emissions. The high rate of deforestation in Indonesia, land-use changes, and the consumption of fossil fuels particularly coal are the main factors contributing to the increase in carbon emissions. Indonesia ranks second in the world in terms of emissions related to land use. As a developing country with rapid economic growth, Indonesia faces significant challenges in balancing economic development and environmental protection. Issues related to climate change have encouraged the implementation of national policies and global climate change mitigation efforts, including low-carbon processes and product standards (Liu et al., 2023).

Indonesia is one of the countries committed to reducing carbon emissions. Law Number 31 of 2009 concerning the Ratification of the Copenhagen Accord, which emphasizes Indonesia's commitment to voluntarily reduce greenhouse gas emissions by 26% through domestic efforts, and up to 41% with international support Law Number 16 of 2016 concerning the Paris Agreement and the establishment of the NDC (Nationally Determined Contribution) as Indonesia's mitigation and adaptation efforts in the forestry, industry, energy, transportation, and other sectors (Nofansya et al., 2023). However, the implementation of regulations regarding emission disclosure in Indonesia is currently not mandatory but rather voluntary disclosure (D. R. Putri & Murtanto, 2023).

The average emissions from land use between 2013 and 2022 reached 930 million tons, with Indonesia contributing 55% of global emissions in the land-use sector and 19.9% of global emissions related to land-use change (Pristiandaru, 2023). The increase in Indonesia's carbon emissions is driven by several sectors, including marine fuel, waste management, industrial processes, land use change and forestry, agriculture, and energy. One of the major contributors to carbon emissions is companies operating in the Basic Materials sector, which provide goods and services used by other industries as raw materials in producing finished products. This sector includes companies producing cement, packaging and containers, construction materials, chemicals, metal and non-energy mineral mining products, as well as paper and wood-based products. The most significant increase compared to other countries occurred in 2022, when Indonesia's total carbon emissions reached 18.3% (Madani, 2023). However, efforts to reduce emissions continue to be made by various parties, such as the State Electricity Company (PLN), which in 2024 reported a total reduction of 48.4 million tons of carbon emissions. According to PLN President Director Darmawan Prasodjo, this achievement was made possible through the utilization of renewable energy sources and the implementation of advanced technology in coal-fired power plants. This demonstrates the government's and the energy sector's concrete steps in supporting the transition toward a cleaner energy system and achieving Indonesia's net zero emission target, even though the overall national emission volume remains high due to increased industrial activity and rapid economic growth (Business Indonesia, 2024).

Carbon Emission Disclosure (CED) is one of the efforts made by companies to maintain the sustainability of the planet for the future (Fathia & Virna, 2023). One form of corporate effort in addressing carbon emissions is by disclosing carbon emission information through a sustainability report or an annual report (Dhamayanti et al., 2022). However, in reality, many companies still have a low level of awareness regarding carbon emission issues, as such disclosures are still voluntary, meaning not all companies include them in their annual or sustainability reports. Many companies consider this matter to be less important, even though carbon emissions are closely related to their operational activities (Bahriansyah & Ginting, 2022). Several factors can influence carbon emission disclosure, including firm size, profitability, and environmental performance. Previous research by Mulya et al. (2020) showed that firm size has a positive

effect on carbon emission disclosure, meaning that the larger the company, the higher its tendency to disclose information related to carbon emissions. However, different results were found in a study by Anisah (2020), which stated that firm size does not have a significant effect on carbon emission disclosure, indicating that the relationship between the two variables still shows inconsistent findings across various studies. Based on a review of several previous studies published in various journals, there remains an inconsistency gap regarding the effect of firm size, profitability, and environmental performance on carbon emission disclosure. Research on the factors influencing carbon emission disclosure still shows diverse results. Wiratno & Muaziz (2020) and Sekarini & Setiadi (2021) found that firm size has a positive effect on carbon emission disclosure, as larger companies tend to have more resources and face greater public pressure. However, different results were presented by Astiti & Wirama (2020), who stated that the size of a company does not affect the level of carbon information disclosure.

Inconsistent findings are also observed in the profitability variable, where Wiratno & Muaziz (2020) and Almuaromah & Wahyono (2022) found a positive influence, while Arsy & Amin (2025) as well as Lasmiati, Pahala & Khairunnisa (2024) concluded that profitability has no significant effect on carbon emission disclosure. In addition, the environmental performance variable also shows inconsistent results. Melja et al. (2022), Lisadi & Luthan (2023), and Arsy & Amin (2025) found that environmental performance has a positive effect on carbon emission disclosure, whereas Almuaromah & Wahyono (2022) and Lasmiati, Pahala & Khairunnisa (2024) found the opposite results.

The differences in findings among these studies indicate that the relationship between firm size, profitability, and environmental performance with carbon emission disclosure remains inconsistent and requires further investigation. Therefore, this study is important to update empirical evidence by considering the most recent period and relevant sectors, as well as to provide a scientific contribution to the development of environmental accounting literature and sustainability reporting in Indonesia.

THEORETICAL REVIEW

Legitimacy Theory

Legitimacy theory explains that there is an alignment between the norms within a social system and the social values related to an organization's activities. Legitimacy can be achieved when a company is able to demonstrate performance that is consistent with the social values and norms prevailing in society. The theory further explains that when a company exhibits poor environmental performance, it may pose a threat to the company's social acceptance and reputation.

Therefore, companies are encouraged to disclose environmental information transparently through annual reports as a form of public

accountability. This step is not only intended to maintain public trust but also to strengthen the company's positive image as an entity that is concerned with sustainability and social responsibility. In doing so, companies can establish a harmonious relationship with stakeholders and provide broader social and economic benefits to society (Saputra, 2020).

Stakeholder Theory

Stakeholders consist of both internal and external parties of a company, such as shareholders, employees, consumers, suppliers, and the community. They have an interest in the company's activities, including the aspect of information transparency. Therefore, the disclosure of environmental performance, particularly regarding carbon emissions, serves as a form of corporate responsibility for the impacts of its operations. Through such disclosure, the company not only demonstrates its commitment to environmental sustainability but also provides stakeholders with the right to obtain relevant information for their decision-making processes.

Thus, the relationship between the company and its stakeholders can be strengthened through trust, accountability, and transparency (Octoviany, 2020). The parties that have an interest in the company play an important role in assessing how well the company performs. Therefore, companies need to act decisively in making important decisions and convey information in a transparent and meaningful manner to stakeholders (Pratama & Deviyanti, 2022).

Carbon Emission Disclosure

Carbon emission disclosure is a form of reporting that contains information about a company's efforts and impacts related to climate change. In annual reports, disclosure of information is divided into two types: mandatory disclosure, which is required by regulation, and voluntary disclosure, which is carried out at the company's own initiative. Through carbon emission disclosure, companies are expected to reduce and control their carbon emissions while enabling stakeholders—such as the government and the public—to monitor and manage emissions that affect the company's environmental performance (Kholmi, Karsono, & Syam, 2020).

Carbon Emission Disclosure (CED) functions as a form of corporate concern in addressing the negative environmental impacts arising from its operational activities. In addition, CED serves as a company's effort to create a sustainable and environmentally friendly future (Anggraini & Handayani, 2021). In Indonesia, carbon emission disclosure is still categorized as voluntary, reflecting the company's initiative to be transparent and accountable in communicating its environmental performance to stakeholders responsible toward the environment. This step not only enhances public trust but also strengthens the company's image as an entity oriented toward sustainability and environmental awareness (Bahriansyah & Ginting, 2022).

Firm Size

Firm size reflects the scale of an entity and indicates the extent of its operational activities. The larger the company, the higher the intensity of its business activities. This size can be measured through total assets, sales volume, market capitalization, and other indicators (Kholmi, Karsono, & Syam, 2020). Firmansyah (2021) states that firm size represents the amount of wealth owned by a company. Thus, the larger a company is, the greater the amount of resources or assets it possesses. Large-scale companies are generally more proactive in disclosing environmental information because they realize that their operational activities have the potential to cause significant environmental impacts. The larger the company, the higher the likelihood that it will disclose carbon emission information (Mulya & Rohman, 2020).

Research by Sekarini & Setiadi (2021) shows that firm size has a positive and significant effect on carbon emission disclosure. This finding indicates that companies with larger total assets tend to disclose their carbon emissions more transparently as a form of social responsibility and an effort to maintain public legitimacy. However, different results were found by Astiti & Wirama (2020), who discovered that firm size has no effect on carbon emission disclosure. This means that the size of a company's assets does not necessarily determine its level of transparency in reporting carbon emissions.

Profitability

A company's profitability can be measured through various methods, depending on the comparison between profit, assets, and equity used (Novika & Siswanti, 2022). The higher the level of profitability, the greater the company's ability to generate profits and maintain its financial performance. High profitability reflects a healthy company condition with sufficient available resources. These resources can be utilized to enhance transparency through information disclosure, including reports related to carbon emissions. Thus, companies with high profitability tend to be more capable of demonstrating social and environmental responsibility as a form of commitment to sustainability (Tana & Diana, 2021).

Research conducted by Almuaromah & Wahyono (2022) shows that profitability has an effect on carbon emission disclosure. This indicates that companies with higher profit levels have greater ability and motivation to report their carbon emissions as a form of accountability and social responsibility toward stakeholders. However, different results were presented by Arsy & Amin (2025), who found that profitability does not have a significant effect on carbon emission disclosure. This finding suggests that a company's profit level is not always a determining factor in carbon emission reporting, as some companies remain more focused on achieving financial gains rather than emphasizing environmental responsibility reporting.

Environmental Performance

Good environmental performance can strengthen a company's image and reputation while demonstrating its concern for the growing consumer awareness of environmental issues. In addition, achieving positive environmental performance also has an impact on fostering harmonious relationships between the company and its stakeholders, such as investors, customers, and regulators.

Environmental performance encompasses various efforts made by companies to achieve environmental sustainability. More specifically, environmental performance can be defined as the outcome of a company's activities that affect the environment, including the utilization of natural resources, production processes, the environmental impact of products or services produced, and the level of compliance with applicable environmental regulations. Companies that have a high level of environmental awareness are usually proactive in disclosing information related to their environmental activities, including carbon emission disclosure.

By maintaining the quality of their environmental performance, companies can enhance public trust, expand investment opportunities, and meet sustainability standards that have become a global concern. This indicates that environmental responsibility is not only a moral obligation but also a business strategy that supports long-term growth (Purnayudha et al., 2022). Research conducted by Almuaromah & Wahyono (2022) found that environmental performance doesn't have much impact on how companies report their carbon emission. Similar results were found in the study by Lasmiati, Pahala & Khairunnisa (2024), which concluded that environmental performance and profitability do not influence carbon emission disclosure. However, different findings were presented by Arsy & Amin (2025), found a different result they said environmental performance does help companies report their carbon emission more clearly.

RESEARCH METHODS

This study employs a Systematic Literature Review (SLR) approach, which is a research method conducted systematically and structurally to identify, review, and synthesize previous studies relevant to the research topic. This approach is used to gain an in-depth understanding of the effect of firm size, profitability, and environmental performance on carbon emission disclosure based on empirical evidence from various prior studies.

The Systematic Literature Review (SLR) process in this study was carried out through several stages. The first stage involved identifying literature relevant to the research topic. The literature search was conducted using academic databases such as Google Scholar and the SINTA portal, with keywords including "firm size," "profitability," "environmental performance," and "carbon emission disclosure." The researcher then established inclusion criteria to ensure that the selected literature was truly relevant. The criteria used include articles published between 2020 and 2025, indexed in SINTA 1 to SINTA 4, employing quantitative research methods, containing at least one of the three main

research variables (firm size, profitability, or environmental performance), and focusing on the topic of carbon emission disclosure in Indonesia.

Review of Previous Empirical Studies

No	Author/Year	Title	Variables	Research Findings
1	Arsy, C. B., & Amin, M. N. (2025)	The Effect of Firm Size, Profitability, and Environmental Performance on Carbon Emission Disclosure	Independent: Firm size, profitability, environmental performance Dependent: Carbon emission disclosure	The results show that firm size and environmental performance have a positive effect on carbon emission disclosure, while profitability has no significant effect.
2	Almada, T. R., Pramudya, A. V. D., & Setiawan, D. (2023)	The Development of Carbon Disclosure Research in Indonesia	Variables: Firm characteristics and environmental factors Dependent: Carbon disclosure	The literature review indicates that firm size and environmental performance are the most consistent determinants of carbon emission disclosure in Indonesia.
3	Allo, G. P. R. (2024)	The Effect of Profitability, Firm Size, and Institutional Ownership on Carbon Emission Disclosure	Independent: Profitability, firm size, institutional ownership Dependent: Carbon emission disclosure	Profitability and firm size have a positive effect on carbon emission disclosure, while institutional ownership has no significant effect.
4	Almurromah, D. A., & Wahyono, W. (2022)	The Effect of Environmental Performance, Institutional Ownership, Managerial Ownership, Profitability, and Leverage on Carbon Emission Disclosure	Independent: Environmental performance, institutional ownership, managerial ownership, profitability, leverage Dependent: Carbon emission disclosure	Environmental performance has a positive effect on carbon emission disclosure, while profitability and leverage have no significant effect.
5	Fazrin, P., & Basit, A. A. (2025)	The Effect of Earnings Growth, Media Exposure, and Environmental Performance on	Independent: Earnings growth, media exposure, environmental performance Dependent:	Media exposure and environmental performance positively affect carbon emission

		Carbon Emission Disclosure	Carbon emission disclosure	disclosure, while earnings growth has no significant effect.
6	Kholmi, M., Karsono, A. D. S., & Syam, D. (2020)	Environmental Performance, Firm Size, Profitability, and Carbon Emission Disclosure	Independent: Environmental performance, firm size, profitability Dependent: Carbon emission disclosure	Firm size has a positive effect on carbon emission disclosure, while profitability and environmental performance have no significant effect.
7	Lisadi, N. O., & Luthan, E. (2023)	The Effect of Environmental Performance and Firm Characteristics on Carbon Emission Disclosure	Independent: Environmental performance, firm characteristics Dependent: Carbon emission disclosure	Environmental performance and firm size positively influence carbon emission disclosure.
8	Maharani, D. A., et al. (2022)	Firm Size as a Moderating Variable on the Effect of Industry Sensitivity and Profitability on Carbon Emission Disclosure	Independent: Industry sensitivity, profitability Moderating: Firm size Dependent: Carbon emission disclosure	Firm size strengthens the effect of industry sensitivity and profitability on carbon emission disclosure.
9	Magfirah, P. A., & Fahrianta, R. Y. (2022)	Determinants of Carbon Emission Disclosure	Independent: Firm characteristics Dependent: Carbon emission disclosure	Firm size and environmental performance have a positive effect on carbon emission disclosure.
10	Melia, A., et al. (2022)	The Effect of Profitability, Firm Size, and Environmental Performance on Carbon Emission Disclosure	Independent: Profitability, firm size, environmental performance Dependent: Carbon emission disclosure	Firm size and environmental performance positively affect carbon emission disclosure, while profitability has no significant effect.
11	Nurjanah, T. S., & Mulyandini, V. C. (2024)	Carbon Emission Disclosure in Indonesia's Energy Sector	Independent: Environmental performance, media exposure Dependent: Carbon emission disclosure	Environmental performance and media exposure positively affect carbon emission disclosure.
12	Nawangsi, N. I., Ridwansyah, E., & Anggraini, D. (2025)	The Effect of Leverage, Profitability, and	Independent: Leverage, profitability, firm	Firm size has a positive effect, while leverage

		Firm Size on Carbon Emission Disclosure	size Dependent: Carbon emission disclosure	and profitability have no significant effect on carbon emission disclosure.
13	Purwaningsih, E., & Suwasno, H. (2025)	Determinants of Carbon Emission Disclosure in Energy and Transportation Companies	Independent: Internal characteristics, external pressure Dependent: Carbon emission disclosure	External pressure and firm size positively affect carbon emission disclosure.
14	Pahala, J., & Khairunnisa, H. (2024)	Factors Affecting Carbon Emission Disclosure in State-Owned Enterprises	Independent: Firm size, profitability, environmental performance Dependent: Carbon emission disclosure	Firm size and environmental performance have a positive effect on carbon emission disclosure.
15	Putri, F. C. D. (2024)	The Effect of Profitability, Solvency, Audit Firm Reputation, and Environmental Performance on Carbon Emission Disclosure	Independent: Profitability, solvency, audit firm reputation, environmental performance Dependent: Carbon emission disclosure	Environmental performance and audit firm reputation positively affect carbon emission disclosure.
16	Rini, E. P., Pratama, F., & Muslih, M. (2021)	The Effect of Growth, Firm Size, Profitability, and Environmental Performance on Carbon Emission Disclosure	Independent: Growth, firm size, profitability, environmental performance Dependent: Carbon emission disclosure	Firm size and environmental performance positively affect carbon emission disclosure.
17	Syhdanti, A. D., & Marietza, F. (2024)	The Influence of Profitability, Firm Size, Media Exposure, and Leverage on Carbon Emission Disclosure	Independent: Profitability, firm size, media exposure, leverage Dependent: Carbon emission disclosure	Firm size and media exposure have a positive effect on carbon emission disclosure.
18	Sekarini, L. A., & Setiadi, I. (2022)	The Effect of Leverage, Profitability, Firm Size, and Environmental Performance on Carbon Emission Disclosure	Independent: Leverage, profitability, firm size, environmental performance Dependent: Carbon emission disclosure	Firm size and environmental performance positively affect carbon emission disclosure.

19	Wiratno, A., & Muaziz, F. (2020)	Profitability, Firm Size, and Leverage on Carbon Emission Disclosure	Independent: Profitability, firm size, leverage Dependent: Carbon emission disclosure	Firm size positively affects carbon emission disclosure, while profitability and leverage have no significant effect.
20	Ratmono, D. (2021)	Effect of Carbon Performance, Company Characteristics, and Environmental Performance on Carbon Emission Disclosure	Independent: Carbon performance, company characteristics, environmental performance Dependent: Carbon emission disclosure	Company characteristics positively affect carbon emission disclosure, while carbon performance and environmental performance have no significant effect.
21	Kumar, P., & Yerramilli, V. (2025)	Firm Size, Capital Investment, and Debt Financing over Industry Business Cycles	Independent: Firm size, capital investment, debt financing Dependent: Firm performance	Firm size and capital investment significantly influence firm performance across industry business cycles.
22	Ishikawa, T., Gemba, K., & Oda, T. (2025)	The Influence of Cash Conversion Cycle on Profitability	Independent: Cash conversion cycle Dependent: Profitability	Cash conversion cycle has a significant effect on firm profitability.
23	Ferrazzi, M., et al. (2025)	The Influence of Lean Manufacturing on Environmental Performance	Independent: Lean manufacturing practices Dependent: Environmental performance	Lean manufacturing practices positively affect environmental performance.
24	Hardiyansah, M., Agustini, A. T., & Purnamawati, I. (2021)	The Effect of Carbon Emission Disclosure on Firm Value	Independent: Carbon emission disclosure Dependent: Firm value	Carbon emission disclosure has a positive effect on firm value, supported by environmental performance.
25	Susilawati, S., et al. (2025)	Carbon Emission Disclosure and Corporate Value: The Role of Firm Size	Independent: Carbon emission disclosure Moderating: Firm size Dependent: Firm value	Carbon emission disclosure positively affects firm value, and firm size strengthens this relationship.
26	Kholmi, M., Karsono, A. D. S., & Syam, D. (2020)	Environmental Performance, Firm Size,	Independent: Environmental performance,	Firm size positively affects carbon emission

		Profitability, and Carbon Emission Disclosure	firm size, profitability Dependent: Carbon emission disclosure	disclosure, while profitability and environmental performance have no significant effect.
27	Sulistyawati & Saputro (2025)	Carbon emission disclosure in mining companies	Media exposure, profitability, firm size	Media exposure and profitability affect carbon emission disclosure, with firm size acting as a moderating variable
28	Lina & Adelia (2024)	Impact of carbon emission disclosure on financial performance	Carbon emission disclosure, financial performance	Carbon emission disclosure influences financial performance, and the relationship is affected by firm characteristics.
29	Pratiwi et al. (2021)	Determinants of carbon emission disclosure	Firm characteristics	Firm characteristics have a significant effect on carbon emission disclosure.
30	Dewi et al. (2024)	Capital market reaction to carbon emission disclosure	Carbon emission disclosure, profitability, firm size, media coverage	Carbon emission disclosure and firm characteristics influence capital market reactions, with media coverage as a moderating variable.

A total of 30 articles were collected, and based on the search and filtering results, nineteen primary articles were identified that met all of the criteria. Three articles were prioritized for further research: studies by Wiratno & Muaziz (2020), Melja, Murhaban, Mursidah & Yusra (2022), and Arsy & Amin (2025). These three articles share similarities in their use of quantitative methods and focus on the influence of internal company factors on the level of carbon emission disclosure.

Next, a critical analysis was conducted on each article by reviewing the research objectives, research design, observation period, and main findings. The study by Wiratno & Muaziz (2020) examined the effect of profitability, firm size, and leverage on carbon emission disclosure among manufacturing companies listed on the Indonesia Stock Exchange during the 2016–2018 period. Using multiple regression analysis, the results indicated that profitability and firm size had no significant effect on carbon emission disclosure, while leverage had a

significant negative effect. This finding suggests that the size of assets or profits has not yet become the main factor driving environmental transparency.

The subsequent study by Melja et al. (2022) examined coal sub-sector mining companies during the 2018–2021 period, focusing on the effect of profitability, firm size, and environmental performance on carbon emission disclosure. The results showed that profitability and environmental performance had a positive effect on carbon emission disclosure, while firm size had no significant effect. These findings indicate that companies with good environmental performance tend to be more active in disclosing carbon emissions as a form of social responsibility, whereas firm size has not yet become a key determining factor.

The third study by Arsy & Amin (2025) examined Basic Materials sector companies listed on the Indonesia Stock Exchange during the 2020–2022 period. This study also employed multiple linear regression analysis to test the effect of firm size, profitability, and environmental performance on carbon emission disclosure. The results showed that firm size and profitability had no significant effect on carbon emission disclosure, whereas environmental performance had a positive and significant effect. This finding indicates that a company's commitment to environmental sustainability plays a more crucial role in driving transparency of carbon emission information than financial factors.

After all the articles were analyzed, the next stage was the synthesis of research findings, which involved combining and comparing the results of each study to identify general patterns and differences across them. Based on the synthesis of the three articles, a relatively consistent pattern emerged, indicating that profitability and firm size tend not to have a significant effect on carbon emission disclosure, whereas environmental performance has a positive and significant effect. These results suggest that the size of assets or the level of company profit does not directly determine the level of carbon information transparency; instead, it is the company's commitment to environmental management that serves as the main driving factor.

These findings support legitimacy theory and stakeholder theory, which explain that companies seek to gain social legitimacy and meet stakeholder expectations through transparency in carbon emission reporting. Overall, the results of this Systematic Literature Review (SLR) emphasize that non-financial factors, such as environmental performance, have a stronger influence on carbon emission disclosure compared to financial factors, such as profitability and firm size.

RESEARCH RESULTS AND DISCUSSION

Based on the synthesis of the reviewed studies, this research comprehensively examines the influence of firm size, profitability, and environmental performance on carbon emission disclosure. The analysis reveals an interesting pattern of findings, where environmental performance consistently shows a positive and significant effect on the level of carbon

emission disclosure. Meanwhile, the variables of firm size and profitability exhibit inconsistent results, which tend to vary depending on the research context and the characteristics of the companies being studied.

In general, companies with good environmental performance tend to be more transparent in disclosing information related to carbon emissions as a form of social responsibility and an effort to maintain public legitimacy. However, the influence of firm size and profitability is not always consistent, as not all large or profitable companies demonstrate a high level of environmental transparency. This indicates that carbon emission disclosure in Indonesia is more influenced by awareness and commitment to environmental sustainability rather than by a company's financial strength.

The Role of Firm Size in Carbon Emission Disclosure

Firm size reflects the extent of a company's economic capacity and the resources it possesses. Large companies generally have higher levels of public exposure and social pressure, which encourage them to engage in environmental disclosure. The study by Wiratno & Muaziz (2020) found that firm size does not have a significant effect on carbon emission disclosure. This finding is consistent with the studies of Astiti & Wirama (2020) and Rini, Pratama & Muslih (2021), which state that the size of a company does not influence its decision to report carbon emissions.

However, different results were found in the study by Sekarini & Setiadi (2021), which concluded that firm size has a positive and significant effect on carbon emission disclosure, where companies with large total assets tend to be more transparent in order to maintain public legitimacy. Meanwhile, the study by Lisadi & Luthan (2024) also supports the view that large companies are more likely to voluntarily report carbon emissions. Thus, the influence of firm size on carbon emission disclosure remains inconsistent, as this factor can vary depending on the industry sector and the management's awareness of sustainability reporting.

The Role of Profitability in Carbon Emission Disclosure

Profitability is an indicator of a company's ability to generate profits that can be used to fund social and environmental responsibility programs. Research like that by Wiratno & Muaziz (2020) and Almuaromah & Wahyono (2022), show that profitability has a positive effect on carbon emission disclosure. Companies with high profits have the financial capacity to implement environmental preservation activities and are more motivated to report them to enhance their positive image in the eyes of stakeholders. However, different results were found by Lasmiati, Pahala & Khairunnisa (2024) and Arsy & Amin (2025), who stated that profitability does not have a significant effect on carbon emission disclosure. In this case, the level of company profit does not necessarily drive carbon information transparency, as some companies remain more focused on short-term profits.

In addition, the study by Melja et al. (2022) showed a positive effect of profitability on carbon emission disclosure in coal sub-sector companies, while Kompartemen (2020) and Rooschella & Sulfitri (2023) also support a positive relationship between profitability and carbon emission disclosure. Thus, although there is positive evidence in some studies, the overall relationship between profitability and carbon emission disclosure remains inconsistent.

The Role of Environmental Performance in Carbon Emission Disclosure

Environmental performance is a variable that indicates the extent to which a company carries out sustainable environmental management activities, including through the PROPER rating. Most studies presented show that environmental performance has a strong influence on the level of carbon emission disclosure. The studies by Melja et al. (2022) and Arsy & Amin (2025) shows that better environmental performance leads to more detailed carbon emission disclosure. These results demonstrate that companies with higher PROPER ratings tend to disclose carbon information as a form of social responsibility and a commitment to environmental sustainability.

However, the studies by Almuaromah & Wahyono (2022) and Lasmiati et al. (2024) state that environmental performance does not have a significant effect. This may be due to the still low regulatory pressure for voluntary carbon reporting in Indonesia. Another finding by Loru (2023) also shows a positive influence between environmental performance and the level of environmental information disclosure, supporting the view that a good environmental reputation encourages companies to be more transparent about their emissions. Thus, the environmental performance variable demonstrates the most consistent and significant influence on carbon emission disclosure compared to other financial variables.

CONCLUSION

This study comprehensively examines the influence of firm size, profitability, and environmental performance on carbon emission disclosure in Indonesia using the Systematic Literature Review (SLR) method. Based on a review of previous studies, it was found that environmental performance is the most influential and consistent factor affecting the level of carbon emission disclosure. Companies with good environmental performance tend to be more open and transparent in reporting their carbon emissions as a form of social responsibility and an effort to gain public legitimacy. Meanwhile, firm size and profitability show inconsistent results across various studies—some indicate a positive effect, while others reveal no significant influence.

This indicates that the size of a company's assets or its level of profitability does not necessarily determine the extent of its transparency regarding environmental issues. The findings of this study support the legitimacy theory and stakeholder theory, which explain that a company's main motivation for disclosing carbon emissions is driven more by awareness of social responsibility and the desire to maintain public trust, rather than purely by financial factors.

Therefore, it can be concluded that carbon emission disclosure in Indonesia is more influenced by a company's commitment to environmental sustainability. Consequently, stronger policies and regulations are needed to ensure that carbon emission disclosure practices are standardized and sustainable, in line with Indonesia's commitment to achieving the net zero emission target.

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