

The Influence of Supply Chain-Based Green Accounting (Scope 3 Emissions) on Company Sustainability Performance

Karunia Zuraidaning Tyas^{a✉}, Anastasia Anggarkusuma Arofah^b, Ummi Auliya Tusa'adah^c

^aUniversitas Perwira Purbalingga

^bUniversitas Perwira Purbalingga

^cUniversitas Perwira Purbalingga

✉ karunia@unperba.ac.id

Received: 16 April 2026 ; Accepted: 01 June 2026 ; Published: 15 July 2026

ABSTRACT. This research is motivated by the increasing demand for carbon emission transparency, particularly Scope 3 emissions, which reflect the environmental impacts of a company's entire supply chain, but are still not optimally disclosed in Indonesia. This study aims to analyze the effect of Scope 3 Emission Disclosure on Sustainability Performance, with Sustainable Supply Chain Performance as a mediator. This study uses a quantitative approach with an explanatory research type. Data were obtained from annual reports and sustainability reports of companies listed on the Indonesia Stock Exchange for the 2021–2024 period using a purposive sampling technique, resulting in 55 companies or 220 observations (firm-year). Data analysis was performed using the Partial Least Squares-based Structural Equation Modeling (SEM-PLS) method. The results show that Scope 3 Emission Disclosure has a positive and significant effect on Sustainable Supply Chain Performance and Sustainability Performance. In addition, Sustainable Supply Chain Performance also has a positive effect on Sustainability Performance and is able to mediate the relationship between Scope 3 Emission Disclosure and Sustainability Performance. These findings suggest that carbon emissions disclosure will be more effective in improving sustainability performance if accompanied by the implementation of sustainable supply chain practices. This study also provides important policy implications for regulators and companies in Indonesia. For regulators, the findings indicate the need to strengthen mandatory.

Keyword: Scope 3 Emission Disclosure; Green Accounting; Sustainable Supply Chain Performance; Sustainability Performance; Carbon Accounting

JEL Classification: MM3

International Journal Business and Entrepreneurship, Vol. 3 No. 2, pp. 131-145

Copyright © Internasional Connecting Publisher

ISSN: 3090-7837

DOI: 10.71154/f7nw7644



INTRODUCTION

Global climate change increases pressure on companies to transparently manage and disclose carbon emissions as part of environmental accountability and business sustainability (Abbas et al., 2023). Various international policies and investor demands encourage companies to focus not only on financial performance but also on the environmental impacts of their operational activities (Huang et al., 2023). This condition makes carbon emission management a strategic issue in modern business practices. In response to these demands, green accounting has developed as an approach that integrates environmental aspects into corporate reporting systems to support sustainable decision-making (Y. S. Liu et al., 2016). Green accounting enables companies to systematically identify, measure, and disclose environmental costs and impacts (Wang et al., 2022). Therefore, the implementation of green accounting is crucial in increasing corporate transparency and accountability to stakeholders.

Several empirical studies have shown that the implementation of green accounting and carbon emission disclosure have a positive impact on sustainability performance and company value by increasing stakeholder trust (Putri & Sari, 2023; Wang et al., 2022). Companies that disclose environmental information more broadly tend to gain higher social legitimacy (Huang et al., 2023). However, the effectiveness of green accounting in explaining sustainability performance still faces various limitations. These limitations arise because most research and company practices still focus on direct emissions (Scope 1) and indirect emissions (Scope 2), while other indirect emissions from the supply chain (Scope 3) have not been optimally disclosed (Klaaben & Stoll, 2021). In fact, Scope 3 emissions reflect a company's activities and entire value chain, which often contribute more than 70% of total carbon emissions (Downie & Stubbs, 2023). This situation indicates a significant gap in carbon emission measurement and reporting practices.

Furthermore, the complexity of Scope 3 measurements, which involve various elements in the supply chain, and data limitations make it difficult for companies to report comprehensively (Klaaben & Stoll, 2021). Companies often face challenges in obtaining data from suppliers and business partners who are outside their direct control. Consequently, the information presented in sustainability reports does not reflect the true environmental conditions. This situation indicates that conventional green accounting approaches are still internally oriented and unable to fully accommodate the supply chain dimension. On the other hand, research on sustainable supply chains shows that sustainable supply chain management can improve operational efficiency and reduce a company's environmental impact (Yuan et al., 2022). This suggests that integrating green accounting and the supply chain is crucial for improving the quality of sustainability performance. Based on stakeholder theory and legitimacy theory perspectives, companies have incentives to disclose environmental information more broadly to meet stakeholder expectations and gain social legitimacy (Huang et al., 2023). In this context, Scope 3 emission disclosure is expected to have a positive relationship with sustainable supply chain performance because it encourages transparency and environmental risk management throughout the supply chain. Furthermore, improved sustainable supply chain performance is predicted to impact overall company sustainability performance (Yuan et al., 2022). However, research integrating Scope 3 emission disclosure within a green accounting framework to explain the relationship with sustainable supply chain performance and sustainability performance is still very limited, particularly in developing countries (Putri & Sari, 2023). Most previous studies have focused more on the relationship between green

accounting and financial performance or firm value. This indicates a significant research gap in the environmental accounting literature.

This research is novel in that it integrates green accounting, carbon accounting, and supply chain sustainability into a single empirical model that places Scope 3 emission disclosure as the primary variable and sustainable supply chain performance as the mediating variable. This approach broadens the scope of green accounting from within the company to the extended value chain. Therefore, this study aims to analyze the effect of Scope 3 emission disclosure on sustainability performance, with sustainable supply chain performance as the mediator. It is hoped that this will provide theoretical and practical contributions to the development of supply chain-based environmental accounting.

LITERATURE REVIEW

Grand Theory

This study uses Stakeholder Theory and Legitimacy Theory as the primary basis for explaining the relationships between variables. Stakeholder Theory states that companies must meet the expectations of various stakeholders, including regarding environmental information transparency, to maintain business sustainability (Freeman et al., 2021). In this context, disclosing carbon emissions, particularly Scope 3 emissions, serves as a form of corporate accountability to stakeholders who are increasingly concerned about environmental issues (Meiryani et al., 2023). Meanwhile, Legitimacy Theory explains that companies strive to gain social legitimacy by disclosing information that aligns with societal values and norms, including those related to environmental sustainability (Wang et al., 2022). Therefore, disclosing Scope 3 emissions and sustainable supply chain practices can be viewed as a corporate strategy to maintain legitimacy in the public eye.

The Impact of Scope 3 Emission Disclosure on Sustainable Supply Chain Performance

Scope 3 emission disclosure reflects a company's transparency in managing environmental impacts across the entire supply chain, including supplier activities, distribution, and product use by consumers. Based on Stakeholder Theory, companies facing pressure from stakeholders such as investors, regulators, and consumers will be encouraged to improve the quality of environmental disclosure as a form of accountability. In this context, Scope 3 disclosure serves not only as a reporting tool but also as a control mechanism that encourages companies to evaluate the environmental performance of their suppliers and business partners.

The causal relationship between Scope 3 Emission Disclosure and Sustainable Supply Chain Performance can be explained through the role of environmental transparency in influencing operational decision-making. Companies that disclose Scope 3 emissions are required to identify sources of indirect emissions originating from suppliers, transportation, product distribution, and product use activities. This disclosure process encourages firms to build stronger monitoring systems, improve supplier coordination, and establish sustainability standards across the supply chain. Consequently, the disclosure mechanism creates operational pressure that drives companies to improve sustainable supply chain practices.

In addition, increased environmental transparency may reduce information asymmetry between companies and stakeholders, encouraging firms to strengthen sustainable collaboration with suppliers to maintain legitimacy and stakeholder trust. Therefore, Scope 3 disclosure not only represents a reporting obligation but also becomes a strategic mechanism for improving supply chain sustainability performance.

Mechanistically, when companies disclose Scope 3 emissions, they are encouraged to establish supplier monitoring systems, set sustainability standards, and collaborate to reduce emissions in the supply chain. This aligns with the view that carbon transparency can improve coordination between entities in the supply chain (Klaaben & Stoll, 2021). Furthermore, such disclosure also increases reputational pressure, giving companies an incentive to ensure that their entire supply chain operates sustainably (Downie & Stubbs, 2023).

Empirical research shows that companies with high levels of carbon disclosure tend to have more integrated and sustainable supply chain practices (Huang et al., 2023). Therefore, Scope 3 emission disclosure is expected to improve sustainable supply chain performance by increasing transparency, coordination, and control over the supply chain.

H1: Scope 3 Emission Disclosure has a positive effect on Sustainable Supply Chain Performance.

The Influence of Sustainable Supply Chain Performance on Sustainability Performance

Sustainable Supply Chain Performance reflects a company's capability to manage supply chain activities efficiently while integrating environmental and social sustainability principles into operational processes. The relationship between Sustainable Supply Chain Performance and Sustainability Performance can be explained through operational efficiency and long-term value creation mechanisms. Companies that successfully implement sustainable supply chain practices tend to reduce waste, improve resource efficiency, minimize environmental risks, and strengthen social responsibility throughout the production process. These operational improvements contribute directly to environmental, social, and economic dimensions of sustainability performance. Furthermore, sustainable supply chain implementation strengthens corporate reputation and stakeholder trust because companies are perceived as more responsible in managing environmental and social impacts. Sustainable supply chain practices also encourage innovation, improve compliance with environmental standards, and create long-term competitive advantages that support business sustainability. Research conducted by (Yuan et al., 2022) revealed that companies with strong sustainable supply chains have higher sustainability performance than companies that do not integrate environmental and supply chain aspects. Therefore, the higher the sustainable supply chain performance, the higher the company's sustainability performance.

H2: Sustainable Supply Chain Performance has a positive effect on Sustainability Performance

The Impact of Scope 3 Emission Disclosure on Sustainability Performance

Scope 3 Emission Disclosure is an important part of green accounting practices that demonstrates a company's commitment to environmental transparency and accountability. Based on Legitimacy Theory, companies disclose environmental information to gain social legitimacy and maintain stakeholder trust. The causal relationship between Scope 3 Emission Disclosure and Sustainability Performance can be explained through transparency and environmental governance mechanisms. Companies that voluntarily disclose Scope 3 emissions are generally required to identify, measure, and evaluate indirect emissions across their supply chains. This process encourages companies to improve environmental management systems, strengthen sustainability strategies, and identify operational inefficiencies that may negatively affect sustainability performance. In addition, broader carbon disclosure reduces information asymmetry between companies and stakeholders, thereby increasing investor confidence and enhancing corporate reputation. Companies with

stronger environmental transparency are more likely to gain stakeholder support, which ultimately contributes to better sustainability outcomes. Previous research by (Y. S. Liu et al., 2016) and (Meiryani et al., 2023) indicates that carbon disclosure positively influences sustainability performance because it motivates companies to continuously improve environmental and operational practices. Therefore, Scope 3 Emission Disclosure is expected to have a positive effect on Sustainability Performance.

H3: Scope 3 Emission Disclosure has a positive effect on Sustainability Performance

The Mediating Role of Sustainable Supply Chain Performance

Sustainable supply chain performance acts as a mediating variable, explaining how Scope 3 emission disclosure can improve sustainability performance. Based on stakeholder theory, environmental disclosure is a response to stakeholder pressure, but improvements in sustainability performance will not occur without concrete implementation in a company's operational activities. Scope 3 emission disclosure encourages companies to make improvements in supply chain management, such as selecting environmentally friendly suppliers, promoting distribution efficiency, and reducing carbon emissions in the production process. These improvements then improve sustainable supply chain performance, which in turn impacts overall sustainability performance. In other words, scope 3 disclosure does not directly improve sustainability performance, but rather improves supply chain practices.

Research by (Yuan et al., 2022), shows that environmental transparency is more effective in improving company performance if accompanied by the implementation of sustainable operational practices. Thus, sustainable supply chain performance is an important mediator in the relationship between scope 3 emission disclosure and sustainability performance.

H4: Sustainable Supply Chain Performance mediates the influence of Scope 3 Emission Disclosure on Sustainability Performance

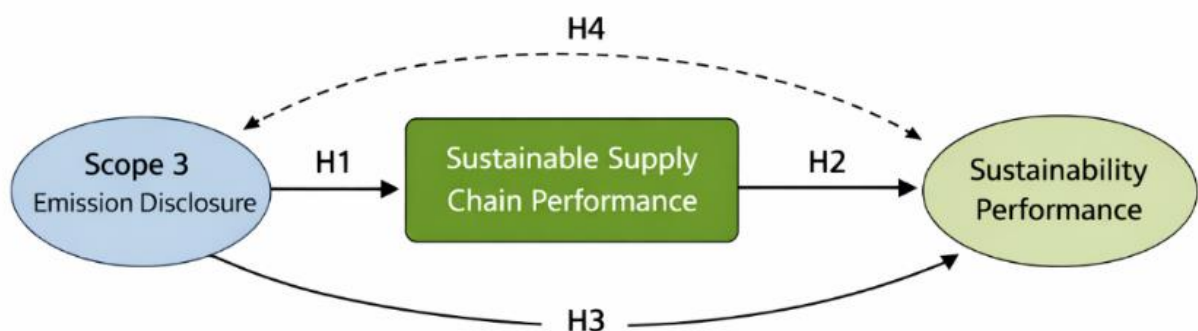


Figure 1. Framework of Thought

METHODS

Research Design

This study employed a quantitative explanatory approach, aiming to examine the relationships between variables: scope 3 emission disclosure, sustainable supply chain performance, and sustainability performance. The quantitative approach was chosen because it focuses on hypothesis testing through statistical analysis based on secondary company data (Hair et al., 2021). This study employed a causality approach because it aimed to explain the direct and indirect influences

between variables in the developed model. The research model was tested using Structural Equation Modeling based on Partial Least Squares (SEM-PLS) with the aid of SmartPLS software. Data in this study were sourced from officially published annual reports and company sustainability reports. Supporting data was also obtained from ESG reports, carbon reports, and company financial data. This technique was chosen because it provides objective, measurable, and verifiable data.

Population and Sample

The population in this study consists of companies listed on the Indonesia Stock Exchange during the observation period of 2021–2024. However, this study does not cover all corporate sectors, but rather focuses on companies with significant environmental impacts and strong linkages to supply chain activities. This is because the Scope 3 Emission Disclosure and Sustainable Supply Chain Performance variables are more relevant to companies with complex operational activities and high emissions intensity. Therefore, the study population was narrowed to companies in manufacturing, energy, mining and consumer goods sectors because these industries are among the largest contributors to carbon emissions in Indonesia and have highly complex upstream and downstream supply chain structures. These sectors are also more exposed to environmental regulations, stakeholder pressure and international sustainability standards compared to low-emission sectors. In addition, companies operating in these industries tend to disclose Scope 3 emissions more consistently because their operational activities depend heavily on suppliers, logistic, and resource-intensive production processes. The selection of these sectors allows the study to capture the relevance of supply chain-based green accounting practices more accurately. However, focusing only of high environmental impact sectors may limit the generalizability of the findings to other industries with lower emissions intensity or less complex supply chains, such as service or technology sectors. Therefore, the results of this study should be interpreted within the context to environmentally sensitive industries in Indonesia. Future studies are encouraged to examine broader industrial sectors to compare the effectiveness of scope 3 emission disclosure practice across different business characteristics.

The research sample was determined using purposive sampling techniques with several selection criteria aligned with the research objectives. The sample selection process was carried out in stages to ensure that the selected companies had relevant data related to Scope 3 Emission Disclosure and Sustainable Supply Chain Performance.

Table 1 Sample Selection Criteria

Sample Criteria	Number of Companies
Companies listed on the Indonesian stock exchange	825
Companies outside the high environmental impact sector	(500)
Companies in the manufacturing, energy, mining and consumer goods sectors	325
Companies that do not publish sustainability reports	(210)
Companies that do not publish carbon emissions information	(70)
Companies that do not disclose Scope 3 emissions	(40)
Companies that meet all sample criteria	55

Research period (2021 – 2024)	4
Total Observations	220

Source: processed data (2026)

Based on Table 1, 55 companies met all sample criteria. With a four-year observation period, the total observation data used in this study was 220 firm-years. This sample size meets the minimum criteria for SEM-PLS analysis, resulting in stable and reliable model estimates. Furthermore, this sample size reflects the real-world situation in Indonesia, where companies consistently disclosing Scope 3 emissions are still relatively limited. This reinforces the urgency of research examining supply chain-based green accounting practices in Indonesia.

Research Variables and Measurement

Scope 3 Emission Disclosure (X)

Scope 3 emission disclosure is the disclosure of indirect carbon emissions from a company's supply chain activities. This variable reflects the company's level of transparency in reporting its overall environmental impact. This variable is measured using a disclosure index based on the GRI 305 standard, specifically indicators related to indirect emissions. Each disclosure item is scored as (1) disclosed and (0) not disclosed. The index value is calculated using the formula:

$$\text{Disclosure Index} = \frac{\text{Number of items disclosed}}{\text{Total Items}}$$

Sustainable Supply Chain Performance (M)

Sustainable supply chain performance reflects a company's ability to manage its supply chain efficiently, environmentally friendly, and sustainably. This variable serves as a mediating variable in the study. Measurements were conducted using several indicators, including energy efficiency in the supply chain, supplier waste management, the use of environmentally friendly materials, and supplier sustainability policies. These indicators were measured using content analysis of sustainability reports and scored on an index scale (0–1). This approach is supported by previous research that measured supply chain performance based on sustainability disclosure (Yuan et al., 2022)

Sustainability Performance (Y)

Sustainability performance is a company's performance encompassing environmental, social, and economic aspects. This variable serves as the dependent variable in the study. Measurement is performed using the ESG Score or GRI Index (environmental, social, and economic). Indicators include: environmental performance (emissions, energy, waste), social performance (labor, community), and economic performance. This approach is widely used in sustainability research because it comprehensively reflects company performance (Y. Liu & Xie, 2024)

Data Analysis

The data analysis in this study used Structural Equation Modeling based on Partial Least Squares (SEM-PLS) with SmartPLS 4 software. The analysis was conducted in two main stages: the outer model and the inner model (Hair et al., 2021).

a. Outer Model Evaluation (Measurement Model)

The outer model was used to test the validity and reliability of the constructs, with the following criteria:

- Convergent validity = factor loading > 0.70
- Average Variance Extracted (AVE) > 0.50
- Composite Reliability > 0.70
- Cronbach's Alpha > 0.70

b. Inner Model Evaluation (Structural Model)

The inner model is used to test the relationship between variables. The R-Square criterion measures the model's ability to explain the dependent variable, the Path Coefficient to measure the direction and strength of the relationship, and the t-statistic and p-value to test the significance of the hypothesis. A t-statistic value >1.96 indicates significance at the 5% level.

c. Mediation Test

The mediation test was conducted using the indirect effect bootstrapping method to determine whether the mediating variable (sustainable supply chain performance) significantly bridges the relationship between Scope 3 emission disclosure and sustainability performance

RESULT AND DISCUSSION

RESULT

Outer Model Evaluation (Measurement Model)

The outer model evaluation was conducted to test the validity and reliability of the research constructs, consisting of Scope 3 Emission Disclosure, Sustainable Supply Chain Performance, and Sustainability Performance. This testing is crucial to ensure that the indicators used accurately represent the latent variables.

Table 2. Convergent Validity Test Results

Variabel	Indicator	Loading Factor
Scope 3 Emissions Disclosure (X)	X1	0.824
	X2	0.861
	X3	0.837
Sustainable Supply Chain Performance (M)	M1	0.852
	M2	0.889
	M3	0.865
Sustainability Performance (Y)	Y1	0.871
	Y2	0.903
	Y3	0.884

Source: processed data (2026)

Based on Table 2, all indicators have loading factor values >0.70, thus concluding that all indicators meet the convergent validity criteria. This indicates that each indicator is able to explain the latent variables well and consistently, making it suitable for use in testing the structural model.

Table 3. Results of Reliability and Construct Validity Tests

Variabel	Cronbach's Alpha	Composite Reliability	AVE
Scope 3 Emission Disclosure	0.835	0.901	0.752
Sustainable Supply Chain Performance	0.872	0.921	0.795
Sustainability Performance	0.889	0.931	0.819

Source: processed data (2026)

Based on Table 3, all variables have Cronbach's Alpha and Composite Reliability values > 0.70 and AVE values > 0.50 . Thus, the research constructs have met the reliability and convergent validity criteria, so the measurement model is declared good and can proceed to the structural model evaluation stage.

Inner Model Evaluation

The inner model evaluation aims to measure the model's ability to explain endogenous variables through the R-Square (R^2) value. This value indicates how much of the variation in the dependent variable can be explained by the independent variables in the model.

Table 4. R-Square (R^2) Value

Variabel	R-Square
Sustainable Supply Chain Performance	0.587
Sustainability Performance	0.712

Source: processed data (2026)

The R-Square value of 0.587 for Sustainable Supply Chain Performance indicates that Scope 3 Emission Disclosure explains 58.7% of the variance in sustainable supply chain practices. This value can be categorized as moderate to substantial explanatory power, suggesting that carbon disclosure plays an important role in encouraging sustainable operational improvements within the supply chain. Meanwhile, the R-Square value of 0.712 for Sustainability Performance indicates strong explanatory power, meaning that Scope 3 Emission Disclosure and Sustainable Supply Chain Performance jointly explain more than 70% of the company's sustainability performance variation. Practically, this finding suggests that environmental transparency combined with sustainable operational implementation significantly contributes to corporate sustainability outcomes.

Hypothesis Testing (Direct Effect)

Hypothesis testing was conducted using the bootstrapping method to determine the relationship between variables based on the path coefficient, t-statistic, and p-value.

Table 5. Hypothesis Test Results

Hipotesis	Variable Relationship	Coefficient	T-statistik	P-value	Description
H1	Scope 3 → Sustainable Supply Chain Performance	0.766	10.842	0.000	Accepted
H2	Sustainable Supply Chain → Sustainability Performance	0.548	7.921	0.000	Accepted
H3	Scope 3 → Sustainability Performance	0.321	3.884	0.000	Accepted

Source: processed data (2026)

Based on Table 5, the path coefficient value of 0.766 for the relationship between Scope 3 Emission Disclosure and Sustainable Supply Chain Performance indicates a strong positive effect. This means that improvements in carbon disclosure transparency are strongly associated with better implementation of sustainable supply chain practices. The coefficient of 0.548 shows that Sustainable Supply Chain Performance has a moderate-to-strong influence on Sustainability Performance, implying that operational sustainability initiatives contribute substantially to environmental and social performance improvements.

Meanwhile, the direct effect coefficient of 0.321 indicates that Scope 3 Emission Disclosure also directly improves Sustainability Performance, although the effect is weaker compared to the indirect mechanism through supply chain sustainability. This finding implies that disclosure alone is insufficient unless supported by operational implementation. Furthermore, the mediation coefficient of 0.420 confirms that Sustainable Supply Chain Performance acts as an important transmission mechanism linking environmental disclosure with broader sustainability outcomes.

Mediation Test

A mediation test was conducted to determine whether the Sustainable Supply Chain Performance variable could act as a mediator in the relationship between Scope 3 Emission Disclosure and Sustainability Performance.

Table 6. Mediation Test Results

Hypothesis	Variable Relationship	Coefficient	T-statistik	P-value	Description
H4	Scope 3 → Sustainable Supply Chain	0.420	6.735	0.000	Accepted

Performance →
Sustainability
Performance

Source: processed data (2026)

Based on Table 6, the t-statistic value of 6.735 and p-value of 0.000 indicate that Sustainable Supply Chain Performance significantly mediates the relationship between Scope 3 Emission Disclosure and Sustainability Performance. Thus, hypothesis 4 is accepted.

DISCUSSION

The results of this study indicate that Scope 3 Emission Disclosure has a positive effect on Sustainable Supply Chain Performance. This finding aligns with Stakeholder Theory, which explains that companies will respond to stakeholder pressure through increased transparency and sustainability practices (Freeman et al., 2021). Scope 3 emission disclosure forces companies to identify and measure indirect emissions from supplier and distribution activities. This process encourages companies to establish supply chain control mechanisms, such as environmentally-based supplier selection and increased operational efficiency. Thus, disclosure is not merely a reporting objective but also a tool for operational transformation. Research (Maharani & Akbar, 2025) shows that the implementation of green accounting can improve the quality of a company's operational management, including environmental and supply chain aspects. Furthermore, other research confirms that green accounting plays a crucial role in improving company performance through the integration of environmental aspects into business activities (Wardi et al., 2025). Consistent with research (Fitriana et al., 2025), environmental information disclosure encourages companies to significantly improve the quality of their sustainability practices. This reinforces the finding that Scope 3 Emission Disclosure can be a catalyst for change in a company's supply chain sustainability. Green accounting implementation allows companies to identify and disclose environmental costs more transparently, thus encouraging them to be more responsible for their environmental impacts (Anggar et al., 2022).

The results of the study indicate that Sustainable Supply Chain Performance has a positive effect on Sustainability Performance. This finding can be explained by the fact that a company's internal capabilities, including supply chain management, are a source of sustainable competitive advantage. The supply chain is a major source of energy consumption, raw materials, and emissions. When a company manage its supply chain sustainably, it will achieve cost efficiency, waste reduction, and increased product added value, ultimately improving sustainability performance. Research (Satria Nugraha & Irwansyah, 2024) shows that green accounting and environmental performance influence sustainability development, although the results vary depending on operational implementation. Furthermore, other research shows that green accounting contributes to improving corporate sustainability through improving the quality of environmental reports and practices (Pertiwi et al., 2023). Research by (Tiyas et al., 2024) also supports that environmental accounting practices and sustainable operational management have an impact on corporate performance. This indicates that the sustainable supply chain is a core driver in sustainability performance. The relationship between sustainable supply chain performance and sustainability performance is not only theoretical but has been empirically proven in the context of companies in Indonesia.

The results of the study indicate that Scope 3 Emission Disclosure has a positive effect on Sustainability Performance. This finding aligns with Legitimacy Theory, which states that companies use environmental disclosure to gain legitimacy from the public and stakeholders. Companies that disclose Scope 3 emissions demonstrate that they have an integrated and comprehensive environmental management system. This disclosure also reduces information asymmetry and increases investor confidence, thereby driving improved sustainability performance. Research by (Maharani & Akbar, 2025) shows that green accounting plays a role in improving the quality of sustainability reports and corporate transparency. Furthermore, research (Suprianing Arum & Farida, 2023) shows that green accounting and environmental disclosure contribute to achieving the Sustainable Development Goals (SDGs). Research by (Fitriana et al., 2025) also confirms that environmental disclosure influences increased accountability and corporate performance. However, critically, this relationship can be weakened if disclosure is merely symbolic (greenwashing). Therefore, operational practice support is needed to optimize its impact.

The results of the study indicate that Sustainable Supply Chain Performance mediates the relationship between Scope 3 Emission Disclosure and Sustainability Performance. This finding explains the causal mechanism, which is the main contribution of this study. Based on Stakeholder Theory, disclosure is a response to external pressure. However, improved sustainability performance does not occur automatically without operational implementation. In this case, sustainable supply chain performance acts as a mediating mechanism that transforms information into concrete actions. Disclosure creates transparency and pressure on companies. This pressure then encourages companies to make changes in the supply chain, such as choosing more environmentally friendly suppliers or increasing process efficiency. Ultimately, these changes in the supply chain will contribute to improving the company's overall sustainability performance. Research by (Rosmida et al., 2025), shows that green accounting does not always have a direct impact on sustainability without supporting operational factors. Furthermore, research (Arista & Achyani, 2024) shows that the combination of green accounting and operational practices has a stronger impact on sustainability than disclosure alone. Research by (Tyas et al., 2024) also supports the notion that operational implementation is a key factor in improving company performance. Therefore, these mediation results confirm that a supply chain-based green accounting approach is a more comprehensive approach, with disclosure serving as a trigger and the supply chain as the primary mechanism for creating sustainable performance.

CONCLUSION

This study aims to analyze the effect of Scope 3 Emission Disclosure on Sustainability Performance, with Sustainable Supply Chain Performance as a mediator in companies listed on the Indonesia Stock Exchange for the 2021-2024 period. The results show that Scope 3 Emission Disclosure has a positive and significant effect on Sustainable Supply Chain Performance, indicating that carbon emissions transparency encourages companies to improve the quality of their supply chain management sustainably. Furthermore, Sustainable Supply Chain Performance has been shown to have a positive effect on Sustainability Performance, confirming that company sustainability is significantly influenced by the effectiveness of supply chain management. This study also found that Scope 3 Emission Disclosure has a direct effect on Sustainability Performance, and Sustainable Supply Chain Performance mediates this relationship. These

findings suggest that carbon emissions disclosure will be more effective in improving sustainability performance if supported by concrete operational implementation in the supply chain.

This study has several limitations. First, the study relies entirely on secondary disclosure data obtained from annual reports and sustainability reports. Because Scope 3 emission disclosure in Indonesia is still largely voluntary, the possibility of reporting bias and selective disclosure cannot be fully avoided. Companies with stronger sustainability reputations may disclose environmental information more comprehensively, while companies with poor environmental performance may underreport or omit relevant information. Consequently, the disclosure scores used in this study may reflect reporting intensity rather than actual environmental performance.

Second, the use of content analysis in measuring disclosure variables may introduce subjectivity in interpreting sustainability information. Third, the study focuses only on high environmental impact sectors in Indonesia, which may limit the generalizability of the findings to other industries. Therefore, the results should be interpreted cautiously, particularly regarding the causal strength between disclosure practices and sustainability performance. Future research may benefit from combining disclosure-based measures with primary data, interviews, or external ESG verification data to reduce reporting bias and improve measurement accuracy. The managerial implications of this study emphasize the importance of improving the quality of Scope 3 Emission Disclosure as part of a strategy for environmental transparency and accountability. Companies also need to integrate sustainability principles into supply chain management through environmentally-based supplier selection, efficient use of resources, and strengthening supplier performance monitoring systems. Thus, a sustainable supply chain can become a source of long-term competitive advantage. For future research, it is recommended to add other variables such as corporate governance, regulatory pressure, or company size as moderating variables, and use a mixed methods approach to deepen the analysis. Furthermore, the study could be expanded across countries or utilize international ESG data to increase the generalizability of the results. The use of technologies such as artificial intelligence and big data analytics in measuring carbon emissions also presents opportunities for future research development.

References

- Abbas, A., Zhang, G., Bilal, & Chengang, Y. (2023). Firm governance structures, earnings management, and carbon emission disclosures in Chinese high-polluting firms. *Business Ethics, the Environment and Responsibility*, 32(4). <https://doi.org/10.1111/beer.12582>
- Anggar, A., Alfianika Maharani, D., & Kurniati, R. (2022). Determinasi Implementasi Green Accounting Terhadap Corporate Sustainability dan Kinerja Keuangan Pada Perusahaan Manufaktur. *Jurnal E-Bis*, 6(2), 571–580. <https://doi.org/10.37339/e-bis.v6i2.975>
- Arista, A. C., & Achyani, F. (2024). Pengaruh Green Accounting, Material Flow Cost Accounting, Environmental Performance, dan Sustainability Report Terhadap Sustainable Development. *Permana Jurnal Perpajakan, Manajemen, Dan Akuntansi*, 16(2).
- Downie, J., & Stubbs, W. (2023). Corporate carbon strategies and greenhouse gas emissions disclosure: A longitudinal analysis. *Business Strategy and the Environment*, 32(1), 602–623. <https://doi.org/10.1002/bse.3163>
- Fitriana, A., Tyas, K. Z., & Wahyuningsih, E. (2025). FINTECH DALAM PEMBERDAYAAN USAHA PEREMPUAN: MEMPERKUAT IMPLEMENTASI GREEN INNOVATION DAN GREEN ACCOUNTING UNTUK KEBERLANJUTAN BISNIS. *Ultima Accounting: Jurnal Ilmu Akuntansi*, 17(2).
- Freeman, R. E., Dmytriiev, S. D., & Phillips, R. A. (2021). Stakeholder Theory and the Resource-Based View of the Firm. *Journal of Management*, 47(7), 1757–1770.

- <https://doi.org/10.1177/0149206321993576>
- Hair, J. F., Hult, G. T. ., Ringle, C. M., & Sarstedt, M. (2021). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 33(2), 309–321.
- Huang, Y., Chen, C., & Wang, L. (2023). Carbon disclosure and corporate environmental performance: Evidence from global firms. *Journal of Cleaner Production*, 382, 135274. <https://doi.org/10.1016/j.jclepro.2022.135274>
- Klaaben, L., & Stoll, C. (2021). Harmonizing corporate carbon footprints: Scope 3 emissions and data challenges. *Journal of Industrial Ecology*, 26(1), 72–87. <https://doi.org/10.1111/jiec.13174>
- Liu, Y. S., Zhou, X., Yang, J. H., & Hoepner, A. G. F. (2016). *Corporate Carbon Emission and Financial Performance: Does Carbon Disclosure Mediate the Relationship in the UK?* 1–40.
- Liu, Y., & Xie, E. (2024). Green accounting and corporate sustainability: Evidence from emerging markets. *Sustainability*, 16(3).
- Maharani, S. A., & Akbar, F. S. (2025). Peran Green accounting dalam Meningkatkan Kualitas Sustainability Report. *Atestasi: Jurnal Ilmiah Akuntansi*, 8(2), 286–295. <https://doi.org/10.57178/atestasi.v8i2.1577>
- Meiryani, Huang, S. M., Warganegara, D. L., Ariefianto, M. D., Teresa, V., & Oktavianie, H. (2023). The Effect of Industrial Type, Environmental Performance and Leverage on Carbon Emission Disclosure: Evidence from Indonesian LQ45 Companies. *International Journal of Energy Economics and Policy*, 13(4). <https://doi.org/10.32479/ijeep.14466>
- Pertiwi, D. M., Handajani, L., & Astuti, W. (2023). The Influence of Green Accounting on Company Sustainability through Environmental Performance in The Consumer Goods Sector. *Jurnal Akuntansi Dan Perpajakan*, 9(2), 324–340. <https://doi.org/10.26905/ap.v9i2.10073>
- Putri, D. ., & Sari, R. . (2023). Green accounting and firm value: The mediating role of environmental performance in Indonesia. *Jurnal Akuntansi Dan Keuangan Indonesia*, 20(2), 145–160.
- Rosmida, Mubarak, H., Suhadi, A., & Santia, E. (2025). PENGARUH ENVIRONMENTAL PERFORMANCE, MATERIAL FLOW COST ACCOUNTING, DAN GREEN ACCOUNTING TERHADAP SDGs (Studi Berbasis Data pada Perusahaan Manufaktur Subsektor Makanan dan Minuman yang Terdaftar di Bursa Efek Indonesia Tahun 2022–2024). *Jurnal Riset Terapan Akuntansi*, 9(2), 362–372.
- Satria Nugraha, R. F. A., & Irwansyah. (2024). Pengaruh Penerapan Green Accounting dan Environmental Performance terhadap Sustainability Development dengan Supply Chain sebagai Pemoderasi. *INOVASI: Jurnal Ekonomi, Keuangan, Dan Manajemen*, 20(1), 170–178. <https://doi.org/10.30872/jinv.v20i1.1705>
- Suprianing Arum, L., & Farida. (2023). PENGARUH GREEN ACCOUNTING, ENVIRONMENTAL PERFORMANCE, MATERIAL FLOW COST ACCOUNTING (MFCA) DAN ENVIRONMENTAL DISCLOSURE TERHADAP SUSTAINABLE DEVELOPMENT GOALS (SDGS). *Kajian Bisnis Sekolah Tinggi Ilmu Ekonomi Widya Wihaba*, 31(2), 54–67. <https://doi.org/10.32477/jkb.v31i2.711>
- Tyas, K. Z., Arofah, A. A., Wirawan, N. B., & Fathonah, I. (2024). DETERMINAN TIPE INDUSTRI TERHADAP PENGUNGKAPAN EMISI KARBON MELALUI GENDER DIVERSITY. *JLAFE (Jurnal Ilmiah Akuntansi Fakultas Ekonomi)*, 10(2).
- Wang, Q., Li, J., & Zhang, Y. (2022). Carbon emission disclosure and firm performance: The role of stakeholder pressure. *Journal of Cleaner Production*, 345.
- Wardi, J., Nasution, N., & Lubis, N. (2025). Eco-Friendly Accounting: Rise Of Green Accounting In Indonesia. *Jurnal Ilmiah Ekonomi Dan Bisnis*, 22(2), 166–179. <https://doi.org/10.31849/gsgkce22>
- Yuan, B., Ren, S., & Chen, X. (2022). Can sustainable supply chain improve corporate performance? Evidence from manufacturing firms. *Resources, Conservation and Recycling*, 176.