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The effect of leverage and profitability on carbon emissions disclosure in Indonesia's financial sector

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ABSTRACT

This study aims to examine the effect of leverage and profitability on carbon emissions disclosure among financial sector companies listed on the Indonesia Stock Exchange (IDX) during the period 2020-2022. A quantitative approach was employed using secondary data obtained through purposive sampling methods. Of the 105 companies, only 64 met the criteria. The data were analyzed using multiple linear regression with SPSS 30. The findings revealed that both leverage and profitability have a significant influence on carbon emissions disclosure. Companies with higher leverage and greater profitability tend to disclose more information related to carbon emissions. This behavior is likely driven by the perceived strategic benefits of environmental transparency, particularly in enhancing investor appeal and reinforcing competitive advantage. These results highlight the role of financial performance indicators in promoting environmental accountability in Indonesia's financial sector.

Keywords: carbon emissions disclosure; leverage; profitability; financial sector

1. INTRODUCTION

Climate change is again in the public eye because of reports that the earth's temperature would reach its highest point in 2024 compared to 1850-1900 data, a 1.28C increase (BBC 2025). The primary cause of climate change is the rise in atmospheric concentrations of greenhouse gases (GHGs), especially carbon dioxide (CO2), due to human activities, including the burning of fossil fuels, deforestation, and industrial operations (Pachauri, 2006). Global warming is caused by the buildup of greenhouse gases in the atmosphere, which is largely caused by activities such as deforestation, industrial pollution, and burning fossil fuels (Wu et al., 2024).

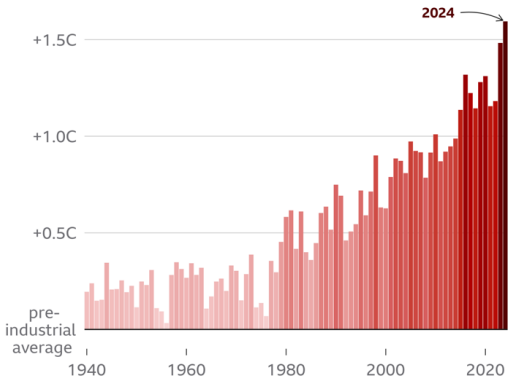

Figure 1. Global average temperature by year, compared with the pre-industrial average, 1850-1900

Source: ERA5, C3S/ECMWF

Figure 1 compares the global average temperature during the pre-industrial era of 1850–1900 with the global average temperature from 1940 to 2024. The average temperature is on the rise, reaching its highest point in 2024, when it has already risen by more than 1.5 °C above the pre-industrial norm. Given that the current environmental circumstances are deteriorating and negatively affecting everyone, especially businesses, this has become increasingly important in recent years.

Since the beginning of the Industrial Revolution, when people started burning fossil fuels in enormous amounts, climate change has been linked to CO2 emissions. Externally, the amount of CO2 in the atmosphere has increased by approximately 50%, which is far higher than it has ever been. Strategies and mitigation have been implemented to stop the rise in carbon emissions, including sustainable practices and policy changes that are anticipated to compel nations worldwide to lower the emissions produced by the commercial sector operating inside their borders. With the creation of the Intergovernmental Panel on Climate Change in 1988 and the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the United Nations has been releasing ideas regarding climate change. As a result of this work, the Paris Agreement was signed in 2015 and remained in effect until April 22, 2017, when Indonesia signed it (United Nations, 2025).

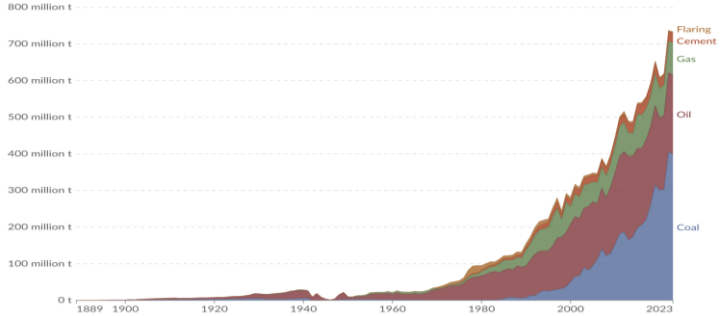

Figure 2. CO_2 emission by fuel or industry type, Indonesia

Source: Global Carbon Budget (2024)

According to the United Nations, there are seven (seven) activities that contribute to the rise in CO2 (Our World in Data, 2020): burning fossil fuels to generate electricity; burning fossil fuels to produce energy for the production of industrial goods, such as cement, iron, steel, electronics, plastics, clothing, and other items; clearing forests to make way for farmland or pasture; using transportation, which uses fossil fuels in part; producing food, which also contributes to carbon dioxide emissions; and consuming excessively, as private households account for the majority of global greenhouse gas emissions. Warmer temperatures as a result of greenhouse gas concentrations, more intense storms, more droughts, warmer and rising oceans, the possibility of extinction of species, an increase in hunger and malnutrition worldwide, health risks, and factors that keep people in poverty are all contributing to climate change. According to Figure 2, flaring cement, gas, and oil are the industries in Indonesia that will emit the most CO2 in 2024. releasing 733.22 million tons of CO2 in total, with the greatest at over 54% 399 million tons of coal and 215.93 million tons of petroleum, or around 29%.

The financial sector is socially relevant because it channels capital flows that determine whether the global economy transitions toward a low-carbon path or continues to rely on carbon-intensive business models. Banks, investors, and other financial institutions play a strategic role in supporting green investments that can mitigate the negative social effects of climate change. Some research suggests that the banking industry can mitigate climate change and transition to a low-carbon economy through its role in risk assessment, financing, and influencing client and supplier networks (Bowman, 2010). Banking can also help to limit pollution and promote sustainable development by financing projects that reduce pollution (Meena, 2013). Renewable energy funding and green bonds are financial instruments with the potential to advance sustainability and mitigate climate change (Sule et al., 2024). Engaging in green banking practices will also help banks reduce the impact of pollution and climate change. (Abor et al., 2019). Climate change has become a paramount consideration for modern investors, particularly regarding its impact on future profitability. Stock return sellers for firms facing strong climate change vulnerability, since investors seem to pay less attention to these firms. (Xu et al., 2022). Based on some research, green stocks are predicted to yield lower returns compared to brown stocks. This is consistent with both theory and anticipated returns (Pástor et al., 2022).

Going through the work done on the financial industry's role in climate change provides some insights that enable one to understand the current state of things. To ascertain which position in the hierarchy can have the most influence on reducing pollution and climate change requires more study and analysis (Levine & Kline, 2017; Shive & Forster, 2020). Financial institutions can contribute to the fight against pollution and climate change. According to Li et al. (Li et al., 2016), financial institutions should diversify their sources of funding and capitalize on climate-friendly investment options such as renewable energy and green buildings. Banks must consider climate risks when deciding which loans to provide. They could provide value by actively managing these risks with their clients (Stenek et al., 2011). Environmentally friendly financial products and green banking can also reduce these impacts. Conflicts in international treaties and a weak institutional foundation make it difficult to be used in international finance mechanisms for climate change adaptation, including those under the UNFCCC. To reduce pollution and achieve sustainable development objectives, these systems must be made more applicable and appealing to all investors (Mingaleva, 2020). In order to successfully combat the climate change, financial institutions must strike a balance between risk management and creative green funding.

The available literature proves beyond a reasonable doubt that disclosing carbon emissions enhances a firm's value. This effect, in turn, results from greater trust in the market and growing investor attention to firms' sustainable activities (Hardiyansah et al., 2021; Sari & Budiasih, 2022). This link may be strengthened by environmental performance and company type, with high-profile industries gaining from the ability of disclosure to improve their image (Hardiyansah et al., 2021). This beneficial effect is especially noticeable in nations such as Taiwan and Korea, which have stringent government regulations and media coverage of environmental measures (Aulia et al., 2024). Transparency and business reputation, which also appeal to investors who prioritize sustainability, may be enhanced by using international standards such as ISO 14001 and ISO 14064 for environmental management and carbon emissions reporting (Aulia et al.,

2024; Hardiyansah et al., 2021). However, profitable firms may engage in symbolic disclosures or greenwashing to protect their reputation without genuine performance improvement (Delmas & Burbano, 2011). More profitable firms disclose more information to signal their strength and reduce information asymmetry. This relationship is not unidirectional or universally accepted, and several contradictory perspectives and empirical findings complicate this claim.

Disclosure behavior in the financial sector matters socially for several reasons, such as its impact on the economy and society, where the financial sector plays a central role in allocating capital and managing risks across the economy. Protection of stakeholders and investors, this makes disclosure behavior affects stakeholders' ability to make informed decisions concerning risk and ethical considerations. Regulatory compliance and social stability, where financial institutions operate within complex regulatory frameworks designed to protect broader societal interests. As we all know that Sustainable Development Goals (SDG) 13 where financial sector disclosure will enables climate risk assessment, supports green finance, advances low-carbon transition and facilitates regulatory oversight, risk monitoring, promotes accountability and trust.

This study analyzes the factors that disclose carbon emissions in Indonesia's financial sector. The problem that the author discusses is whether leverage affects the disclosure of corporate carbon emissions in the financial sector does profitability affect corporate carbon emissions disclosure in the financial sector? Researchers hope that this study will provide benefits for the community, namely, providing information about the willingness of financial companies in Indonesia to disclose corporate carbon emissions. The benefits for the government are to provide references for coverage or policy development to support efforts to reduce climate change. This research can also be a source of reference for further research and can help identify areas that require additional knowledge and contribute to knowledge gaps in the context of environmental policy, especially climate change.

2. LITERATURE REVIEW

2.1 Stakeholder theory

According to stakeholder theory, businesses should prioritize the needs of their stakeholders, including society, consumers, and employees, in addition to their internal interests. In the manufacturing sector, this frequently pertains to local communities, regulatory, and non-governmental organizations (NGOs) that are concerned with immediate environmental consequences, such as air pollution or hazardous waste. Conversely, in the financial industry, key stakeholders (including investors, clients, regulators, and international organizations) tend to concentrate less on direct emissions, which are comparatively minimal, and more on the indirect effects of financing operations. Consequently, banks and other financial entities reveal carbon-related information not only to demonstrate operational accountability but also to reassure stakeholders that their lending and investment strategies are in harmony with global sustainability objectives. In this framework, profitability assumes a significant role: firms with higher profitability are more capable of investing in sophisticated disclosure systems, sustainability reporting, and environmental, social, and governance (ESG) initiatives, which can increase their appeal to international investors.

Customer happiness is important to a company's sustainability, and it makes an effort to demonstrate its social responsibility through voluntary disclosure. In 1984, Freeman presented the stakeholder theory, which had its roots in strategic management but placed more emphasis on normative ethics than the then-dominant economic focus. In recent years, stakeholder perspectives have also been integrated into strategy research, which has shifted towards reconciling strategic management and balancing other interests (Barney, 2018; Zollo et al., 2018). There is growing concern among businesses regarding the social, economic, and ecological impact of stakeholders and maintaining corporate reputation. Nowadays, companies are expected to measure and report their carbon emissions alongside other environmental impacts as a core part of their CSR efforts. To mitigate adverse impacts and ensure that businesses remain socially and environmentally responsible, companies must engage in active social

and environmental initiatives. A company's social and environmental performance can be evaluated using an array of indicators, such as spending on environmental protection or carbon emissions (Gray et al., 1996).

2.2 Legitimacy Theory

Through legitimacy theory, organizations strive to mesh their disclosures and actions with social norms and approval to be accepted by others. Manufacturing enterprises sometimes face threats to their legitimacy due to observable ecological harm or incidents, rendering transparency a crucial mechanism for alleviating public criticism. In the financial industry, legitimacy pertains less to direct emissions and more to the impression of systemic accountability than in other industries. Highly leveraged financial organizations may augment carbon disclosures to reassure regulators, investors, and the public of their responsible management of climate-related financial risks. Likewise, when profitability is elevated, disclosure enables enterprises to validate their financial performance by indicating that profits are not obtained at the cost of sustainability. Unlike in manufacturing, where legitimacy relates to physical pollution, in finance, it is deeply tied to reputation, accountability, and alignment with global sustainability frameworks.

To demonstrate that the company is acting in social contracts and building credibility on voluntary reporting social and environmental issues in the context of social responsibility. This theory similarly underscores the government-enforced nexus between businesses and communities. Businesses must persuade communities to address environmental concerns. For example, corporations can gain more bona fides from society by voluntarily specifying their carbon emissions (Pitrakkos & Maroun, 2020). Despite its benefits for analyzing organizational behavior, legitimacy theory has drawbacks and objections, including the difficulty in quantifying legitimacy and the paucity of empirical data regarding the connection between legitimacy and disclosure. This idea is distinct from other theories of organizational behavior because it emphasizes how organizations engage with society at large and how communication shapes views of legitimacy. Notwithstanding these drawbacks, legitimacy theory is nevertheless a useful framework for comprehending the reasons for and effects of organizational disclosure, particularly in the context of sustainability. Businesses use annual reports as a tool to account for their environmental impacts and uphold social approval to show that they operate in accordance with community norms and values (Qian & Schaltegger, 2017).

2.3 The Effect of Leverage on Carbon Emissions Disclosure

Leverage is the use of a business' assets to pay off debt is defined as. ONE Use this ratio is the proportion of total debt to the entire assets of a firm to assess it. High-leverage businesses are generally cautious about investing, particularly in intangibles that could affect their carbon emissions value (Puteri & Inawati, 2023). Stakeholder theory states that economic performance, stakeholder power in this case as leverage, and strategic posture affect Carbon Emission Disclosure (CED) (Widarjo et al., 2024). Legitimacy theory states that companies disclose carbon emissions to maintain public approval, and that factors such as profitability, industry type, and company size influence the level of disclosure (Saraswati et al., 2021). CED has been shown to have a positive impact on firm value (Sari & Budiasih, 2022). Although legitimacy theory is more applicable in developed countries, stakeholder theory is more suitable for developing countries because of the lower regulatory pressure (Omran & Ramdhony, 2015). Leverage, as a proxy for stakeholder power, influences CED (Widarjo et al., 2024), although some studies do not find a significant relationship (Saraswati et al., 2021). The choice of a theoretical framework depends on the specific context and objectives of the study.

H1: Leverage affects carbon emission disclosure

2.4 The Effect of Profitability on Carbon Emissions Disclosure

Good financial conditions for the company will make it more willing to disclose its carbon emissions. The company can finance additional resources to disclose carbon emissions (Choi et al, 2013 in Kurniawati & Biduri, 2018). Profitability can be assessed from the company's ROA level, which is the value of the company's profit compared to its total assets. Research on carbon emissions disclosure has explored the various factors that influence corporate reporting practices. Research has found that profitability and firm size have a positive effect on CED (Saraswati et al., 2021), although one study reported no significant effect of profitability (Sandy & Ardiana, 2023).However, these findings are often explained by legitimacy and stakeholder theories (Choiriah, 2020; Saraswati et al., 2021). However, the applicability of these theories may vary depending on the context, with legitimacy theory being more appropriate for developed countries and stakeholder theory for developing countries (Omran & Ramdhony, 2015).
H2: Profitability affects carbon emissions disclosure

3. RESEARCH METHODS

3.1 Population, Sample and Research Data

This study uses a descriptive quantitative research model with a Secondary Data Analysis (ADS) approach. Quantitative research is a type of research that is systematic, structured, and uses statistical figures. Secondary data refers to information collected by external parties and then used by researchers for specific purposes. This type of data can be accessed through several sources, such as publications, reports, databases, and other resources. These data are usually used to corroborate the results of previous research or to gain further insight.

This study uses secondary data from the company's annual, sustainability, and financial reports. The data were obtained from each company's website and the Indonesia Stock Exchange (IDX) website which is accessed via www.idx.co.id (see Table 1). The data used are for financial sector companies from 2020 to 2022. The sample collection technique used in this study was purposive sampling, which involved sampling with certain criteria used to provide the information needed (Sekaran and Bougie, 2019).

Table 1. Research Sample Selection

Criteria	Total
Financial sector companies listed on the Indonesia Stock Exchange	105
Financial sector companies that did not publish complete financial reports in 2020-2022	(16)
Financial sector companies that experienced losses in 2020-2022	(25)
Total companies that meet the criteria	64
Year of Observation	3
Total Data	192
Data Outlier	(20)
Total data processed	172

Source: Processed from primary data (2025)

3.2 Variable Operationalisation

The independent variables studied are leverage and profitability to determine their influence on the dependent variable, namely the disclosure of carbon emissions. The following is the operationalization of the variables in this study (see Table 2):

Table 2. Variable Operationalisation

Variable	Conceptual Definition	Indicators	Scale
Carbon Emissions Disclosure (CED)	The process by which organisations disclose information about the amount of greenhouse gas emissions generated by their operational activities. This process includes disclosure in annual reports or corporate sustainability reports. The measurement was carried out using a checklist tool from the research of (Choi et al., 2013).	*Number of disclosure by company (n)/Total Disclosure* (n/18) (Suchman et al., 2019)	Ratio
Leverage (LEV)	Leverage refers to the company's level of debt, i.e. the extent to which the company borrows money to fund its operations.	Total Liability/Total Assets, (Rahmianingsih & Malau, 2022)	Ratio
Profitability (ROE)	Profitability measures the extent to which a company generates profits from invested equity.	Net Profit/Total Assets, (Rahmianingsih & Malau, 2022)	Ratio

Source: Processed from multiple data (2025)

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistical Analysis Results

Descriptive statistical tests were conducted using the IBM SPSS version 30. The results of these tests provide a detailed description of each variable studied. The sample, which consists of 172 financial sector companies listed on the Indonesia Stock Exchange, published complete financial reports from 2020-2022 (see Table 3).

Table 3. Descriptive Statistical Test Results

	N	Minimum	Maximum	Mean	Std. Deviation
LEV	172	0.002	0.9189000	0.6148377	0.26969
ROE	172	0.0005	0.2367000	0.0744337	0.05857
CED	172	0.000	0.8333333	0.2432171	0.24804

Source: Output SPSS 30 (2025)

The results show that the dependent variable Carbon Emissions Disclosure (CED) had an average value of 0.2432 and a standard deviation of 0.24804. The lowest and highest values were 0 and 0.89, respectively. A Carbon Disclosure List used to conduct the CED assessment. The results show that between 0 and 3 out of the 18 items are disclosed by almost half of the companies in the financial sector. The three most dominant items disclosed by financial companies when referring to carbon emissions disclosure indicators are total energy use (in joules or kilowatt-hours), disclosure by type or segment (e.g., petrol or electricity), and plans to reduce greenhouse gas emissions in the future. This indicates whether the company is open or transparent in disclosing carbon emission information and whether it is committed to reducing greenhouse gas emissions. This can be analyzed in depth regarding this matter). Bank Rakyat Indonesia (Persero) Tbk. has a score of 16 out of 18 companies for carbon emissions disclosure in 2022. Compared to other companies, this company has an external party to verify the results of its greenhouse gas emissions calculations.

4.2 Multiple Linear Regression Test Results

The research conducted aims to test and analyze the influence of leverage and profitability on the dependent variable, namely carbon emission disclosure. The data analysis method used in this study was multiple linear regression. The initial stage of this research was to conduct a classic assumption test, namely normality, autocorrelation, heteroscedasticity, and multicollinearity tests. In the next stage, hypothesis testing, determination tests, and F tests will be carried out.

Table 4. Multiple Linear Regression Test Results

Coefficients						Multicollinearity	
Model	Unstandardized Coefficients	Standardized Coefficients	Beta	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	-0.188	0.039		-4.860	<0.001		
LEV	0.507	0.052	0.552	9.774	<0.001	0.999	
ROE	1.617	0.239	0.382	6.762	<0.001	0.999	
Normality test - K-Smirnov	0.200						
Autocorrelation Test – DW	1.873						
F – Sig	0.001						
Adj R Square	0.455						

Source: Output SPSS 30 (2025)

During the initial normality test, the data were not normally distributed. Therefore, we removed 95 outlier data points from the dataset. The second normality test results after deleting outlier. In the initial results of the normality test, the value was less than 0.05, and the data were not normally distributed. To overcome this abnormal distribution, the outlier data were removed. Outliers are data characteristics that are very different from other observations and appear as extreme values (Ghozali, 2016). After the researcher deleted as much outlier data and retested, the significance value became 0.200. A multicollinearity test was carried out by observing the Variance Inflation Factor (VIF) and tolerance value (Tol). The purpose of the multicollinearity test was to determine the presence of a high correlation between variables in the multiple regression model. Based on Table 5. The VIF value is less than 10 and the Tol value is greater than 0.10. Thus, it can be concluded that there was no multicollinearity between the independent variables in the regression model. In the next stage, autocorrelation is tested to measure the relationship between consecutive observations or residuals in a time series. Based on Table 4, the Durbin (DW) autocorrelation test result of the regression model is 1.873. Based the Durbin-Watson table at 5% significance, the number of samples 172 (n) and the number of independent variables was 2 (k = 2), the upper limit value (dU) was 1.81223. The DW value of 1.873 is greater than the upper limit of 1.81223 and less than 4 - 1.81223 (4 - dU). Thus, it can be concluded that there is no positive or negative autocorrelation in the data. The simultaneous significance test or $F_{calculation}$ is used to show all independent variables included in the model have a joint influence on the dependent variable (Ghozali, 2016). The F-count was 74.488, with a significance value of less than 0.001. Therefore, it can be concluded that Leverage and Profitability variables simultaneously have a significant effect on the disclosure of carbon emissions.

The result of the coefficient of determination test is the adjusted R-squared to measure the extent to which the regression model can explain the variation in the independent variable (Ghozali, 2016). The coefficient of determination is useful for simultaneously predicting the contribution of the influence of independent variables on the dependent variable. The adjusted R-squared results in table 9 indicate values of 0.455 or 45.5%. From the test results, it can be concluded that the Leverage and Profitability variables have a contribution effect of 45.5% on the dependent variable of carbon emission disclosure. The remaining 54.5% were influenced by other factors outside the research variables. This study recognizes that over half of the variance in carbon emissions disclosure (CED) cannot be explained by the model, as

indicated by the Adjusted R-squared of 0.455. Since corporate reporting behavior is impacted by a wide range of institutional, cultural, and regulatory factors that go beyond financial indicators such as debt and profitability, this result is not uncommon in disclosure research (Hahn & Kühnen, 2013; Clarkson et al., 2008). The comparatively low explanatory value emphasizes the intricacy of disclosure choices as well as the drawbacks of using only financial factors. Future studies could improve the model by adding institutional constraints (such as investor expectations and regulatory frameworks), governance variables (such as ownership structure and board independence), or cultural factors that influence business sustainability strategies.

Based on Table 4, leverage has a significance value of less than 0.001, and it can be concluded that leverage has a significant effect on the disclosure of carbon emissions. The results of this study are in line with those of a previous study, namely (Afrizal et al., 2023). Research conducted by (Naughton et al., 2019) explains that by publishing a sustainability report discloses carbon emissions generated from operational activities, the company will obtain several benefits, such as easier and faster access to funding for internal and external purposes, a good reputation, and good relationships with stakeholders. Investors, creditors, and shareholders increasingly consider sustainability a major factor influencing the success of companies (Searcy & Elkhawas, 2012). Another study of manufacturing and mining companies in Indonesia and Malaysia found that leverage significantly affects carbon emissions disclosure (Afrizal et al., 2023). In addition, research on the non-financial sector in Indonesia shows that leverage positively and significantly influences carbon emissions disclosure (Ulupui et al., 2020). Companies with higher leverage tend to disclose more information on carbon emissions. This is because of the need to reduce information asymmetry between companies and their lenders, thereby increasing the credibility of their voluntary reporting (Nisak & Yuniarti, 2018).

Table 4 shows that profitability has a significance value of less than 0.05, and it can be concluded that profitability has a significant effect on the disclosure of carbon emissions. The results of this study are in line with previous research, namely (Herinda et al., 2021; Ulupui et al., 2020) which shows that company profitability has a positive and significant effect on disclosure of carbon emissions. Companies with good profitability disclose their carbon emissions. The disclosure of carbon emissions will be the center of attention for the company because the company begins to realize the benefits it will receive. Companies with higher profitability tend to disclose their carbon emissions. (Nisak & Yuniarti, 2018) found that profitability significantly affects carbon emissions disclosure, contributing 19.05% to the variance in disclosure levels. This finding suggests that more profitable companies may have more resources and incentives to make such disclosures.

5. CONCLUSIONS

This study examined the effects of leverage and profitability on carbon emissions disclosure for financial sector companies listed on the Indonesia Stock Exchange for the period 2020-2022. A total of 64 financial sector companies were sampled for this study. This study concludes that leverage and profitability significantly affect carbon emissions disclosure. This proves that the higher the leverage and profitability of a company, the higher the probability that the company will disclose its carbon emissions better and more fully. According to legitimacy theory, this occurs because companies must maintain their legitimacy in the eyes of stakeholders; therefore, they must provide credible financial and nonfinancial information.

This study has several limitations. First, the sample of this study is financial companies listed on the Indonesia Stock Exchange; therefore, the results cannot be generalized to all types of companies. Second, the research was conducted during the period 2020-2022, so the results of the study may need to be tested again over a longer period. There are several companies that do not meet the sampling criteria intentionally; therefore, they must be eliminated as a sample of 16 companies, companies that experience losses, and also twenty outlier data. Third, only two independent variables are considered in this study, namely leverage and profitability, each of which contributes 45.5% to carbon emissions disclosure. In line with the parameters established by legitimacy theory and stakeholder analysis, this study focuses on

evaluating the influence of financial factors. However, the empirical finding is useful in establishing a benchmark for the low level of transparency in Indonesia's financial industry. Future research may easily investigate whether this lack of disclosure results from institutional constraints, greenwashing, or symbolic compliance.

Fourth, to complete the carbon disclosure list, only companies disclose energy usage in kilowatt hours or joules. Fifth, the exclusion of social and regulatory perspectives is also recognized as a limitation. Companies that disclose only the costs of rupiah are not included in this list.

This study acknowledges its limitations, particularly the exclusion of broader social and regulatory dimensions that are often emphasized in disclosure research. The finding that only a small fraction of disclosure items are reported by most firms may suggest a pattern of performative compliance; however, this has not been examined in depth from a sociological perspective. Nevertheless, this study focuses on financial drivers as a necessary analytical step, providing clarity on how leverage and profitability influence disclosure decisions in Indonesia's financial sector. At the same time, the findings carry important implications beyond the firm level. For policymakers, evidence of minimal compliance under a voluntary framework highlights the gaps in the current disclosure regime and underscores the need to strengthen monitoring, incentives, or mandatory rules. For society, the issue of transparency has direct implications for reducing information asymmetry: when firms disclose little information about their emissions, communities remain at risk of environmental injustice because they lack access to data that affects their well-being. Thus, while the research is limited in scope, it indirectly reinforces the argument that meaningful transparency is both a regulatory and social necessity.

Referring to the limitations of this study, several suggestions can be made based on the discussion of the results of the analysis and conclusions of the study, researchers are advised to increase the limitations of the period studied to see the development of the company's activity in disclosing carbon emissions. Researchers are also advised to use other indicators as the basis for research, such as social impact or regulatory implications. To capture the broader social context, subsequent studies should complement financial analyses with qualitative approaches, such as stakeholder interviews or case studies. These methods could illuminate whether limited disclosure represents strategic greenwashing, resource constraints, or normative pressure, thereby offering richer insights into the social dynamics of sustainability reporting. The company can pay attention to the disclosure of carbon emissions in similar industries. This is useful for companies that are already listed on the Indonesia Stock Exchange as well as companies that have not or plan to register on the exchange to pay more attention to the disclosure of carbon emissions. The government should pay attention to the disclosure of carbon emissions published by companies and encourage them to follow the existing carbon emission reporting standards. This research could be a foundation, and the contribution is both immediate and forward-looking, providing a platform for policy and sociological extensions.

Ethical Approval

This study uses financial reporting from the IDX repository

Informed Consent Statement

Not Applicable

Authors' Contributions

SS contributed to the conceptual framework of the research and literature review, and IPVA and PRN contributed to data collection, analysis of the results, and writing of the manuscript. FM to review and editing.

Disclosure Statement

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement
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