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# What Drives Corporate Carbon Transparency? A Systematic Literature Review

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## Abstract

The purpose of this research is to identify what drives carbon emission disclosure practices using a systematic literature review approach. Then, map and group the variables used from various previous studies. A data source sourced from Scopus with a total of 31 articles found related to the research topic and accessible to researchers with the period 2018-2024. The results of the study show that related research in 2022-2024 continues to increase. Research data sources related to previous research are more sourced from secondary data on manufacturing companies using quantitative research methods. Then, the research is based on independent variables used in previous research, the majority of which are on variable profitability (ROA), leverage (LEV), and environmental performance (EP).

**Keywords:** Determinants, Carbon Emission Disclosure, And Systematic Literature Review

## 1. Introduction

Climate change is an increasingly urgent global issue to address, with its impact increasingly evident in various parts of the world. Carbon emission relocation activities are of great concern (Arslan et al., 2022). In 2024, global temperatures will be the highest on record, rising to 1.5 degrees Celsius above pre-industrial levels. This increase in temperature is highly correlated with ongoing carbon emissions. It is anticipated that CO2 output will grow from 40.6 billion to 41.6 billion tonnes, with the majority of these emissions originating from burning fossil fuels and the destruction of forests. This figure shows the huge contribution of the human sector to the ongoing climate change. However, amid these conditions, there are increasingly strong demands from various stakeholders, including investors, governments, and the public to ensure that companies are open in disclosing the environmental impacts caused, especially related to carbon emissions (Liu et al., 2022).

Along with the times, several determining factors have emerged that can affect the disclosure of carbon emissions such as leverage, company value, profitability, market value, company performance, and several others. In previous research, it was revealed that green innovation and eco-efficiency have a positive effect on CO2 disclosure (Sari et al., 2024). (Ganda, 2018) emphasizes that CO2 disclosure has a positive relationship with ROA. CO2 disclosure has a significant positive influence on a company's value because the company has a level of concern for the environment that can then be responded to both by the market and as a basis for investors in assessing the company's sustainability (Hardiyansah et al., 2021). Moreover, research by (Saadah et al., 2024)

reveals that the presence of women in executive positions plays a crucial role in CO2 disclosure, examined through the lens of board governance and audit committee oversight. Then, this research has implications for investors and policymakers who support ASEAN countries in achieving the net zero pledge.

Opinion (Wahyuningrum et al., 2024) believes that CO2 disclosure is proof of the company's commitment to reducing carbon emissions. Therefore, this study aims to identify the determinants that affect the disclosure of carbon emissions through a systematic literature review. Also, mapping and grouping the variables used from various studies. This research is expected to be able to contribute and become literature for future research.

## 2. Method

This research employs a Systematic Literature Review approach to conduct a thorough examination of factors that affect corporate decisions regarding carbon emission disclosure. Several literature reviews have been conducted by several researchers, such as (Latifah et al., 2018) reviewing the literature on *balanced scorecards*. (Farida et al., 2022) reviewed the management control system in markets in developing countries. The systematic nature of SLR requires a logical and well-planned structure, contributing to a comprehensive understanding of the development of knowledge through a review of the literature (*Doing Qualitative Research*, n.d.). In this case, this research was carried out with several criteria, as follows:

1. Articles published in English;
2. Articles are not limited by the publication period;
3. The article search was carried out using the keywords: "carbon emission disclosure"; or "carbon disclosure"; or "Emission Disclosure"
4. Articles are searched by limiting keywords: "*carbon emission disclosure*"; "*carbon disclosure*"; "*emission disclosure*"; "*Carbon Emission Disclosure*"; "*Disclosure*"; "*Carbon Emissions Disclosure*"; "*Carbon Emission Disclosures*"; "*Carbon Disclosure*"; "*GHG Emissions Disclosure*"; "*Carbon Disclosures*"; "*Greenhouse Gas Disclosure*"; "*Environmental Disclosure*"; "*Carbon Emission*"; "*Carbon Emissions*"; "*Greenhouse Gas*"; "*GHG Emissions*"; "*Carbon Performance*"; "*Greenhouse Gas Emissions*"; "*GHG Emission*"; "*GHG*"
5. Articles are limited to the subject areas of "*economics, econometrics and finance*" and "*business, management, and accounting*";
6. "Journal" type
7. Document type "*research articles*".

This study uses the Scopus database as its primary data source. The search process was carried out by generating 67 articles relevant to the keyword. To include precision, it is reviewed more deeply about the abstract, title, keywords, and research results to assess the suitability of the research topic. So, 31 articles were found that could be accessed.

### 2.1 Source Type

Table 1 shows 31 research articles on transparency in CO2 disclosure spread across 19 different academic journals. The International Journal of Energy Economics and Policy published 12 articles out of a total of 31 articles (38.7%). This shows the significant dominance, that the journal as the main platform for carbon transparency research, especially in the context of energy economics and policy. Furthermore, the Journal of Asian Finance, Economics and Business published 2 articles, followed by several journals that published 1 article each.

Then, journals that publish articles on carbon emission transparency cover various research focuses, namely environmental and financial; economics and finance; accounting; management and business; innovation; and business ethics. This shows that carbon transparency is not only a technical environmental issue, but also related to economic, financial, governance, business ethics, and innovation aspects.

Table 1: Classification of Articles by Journal

Journal	Number of Articles
Annals of Data Science	1
APTSI Transactions on Technopreneurship	1
Business Ethics, the Environment and Responsibility	1
Cogent Business and Management	1
Corporate Board: Role, Duties and Composition	1
Environment, Development and Sustainability	1
Environmental Economics	1
IBIMA Business Review	1
International Journal of Energy Economics and Policy	12
International Journal of Management and Sustainability	1
Journal of Asian Finance, Economics and Business	2
Journal of Business and Socio-economic Development	1
Journal of Cleaner Production	1
Journal of Contemporary Accounting and Economics	1
Journal of Environmental Management and Tourism	1
Journal of Open Innovation: Technology, Market, and Complexity	1
Journal of Risk and Financial Management	1
Qubahan Academic Journal	1
Uncertain Supply Chain Management	1
<b>TOTAL</b>	<b>31</b>

Source: Data processed 2025

### 3. Result and Discussion

#### 3.1 Year of Publication

Based on an analysis conducted in the literature, it was found that an article search yielded 31 articles related to carbon emission disclosure and accessible to researchers.

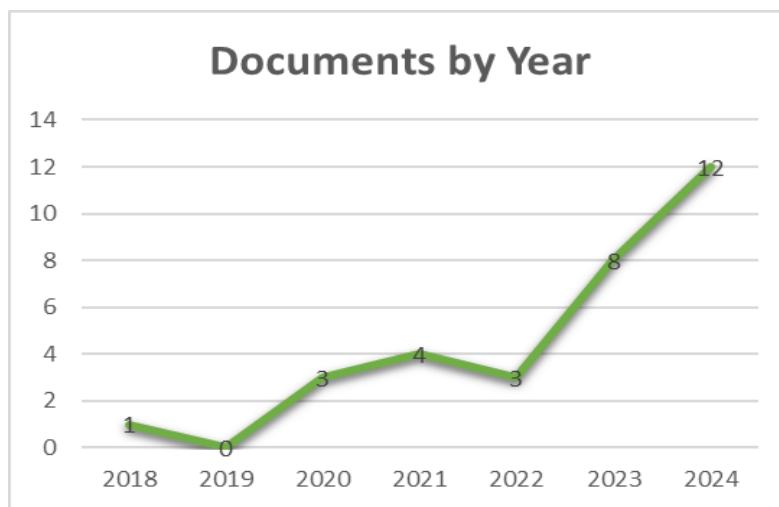


Figure 1: Document by Year

Source: Data processed 2025

Figure 1. shows publication trends starting from 2018-2024. The graph shows a steady rise in publication numbers during this timeframe. In 2018, publications started with 1 article, then decreased to 0 articles in 2019. Publications increased again by 3 articles in 2020 and 4 articles in 2021, before experiencing a temporary decrease to 3 articles in 2020. Significant improvements began to be seen in 2023 with 8 articles published, and reached a peak in 2024 with 12 articles.

### 3.2 Mapping Cause-Effect Determinants of Carbon Emission Disclosure

There are 31 articles that can be accessed and have a cause-and-effect relationship to carbon emission disclosure. This analysis is carried out by grouping previous research based on certain categories, such as research methods, independent variables used in previous research, and mapping these variables.

### 3.3 Research Methods

It begins with an analysis based on the research method used. On the table. 2 shows research methods that have a cause-and-effect relationship about determining factors in carbon emission disclosure. The most commonly used method is the quantitative method, which involves 30 articles that use secondary data sources sourced from annual reports, sustainability reports, and the websites of the companies studied. The data used based on the analysis is dominated by manufacturing companies (Kurnia et al., 2021; Maria Kristari & Yusram Teruna, 2023; Saraswati et al., 2021; Sari et al., 2024; Widianingsih & Kohardinata, 2024). Then, the research method based on qualitative & quantitative methods as many as 1 article (Fransisca et al., 2024), shows that the qualitative method is used to examine the characteristics of variables descriptively with the process of subjectively collecting data in print reports as additional and broader disclosures. Quantitative methods are used to analyze the relationship between variables and other variables.

Table 2: Research Method Based on 31 Articles

Research Methods	Number of Articles
Quantitative	30
Qualitative & Quantitative	1

Source: Data processed 2025

### 3.4 Variable

Furthermore, it analyzed based on independent variables used in previous studies with the following results:

Table 3: Independent Variables

Variable	Number of Variables
Firm Value (FV)	5
Eco Efficiency (EE)	1
Green Innovation (GI)	1
Financial Board Director (FBD)	1
Female Audit Committee (FAC)	1
Tobins Q (TQ)	3
ROE	3
Leverage (LEV)	9
Market Value (MV)	1
International Listing (IL)	1

State Ownership (SO)	1
Capital Intensity (CI)	1
Profitability (ROA)	11
Managerial Ownership (MO)	1
Environmental Committee (EC)	1
Independent Audit Committee (IAC)	1
Board Independence (BI)	5
Board Meeting (BM)	1
Board Diversity (BD)	5
Duality (DUAL)	1
Family Ownership (FAM)	1
Family-controlled Firms (BOARD)	1
Board meeting frequency (BOMT)	1
Female board (FEMA)	1
Environmental Performance (EP)	9
Liquidity (LIK)	1
Sales Growth (SG)	1
Sector Industry (SI)	1
Financial Performance (FP)	1
Governance Structure (GS)	2
Foreign Ownership (FO)	1
Institutional Ownership (IO)	3
Media Exposure (ME)	3
Foreign Ownerships (KA)	1

Table 3 Independent Variables

Variable	Number of Variables
Foreign Subsidiary (APA)	1
Return on Sales (ROS)	1
Earnings Management (EM)	1
Industrial Type (IT)	3
CEO Gender (CEG)	1
CEO Tenure (CET)	1
Technology for Disclosure (TFD)	1
Regulator (REG)	1
Age Company (AC)	1
Family Firm (FF)	1
Family Supervisory Board (FSB)	1
Family Executives (FE)	1
Strategy Management carbon (SMC)	1
Websites (WS)	1
Firm Size (FS)	5
Carbon Performance (CP)	1

Capital Expenditure (CE)	1
Market Value Added (MVA)	1
Board Size (BZ)	1
Level of Asymmetric Information in Company (LAC)	1
<b>Total of 31 Articles</b>	

*Source: Data processed 2025*

Based on table 3, the results show that the majority of previous studies related to the determinants of carbon emission disclosure are found in the profitability variable (ROA) (Abdullah et al., 2020; Dharma et al., 2024; Emmanuel et al., 2023; Double, 2018; Huang et al., 2023; Maria Kristari & Yusram Teruna, 2023; Rahmawati et al., 2024; Ratmono et al., 2021; Riantono & Sunarto, 2022; Safelia & Young, 2023; Saraswati et al., 2021; Ulupui et al., 2020; Wahyuningrum et al., 2024), leverage (LEV) (Abdullah et al., 2020; Fransisca et al., 2024; Huang et al., 2023; Rahmawati et al., 2024; Ratmono et al., 2021; Riantono & Sunarto, 2022; Safelia & Young, 2023; Ulupui et al., 2020; Wahyuningrum et al., 2024), and environmental performance (EP) ( Dharma et al., 2024; Hardiyansah et al., 2021; Huang et al., 2023; Rahmawati et al., 2024; Ratmono et al., 2021; Ulupui et al., 2020; Wahyuningrum et al., 2024) which are most widely used as independent variables in previous research. After that, it was followed by the variables firm value (FV), firm size (FS), and board diversity (BD) as variables that were also often used in previous research.

## 3.5 Mapping

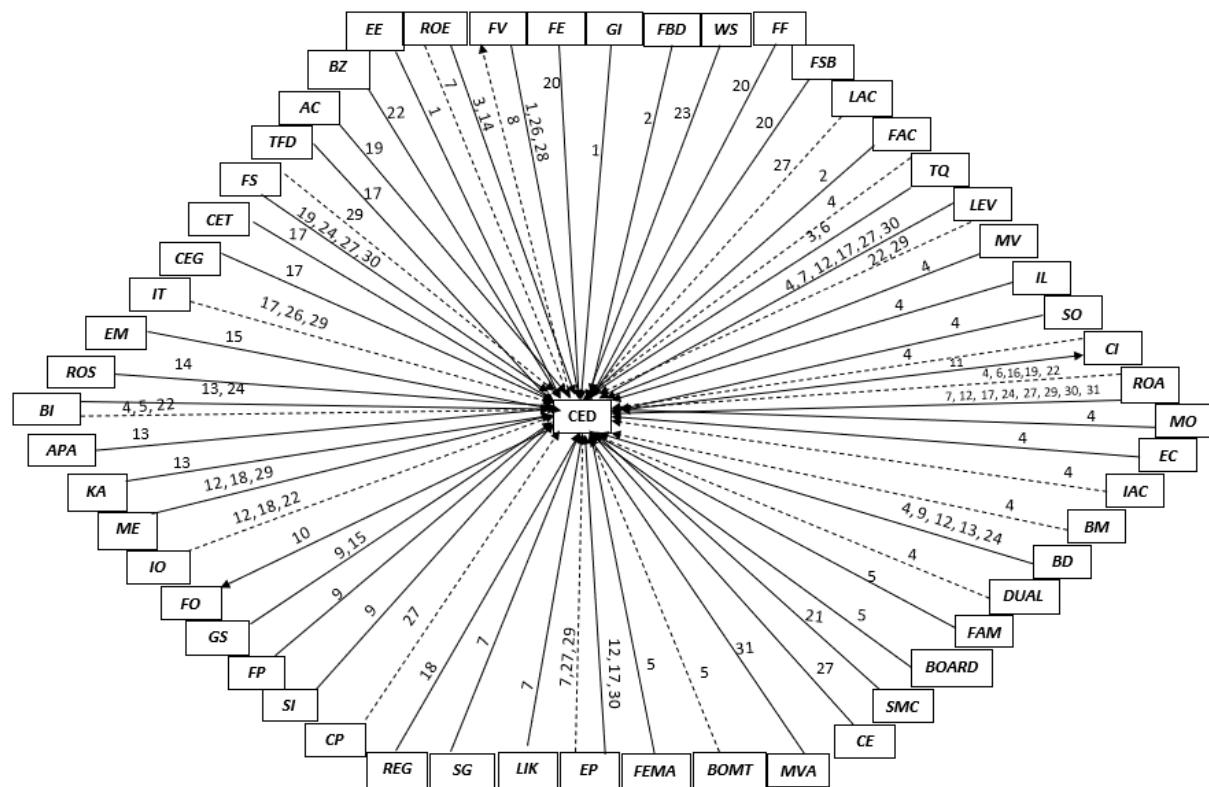


Figure 2: Mapping  
Source: Data processed 2025

Information:

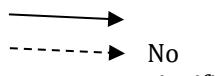


Table 4: Code Description on Mapping

Code	Author's Name & Year	The Result of Articles
1	(Sari et al., 2024)	The research findings demonstrate that eco-efficiency positively affects CED. Additionally, green innovation shows a substantial positive impact on CED. While CED does not serve as a mediating factor in the relationship between eco-efficiency and firm value, it does act as a mediator between green innovation and firm value.
2	(Saadah et al., 2024)	This study reveals that women in top management influence CED, through a perspective assessment of the board of directors and the audit committee
3	(Al-Mari & Mardini, 2024)	revealed that the FP market has a significant positive effect on CED

Table 4: Code Description on Mapping (continued)

Code	Author's Name & Year	The Result of Articles
4	(Fransisca et al., 2024)	The results indicated that the financial performance variables (LEV and MV), international listing, state ownership, committee, and boards of directors significantly impact CED in Indonesia.
5	(Susanto et al., 2024)	Family firms and larger boards tend to disclose more CE information. Board independence has no significant impact in disclosure, while frequent board meetings improve carbon performance. However, female board representation negatively affects CE performance.
6	(Dharma et al., 2024)	Profitability measured by ROA is not significant to CED, market value measured by Tobin's Q has a positive significant to CED. Also, the moderation of environmental performance measured by ROA on profitability and CED is not significant
7	(Rahmawati et al., 2024)	Liquidity, profitability, sales growth, and leverage have a direct influence on CED. Environmental performance does not affect CED
8	(Claudia, 2024)	Green accounting and CED had showed no significant relationship with firm value, while female board representation did. Women directors significantly moderated the relationship between green accounting practices, CED, and firm value.
9	(Yulianti & Waworuntu, 2024)	Finding that strong FP and GS are positively correlated with CED
10	(Widianingsih & Kohardinata, 2024)	CED has a significant positive influence on foreign ownership
11	(Emmanuel et al., 2023)	Environmental sustainability and ROA have a positive but not significant relationship.
12	(Wahyuningrum et al., 2024)	The study's results found that foreign BD, ROA, and ME significantly positively influence CED. LEV, on the other hand, has a negative effect, and IO has no significant effect on CED
13	(Park et al., 2023)	The results of the study found that corporate governance and compensation structures have a role in CE decisions.
14	Emmanuel Y.L. et al., (2024)	CED has a significant positive effect on ROE and ROS
15	(Abbas et al., 2023)	Profit management as a moderation between CG and CED
16	(Maria Kristari & Yusram Teruna, 2023)	CED is not significant to financial performance
17	(Huang et al., 2023)	Industry type and CEO tenure do not affect CED. But, LEV, ROA, EP, CEG and TFD hurt CED
18	(Widhiastuti & Safitri, 2023)	The study found that EP and ME had a positive influence on CED, and regulation had no effect on CED
19	(Safelia & Muda, 2023)	Firm size and leverage have a significant influence on CED in Indonesia & Malaysia. Meanwhile, the age of the company and profitability have no impact on CED

Table 4: Code Description of Mapping (continued)

Code	Author's Name & Year	The Result of Articles
20	(Pramono et al., 2023)	Family firm, family supervisory boards, and family executives have a significant influence on CED
21	(Linares-Rodríguez et al., 2022)	The study found that the implementation of carbon management strategies had a positive relationship with CED
22	(Riantono & Sunarto, 2022)	Firm size, leverage, profitability, board independence, and institutional ownership do not affect CED. But it has a positive effect on board size
23	(Purwanti et al., 2022)	CED has an impact on the web
24	Saraswati E. et al., (2021)	With the increase in the availability of financial resources and political visibility, board gender diversity, and board independence can affect CED
25	(Kurnia et al., 2021)	CED influences firm value

*Source: Data processed 2025*

Figure 3 shows the variables that affect the disclosure of carbon emissions. The images are compiled based on the literature conducted and analyzed (Farida et al., 2022). The variables used in this study are variables that affect or are influenced by the disclosure of CED. Then, several variables do not have a significant effect on carbon emission disclosure, such as ROE does not have a significant effect on carbon emission disclosure (Rahmawati et al., 2024), the level of asymmetry of company information does not affect CED (Ratmono et al., 2021), leverage does not have a significant effect on carbon emission disclosure (Riantono & Sunarto, 2022; Ulupui et al., 2020), capital intensity has no significant influence on carbon emission disclosure (Emmanuel et al., 2023), independent audit committee has no significant influence on CED (Fransisca et al., 2024), Independence board does not have a significant effect on CED (Fransisca et al., 2024), and others such as board meeting, duality (Fransisca et al., 2024), the independence of the supervisory board and the frequency of board meetings (Susanto et al., 2024), environmental performance (Rahmawati et al., 2024; Ratmono et al., 2021; Ulupui et al., 2020) carbon perfomance (Ratmono et al., 2021), institutional ownership (Rahmawati et al., 2024; Riantono & Sunarto, 2022; Wahyuningrum et al., 2024) industrial type (Hardiyansah et al., 2021; Huang et al., 2023; Ulupui et al., 2020) CEO gender (Huang et al., 2023), and firm size (Ulupui et al., 2020)(Ulupui et al., 2020).

In addition, based on the image above, several variables are also used as moderation variables, such as environmental performance (Dharma et al., 2024; Hardiyansah et al., 2021; Wahyuningrum et al., 2024; Widhiastuti & Safitri, 2023), green innovation (Sari et al., 2024), earning management (Abbas et al., 2023), institutional ownership (Widhiastuti & Safitri, 2023), industry type (Hardiyansah et al., 2021), financial performance (Ratmono et al., 2021), and media exposure (Abdullah, 2020).

## 5. Conclusion

Based on the criteria determined in the article search, this study obtained 31 articles related to the determinants of carbon emission disclosure. Based on research methods related to previous research, more from secondary data on manufacturing companies using quantitative research methods. Then, the research is based on independent variables used in earlier research, the majority of which are on variable profitability (ROA), leverage (LEV), and environmental performance (EP). This study has limitations, such as the database used is only sourced from Scopus, so the identified sample is limited. Thus, researchers can use a wider database to produce more comprehensive research. In addition, this study only uses a subject area limited to the field. Therefore, researchers are further advised to expand the scope of subject areas, for example by including fields such as "Environmental Science", "Social Sciences", and "Multidisciplinary", in order to obtain more comprehensive results.

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