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Unveiling the Moderating Power of Carbon Emission Disclosure in Ownership–Performance Dynamics

Candy^{1*}, Nathan Eugene Martono², Hery Haryanto³

Faculty of Business and Management, Universitas Internasional Batam, Indonesia

*Correspondence: E-mail: candy.chua@uib.ac.id

ABSTRACT	INFO ARTIKEL
<p>This study focuses on the impact of ownership structure on firm performance, highlighting carbon emission disclosure (CED) as a moderating element. Ownership structure is measured through blockholder, institutional, foreign, and state ownership, while return on assets and return on equity are utilized as indicators of firm performance. Using 525 firm-year observations from IDX-listed companies that disclose carbon emissions, the regression results reveal that foreign ownership positively influences firm performance, whereas institutional ownership exerts a negative effect. In contrast, blockholder and state ownership show no significant impact. Furthermore, CED neither directly affects performance nor moderates the ownership–performance relationship, suggesting that environmental considerations have yet to play a central role in corporate decision-making.</p> <p>© 2025 Kantor Jurnal dan Publikasi UPI</p>	<p>Article History: <i>Submitted/Received 20 Oct 2025</i> <i>First Revised 10 Nov 2025</i> <i>Accepted 17 Nov 2025</i> <i>First Available online 28 Nov 2025</i> <i>Publication Date 13 Dec 2025</i></p> <hr/> <p>Keywords: <i>Carbon Emission Disclosure, Financial Performance, Ownership Structure</i></p>

1. INTRODUCTION

Climate change, which continues to threaten the planet, has become a critical challenge that must be addressed to ensure the survival of humanity. One of its major contributors is the carbon emissions generated by companies through business activities. Carbon emission disclosure (CED) has emerged as an important tool for assessing and communicating environmental performance (Ghose *et al.*, 2023). The presence of CED can shape owners' and investors' perceptions of sustainability. Beyond fulfilling regulatory requirements, transparent CED may attract investors who prioritize environmentally responsible firms. This suggests that corporate financial success is not only determined by internal management practices but also by the degree of transparency regarding sustainability issues (Zhou *et al.*, 2024).

Prior research highlights the dynamic relationship between ownership structure and CED. Bedi & Singh (2024a) note that shareholders' views on disclosure can shift over time, depending on a firm's strategic orientation toward sustainability and risk management. Higher levels of disclosure can also enhance financial performance by attracting investors concerned with environmental issues, aligning with Ghose *et al.* (2023), who argue that CED increases firm value by appealing to socially responsible investors. Similarly, Yavuz *et al.* (2024) emphasize that environmental disclosure strengthens reputation, improves operational efficiency, thereby fostering stronger financial outcomes.

Itan *et al.* (2023) further highlight the strategic role of disclosure in promoting sustainability practices through effective corporate governance, which indirectly enhances financial outcomes. In this view, CED functions not only as a reporting mechanism but also as evidence of managerial commitment to socially responsible practices. Complementary findings from Iduwin *et al.* (2023) stress the importance of sustainable innovation — such as using plastic waste and recycled aggregates — as a tangible response to sustainability pressures. Companies that are transparent in disclosure tend to adopt such innovations, strengthening both their reputation and efficiency. Taken together, these studies suggest that CED can mediate the link between ownership structure and financial performance by reinforcing governance and encouraging sustainable operational strategies.

Ownership types may influence how CED affects financial outcomes. For instance, firms with foreign ownership (FO) may benefit from enhanced reputation and stronger access to global markets that increasingly reward environmental responsibility (Siddique *et al.*, 2024). In state-owned enterprises (SO), disclosure not only ensures regulatory compliance but also improves public perception and transparency, which can translate into financial benefits. Ghachem *et al.* (2022) demonstrate that ownership structure significantly influences carbon emissions: institutional ownership (IO) and FO promote emission reduction, whereas strategic owners such as family shareholders often increase emissions due to short-term profit orientation. Innovation can moderate these effects, either strengthening or weakening them depending on the ownership type. Consequently, understanding ownership dynamics becomes essential for promoting corporate sustainability through disclosure. In this context, CED assumes a potentially important moderating role, shaping the relationship between ownership and financial performance (Bedi & Singh, 2024a; Ghose *et al.*, 2023; Siddique *et al.*, 2024; Pinto-Gutiérrez, 2024).

Despite these insights, notable research gaps remain. Many prior studies have focused on limited contexts, such as heavy industries in China or the energy sector in Belt and Road Initiative countries, without exploring cross-sectoral or broader global perspectives (Xu *et al.*, 2025; Zhou *et*

al., 2024). Moreover, the differential impact of ownership types — such as blockholder ownership (BO), IO, FO, and SO — on the CED–performance relationship has received little attention (Ghachem *et al.*, 2022; Yuan *et al.*, 2021)). Yet, each ownership category has distinct governance mechanisms and attitudes toward disclosure. For example, FO and IO often emphasize transparency and accountability, whereas BO may directly influence sustainability-oriented strategies (Zhou *et al.*, 2024). The lack of nuanced understanding of these ownership-specific dynamics, especially in relation to financial measures such as ROA and ROE, underscores the need for further study.

Accordingly, this research investigates how ownership structure affects corporate financial performance, with CED serving as a mediating factor. Specifically, it examines whether the impact of disclosure on ROA and ROE differs across BO, IO, FO, and SO. This research extends the literature on sustainability and corporate governance by providing empirical evidence on ownership–disclosure–performance dynamics. Practically, the findings are expected to inform stakeholders — including investors and policymakers — about the importance of environmental transparency in sustainable investment decision-making. For companies, the results may serve as a reference for designing disclosure strategies that go beyond regulatory compliance to also enhance financial outcomes.

Signaling theory explains how information holders (signal senders) transmit credible signals to other parties (signal receivers) under conditions of information asymmetry. The goal is to reduce uncertainty and build trust by demonstrating the quality, intentions, or hidden characteristics of an entity (Bafera & Kleinert, 2023). In business and finance, signaling theory suggests that companies can send signals to investors, consumers, and other stakeholders to strengthen perceptions of credibility and long-term prospects (Bedi & Singh, 2024b). Such signals may take the form of financial reports, sustainability certifications, carbon emission disclosures, or other communication strategies that reflect responsible business practices.

According to Azeloglu and Iyengar (2015), these signals mitigate information asymmetry between management and investors, enhance transparency, and generate positive market perceptions that may increase firm value. Voluntary disclosure of sustainability information, such as carbon emissions, therefore functions as a strategic signal of management quality and commitment to environmental issues. Firms that engage in such disclosure are often perceived as more transparent, better at risk management, and more reliable in the eyes of investors, which can strengthen trust and improve valuation. Ultimately, delivering credible signals reduces information asymmetry, enhances corporate reputation, lowers capital costs, and creates competitive advantage — particularly in the sustainability context.

Under stockholder theory, a firm exists primarily to generate profits and thereby serve the interests of its shareholders (Al-Mari & Mardini, 2024). Within this perspective, management is responsible for advancing shareholder wealth, with limited consideration for social or environmental concerns unless these directly affect profitability. Consequently, sustainability and social responsibility are often treated as secondary priorities unless they contribute to long-term economic value. In contemporary contexts, however, increasing awareness of environmental and social concerns has encouraged many companies to adopt a more balanced approach. For example, practices such as Carbon Emission Disclosure (CED) and sustainable governance are increasingly viewed as mechanisms that enhance corporate value and attract socially responsible investors. By contrast, stakeholder theory underscores that achieving organizational success requires balancing the interests of all groups involved in or affected by corporate activities, beyond just shareholders (Mitchell *et al.*, 1997). From this standpoint, firms are expected to integrate

social and environmental considerations into strategy as part of their broader accountability. Accordingly, while stockholder theory underscores financial gain as the ultimate priority, evolving regulatory pressures, institutional ownership (IO), and shifting consumer preferences have pushed firms to embed sustainability into their business models—often without abandoning the central goal of shareholder wealth maximization.

Financial performance (FP) denotes the degree to which a company effectively and efficiently achieves its objectives. Indicators frequently used for its assessment comprise profitability, revenue growth, return on investment, and market value (Ozdemir & Kilincarslan, 2021; Desai et al., 2022). Among these, return on assets (ROA) and return on equity (ROE) are widely used as representative measures of FP.

Ownership structure characterizes the way in which a company's equity and property rights are divided among its shareholders. In this study, it is analyzed through four dimensions: blockholder ownership (shareholders holding 3% or more), institutional ownership (shares held by institutional investors), foreign ownership (shares held by foreign investors), and state ownership (shares held by the government). These ownership types influence corporate decision-making, particularly in relation to carbon information disclosure. For instance, institutional and foreign ownership are often associated with greater transparency and a stronger likelihood of disclosure, whereas blockholder ownership may limit disclosure to preserve control over strategic information (Bedi & Singh, 2024a).

Carbon emission disclosure (CED) refers to the reporting of greenhouse gas emissions, climate strategies, and environmental performance, aimed at enhancing transparency and reducing information asymmetry with stakeholders. According to Bedi and Singh (2024a), CED contributes to building organizational credibility and reputation by highlighting a company's commitment to environmental stewardship. Similarly, Pinto-Gutiérrez (2024) emphasizes that external pressures, stakeholder expectations, and corporate governance mechanisms encourage firms to disclose carbon emissions. Such practices help companies manage climate-related risks and align with broader societal demands for sustainability.

Blockholder ownership (BO) refers to the shareholding proportion held by individuals or entities with a substantial interest in a company. Such shareholders often possess the ability to influence or determine corporate policy, including decisions related to social and environmental responsibility (Pinto-Gutiérrez, 2024). As noted by Ozdemir and Kilincarslan (2021), BO generally includes shares owned by individuals, financial institutions, or other investors who hold a significant stake. This concentration of ownership can shape strategic and operational policies, as blockholders seek to maximize the value of their investments and exercise considerable influence over corporate decision-making.

The influence of BO on FP is often described as complex (Singhania & Bhan, 2024). In general, firms with higher proportions of institutional ownership tend to exhibit better financial performance. On the one hand, blockholders, due to their substantial shareholdings, have stronger incentives to monitor management and reduce agency costs. This monitoring role can encourage companies to adopt more transparent and efficient practices, which may enhance financial outcomes (Singhania & Bhan, 2024; Jibril, 2024). On the other hand, concentrated ownership also entails potential risks, such as conflicts of interest between majority and minority shareholders. Such conditions may drive decisions that emphasize short-term gains while undermining long-term sustainability and consistent performance (Issa & Hanaysha, 2024).

H₁: The presence of blockholders is positively associated with improved financial performance.

Institutional ownership (IO) has been widely recognized as an important factor influencing corporate financial performance (Singhania & Bhan, 2024). Institutional investors generally adopt a long-term perspective, which motivates management to strengthen governance practices, adopt responsible policies, and implement strategies that enhance corporate value and financial stability. Their presence also tends to lower capital costs, stabilize stock prices, and improve market reputation (Wu *et al.*, 2022; Jibril, 2024). By promoting transparency, accountability, and sustainable operations, IO shareholders encourage firms to achieve greater efficiency and profitability. However, excessive concentration of institutional ownership can also generate agency conflicts if dominant shareholders pursue self-interest at the expense of minority investors, potentially undermining governance and performance (Ozdemir & Kilincarslan, 2021).

H₂: The presence of institutional shareholders is linked to improved financial performance.

FO describes the proportion of ownership attributed to investors or entities based abroad relative to the firm's domestic market. FO is widely recognized as a key factor influencing financial performance, primarily through the transfer of knowledge, advanced management practices, and technology from foreign investors (Bedi & Singh, 2024a; Singhania & Bhan, 2024). Firms with higher FO often benefit from access to international markets, increased competitiveness, and improved operational efficiency, all of which can enhance profitability and financial stability. In addition, FO investors typically promote stronger corporate governance, greater transparency, and accountability, thereby strengthening reputation and reducing financial risk (Yakubu *et al.*, 2024). However, reliance on foreign investors may also expose companies to external pressures and strategic dependency. Despite these risks, the overall evidence suggests that FO positively contributes to firm performance by improving governance standards, market access, and long-term growth potential.

H₃: The presence of foreign shareholders is linked to improved financial performance.

SO refers to the proportion of shares held by the government or its agencies in a company, often associated with state-owned enterprises or firms where the state maintains significant control (Issa & Hanaysha, 2024; Singhania & Bhan, 2024). SO is typically linked to broader public or socio-economic objectives, which can influence corporate strategies and practices, including environmental disclosure.

The effect of SO on financial performance (FP) is multifaceted. On the positive side, state-owned firms often enjoy greater access to resources, preferential treatment, and government support, which can enhance stability and operational efficiency (Singhania & Bhan, 2024). However, SO may also introduce challenges such as bureaucratic procedures, slower decision-making, and weaker incentives for efficiency, potentially constraining firm performance (Issa & Hanaysha, 2024). Prior studies therefore suggest that the impact of SO on FP depends heavily on the institutional context and the governance mechanisms in place.

H₄: The presence of government ownership is linked to improved financial performance.

The relationship between BO and CED is dynamic, as shareholders' perspectives on sustainability evolve in response to environmental and market factors (Bedi & Singh, 2024b). BO reflects the strategic interests of influential shareholders, including their commitment to environmental risk management and sustainable practices. At the same time, CED can strengthen financial performance by attracting socially responsible investors, improving transparency, and enhancing corporate reputation (Ghose *et al.*, 2023). This interplay suggests a mutually reinforcing

relationship: while BO can motivate companies to pursue transparent and sustainable strategies, CED further enhances the positive effect of BO on firm performance by signaling efficiency and accountability to the market (Zhou *et al.*, 2024). Consequently, firms with active BO and robust CED practices are better positioned to achieve stronger financial outcomes.

H₅: Carbon emission disclosure serves as a moderating factor in the link between blockholder ownership and financial performance.

IO plays a significant role in encouraging firms to adopt stronger carbon emission disclosure (CED) practices, thereby enhancing transparency and accountability in environmental reporting (Bedi & Singh, 2024b). Since institutional investors generally favor companies that demonstrate sustainability and responsible governance, CED can amplify the positive effect of IO on financial performance (Oussii & Jeriji, 2024). Prior studies also show that the impact of IO on disclosure and performance depends on governance structures and environmental performance, suggesting that a robust governance framework strengthens this relationship (Jibril, 2024). Moreover, effective CED can improve corporate reputation, foster stakeholder trust, and generate long-term financial benefits (Bharali Saikia & Maji, 2024; Wu *et al.*, 2022). Taken together, these findings suggest that CED acts as a reinforcing factor, optimizing the positive influence of IO on financial outcomes.

H₆: Carbon emission disclosure serves as a moderating factor in the link between institutional ownership and financial performance.

Research shows that FO is positively associated with CED, as foreign investors often bring expertise and higher expectations regarding environmental transparency (Bedi & Singh, 2024a). Firms with stronger CED practices benefit from enhanced reputation, improved investor confidence, and better access to capital, all of which contribute to stronger financial outcomes (Bedi & Singh, 2024b).

At the same time, companies with higher carbon emissions tend to experience weaker financial performance due to the costs of emission reduction and reputational risks linked to environmental concerns (Desai *et al.*, 2022). Conversely, foreign-owned firms that adopt high-quality CED can offset these risks by building stakeholder trust and achieving greater operational efficiency, ultimately supporting higher ROA and ROE (Ghachem *et al.*, 2022). Taken together, these findings indicate that CED strengthens the positive effect of FO on financial performance by mitigating risks and amplifying the benefits of transparency and sustainability.

H₇: Carbon emission disclosure serves as a moderating factor in the link between foreign ownership and financial performance.

Research indicates that companies affiliated with business groups often exhibit higher carbon emissions than independent firms, largely due to resource-sharing practices and centralized decision-making that may neglect environmental considerations (Pinto-Gutiérrez, 2024). In contrast, state-owned firms (SO) generally benefit from privileged access to resources and government support, which can enhance operational efficiency (Singhania & Bhan, 2024). Transparency in carbon emission disclosure (CED) has been shown to attract investors who prioritize sustainability, thereby improving corporate financial performance (Bedi & Singh, 2024b). Specifically, high-quality and transparent CED can reinforce the positive role of SO in boosting financial outcomes such as ROA and ROE. This suggests that CED enables state-owned companies to leverage their institutional advantages while mitigating the reputational risks associated with environmental issues (Yuan *et al.*, 2021).

H₈: Carbon emission disclosure serves as a moderating factor in the link between state ownership and financial performance.

CED generally exerts a positive influence on financial performance (FP), particularly by strengthening corporate reputation and attracting sustainability-focused investors. Firms that are transparent in disclosing their carbon emissions are often perceived as more responsible, which builds market trust and ultimately enhances financial outcomes (Novia & Candy, 2023). The impact of CED can also be interpreted through signaling theory, as proactive disclosure of environmental risk management sends positive signals to investors regarding risk governance and long-term firm value (Ghose *et al.*, 2023). The strength of this relationship may depend on firm characteristics. Larger companies, with greater resources to manage emissions strategically, often realize stronger impacts of CED on FP (Bedi & Singh, 2024b). However, prior studies suggest that the financial benefits of CED typically materialize over the long term and require consistent sustainability integration rather than symbolic reporting (Novia & Candy, 2023). Empirical findings also highlight that CED supported by strong corporate governance enhances investor trust (Itan *et al.*, 2023), while specific practices such as using recycled materials, when disclosed, can reduce costs and improve corporate image (Iduwin *et al.*, 2023).

H₉: A higher level of carbon emission disclosure tends to enhance firm financial performance.

The conceptual framework of this study examines the role of ownership structure in shaping carbon emission disclosure (CED) and its subsequent impact on financial performance, measured by return on assets (ROA) and return on equity (ROE). Firms with greater institutional or foreign investor participation are expected to adopt higher levels of transparency to meet stakeholder and regulatory expectations, which may, in turn, enhance financial outcomes.

Furthermore, firm size and leverage are included as control variables, as both factors may affect the degree of disclosure and financial performance. The proposed relationships are summarized in Figure 1, which illustrates how ownership structure affects CED and, subsequently, financial performance, while accounting for firm size and leverage.

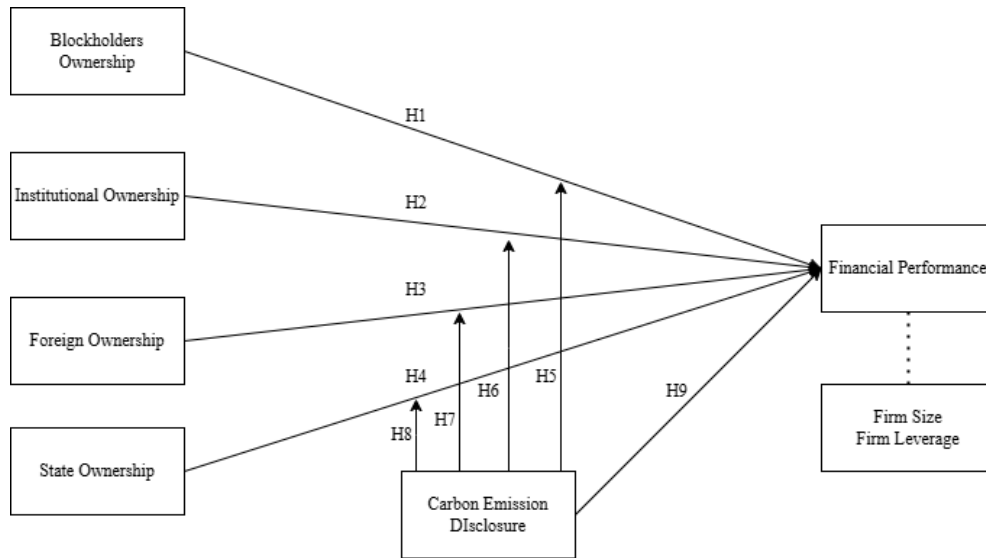


Figure 1. Conceptual Framework

2. METHODOLOGY

A quantitative approach was employed in this study, as it enables the objective testing of theories by examining the relationships between variables (Charli et al., 2022). The research investigates the influence of corporate ownership structure on financial performance, with Carbon Emission Disclosure (CED) serving as a moderating variable. The analysis is based on secondary data obtained from annual reports of IDX-listed companies covering the years 2018–2022. These reports provide information on ownership structure, financial performance indicators, and carbon emission disclosures.

Table 1. Variable Operational Definition

Variable	Definition	Measurement	Sources
Return on Assets (ROA)	ROA serves as an indicator of a firm’s effectiveness in turning total assets into profitability.	$ROA = \frac{\text{Net Profit}}{\text{Total Asset}}$	Yunus et al. (2020)
Return on Equity (ROE)	ROE measures how effectively shareholders’ equity is employed to produce net income.	$ROE = \frac{\text{Net Profit}}{\text{Owners Equity}}$	Al-Mari & Mardini (2024)
Blockholders' Ownership (BO)	Refers to a situation where an individual or institutional investor holds a large (typically 5% or more) block of a company’s shares, giving them significant power to influence corporate decisions and governance.	The proportion of ownership by shareholders of 3% or more	Bedi and Singh (2024a)

Institutional Ownership (IO)	Institutional ownership refers to company shares held by large financial institutions.	Percentages of shares held by institutional shareholders	Bedi and Singh (2024a)
Foreign Ownership (FO)	The shareholding in a company held by investors or entities based outside the home country.	Percentage of shares held by foreign investors	Bedi and Singh (2024a)
State Ownership (SO)	State ownership refers to company shares owned directly by the government, giving it formal control or significant influence over the firm's policies and operations.	Percentage of shares held by the government	Bedi and Singh (2024a)
Carbon Emission Disclosure (CED)	Carbon emission disclosure is when a company reports its greenhouse gas emissions and climate actions so stakeholders can see and assess its environmental impact.	Carbon Emission Disclosure score of a firm	Siddique <i>et al.</i> (2024)
Firm Size (SIZE)	Refers to how large a company is, often measured by total assets, revenue, or number of employees.	Total assets owned by the firm	Al-Mari and Mardini (2024)
Firm Leverage (LEV)	Refers to the extent a company uses debt to finance its assets, usually measured by the ratio of total debt to total assets.	$\frac{\text{Total debt}}{\text{Total equity}}$	Al-Mari and Mardini (2024)

The population of this study consists of all firms listed on the Indonesia Stock Exchange (IDX), as they represent publicly traded firms in Indonesia that are required to publish annual reports for transparency and investor accountability. Nevertheless, not all listed companies disclose carbon emission information in their reports. To ensure relevance to the research objectives, purposive sampling was applied. Samples are selected under this technique according to conditions tailored to the aims of the research. The criteria were: (1) companies that consistently published complete annual reports during the observation period (2018–2022), and (2) companies that disclosed carbon emission information in those reports. Applying these criteria resulted in a final sample of 107 companies. A detailed description of the sample distribution is presented in Table 2.

Table 2. Number of Research Samples

Criteria	Number of Observations
Company listed on the IDX	941 companies
Companies publishing carbon emission reports	105 companies
Number of samples over 5 years	525 sample

Source: Processed data (2025)

3. RESULT AND DISCUSSION

The study population consists of all companies listed on the Indonesia Stock Exchange (IDX). As of December 2, 2024, a total of 941 companies were registered on the IDX. However, only 105 companies disclosed carbon emission information in their reports. Using a purposive sampling method and applying specific inclusion criteria, the final sample was selected to cover the observation period from 2018 to 2022. Descriptive statistical analysis was employed to summarize the characteristics of the data, including maximum and minimum values, mean, and standard deviation for each variable under study. The detailed results of this analysis are presented in **Table 3**.

Table 3. Descriptive Statistics Results

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	525	-0.095	0.222	0.046	0.075
ROE	525	-0.259	0.590	0.085	0.178
BO	525	0.000	1.000	0.315	0.237
IO	525	0.000	0.962	0.455	0.330
FO	525	0.000	1.000	0.213	0.308
SO	525	0.000	0.800	0.017	0.095
CED	525	1.000	18.000	15.943	1.341
SIZE	525	2.5649	2.890	2.763	0.141
LEV	525	5.0683	6.228	5.752	0.369

Source: Processed data (2025)

In this study, the correlation test was employed to examine the associations between the independent variables—ownership structure (BO, IO, FO, SO)—and the control variables (SIZE and LEV), with corporate financial performance indicators, namely ROA and ROE. Ranging from -1 to $+1$, correlation coefficients reflect the nature of relationships: positive values indicate direct associations, while negative values indicate inverse associations. To determine whether the observed correlations are statistically valid, their significance is measured using p-values.

The results confirm that FO contributes positively and significantly to financial performance, measured in terms of ROA and ROE. However, FO does not exhibit a significant link with CED. These findings align with Issa (2024), who emphasizes that carbon emission reduction initiatives can contribute to improved financial performance. Thus, the strong contribution of FO to profitability is not necessarily accompanied by enhanced environmental transparency, unless it is supported by robust governance mechanisms and sustainability-oriented practices.

Table 4. Correlation Test Result

	ROA	ROE	BO	IO	FO	SO	CED	SIZE	LEV
ROA	1.000								
ROE	0.312*** (0.000)	1.000							
BO	-0.022 (0.610)	-0.057 (0.189)	1.000						

IO	-0.091** (0.038)	-0.059 (0.178)	-0.414*** (0.000)	1.000					
FO	0.140*** (0.001)	0.142*** (0.001)	-0.324*** (0.000)	-0.683*** (0.000)	1.000				
SO	-0.089** (0.041)	-0.118*** (0.007)	-0.012 (0.788)	-0.224*** (0.000)	-0.060 (0.167)	1.000			
CED	0.007 (0.881)	0.031 (0.480)	0.083* (0.057)	0.009 (0.844)	-0.040 (0.359)	-0.107** (0.014)	1.000		
SIZE	-0.027 (0.534)	0.038 (0.385)	0.058 (0.187)	0.007 (0.878)	-0.032 (0.461)	-0.063 (0.152)	0.870*** (0.000)	1.000	
LEV	-0.010 (0.825)	0.035 (0.423)	0.073* (0.094)	0.008 (0.856)	-0.038 (0.390)	-0.088** (0.043)	0.971*** (0.000)	0.963*** (0.000)	1.000

p-values in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

Source: Processed data (2025)

This study tested the hypotheses using two dependent variables, with four regression models constructed for each. The independent variable is ownership structure, while the dependent variables are financial performance indicators measured by ROA and ROE. CED was incorporated as the moderating variable, and firm size (SIZE) and leverage (LEV) were considered as control variables. The results of hypothesis testing on the influence of ownership structure on corporate financial performance are summarized in Tables 5 and 6.

Table 5. Regression Results of ROA

	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA	(7) ROA
BO	-0.007 (-0.51)	-0.023 (-1.51)	0.066* (1.80)	-2.979*** (-3.37)	-2.979*** (-3.37)	- (-3.38)	-2.982*** (-3.37)
IO		-0.028** (-2.53)	0.059* (1.72)	-2.977*** (-3.38)	-2.977*** (-3.38)	- (-3.39)	-2.980*** (-3.38)
FO			0.094*** (2.66)	-2.944*** (-3.34)	-2.944*** (-3.34)	- (-3.35)	-2.947*** (-3.34)
SO				-3.040*** (-3.45)	-3.040*** (-3.45)	- (-3.46)	-3.039*** (-3.44)
CE D					0.000 (0.05)	0.006 (1.30)	0.017 (0.08)
SIZ E						-0.068 (-1.47)	0.021 (0.01)
LEV							-0.070 (-0.05)
_co ns	0.049*** (8.90)	0.066*** (7.50)	-0.021 (-0.62)	3.018*** (3.43)	3.016*** (3.42)	3.109*** (3.52)	3.096*** (3.35)
r ²	0.000	0.013	0.026	0.048	0.048	0.052	0.052

r2_	-0.001	0.009	0.020	0.040	0.038	0.041	0.039
a							
N	525	525	525	525	525	525	525

t-statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

Source: Processed data (2025)

The study further tested ROE as a dependent variable in the regression analysis. Table 6 summarizes the results, showing the effect of ownership structure on ROE, after accounting for firm size and leverage.

Table 6. Regression Results of ROE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ROE	ROE	ROE	ROE	ROE	ROE	ROE
BO	-0.043 (-1.31)	-0.074** (-2.06)	0.181** (2.09)	-8.224*** (-3.97)	-8.228*** (-3.97)	-8.222*** (-3.97)	-8.155*** (-3.92)
IO		-0.054** (-2.08)	0.193** (2.39)	-8.186*** (-3.97)	-8.189*** (-3.96)	-8.184*** (-3.96)	-8.115*** (-3.91)
FO			0.268*** (3.23)	-8.117*** (-3.93)	-8.119*** (-3.93)	-8.114*** (-3.92)	-8.045*** (-3.88)
SO				-8.392*** (-4.06)	-8.389*** (-4.06)	-8.387*** (-4.05)	-8.313*** (-4.01)
CED					0.004 (0.62)	-0.003 (-0.25)	0.239 (0.48)
SIZE						0.070 (0.64)	2.084 (0.51)
LEV							-1.596 (-0.49)
_cons	0.098*** (7.61)	0.133*** (6.35)	-0.117 (-1.46)	8.271*** (4.00)	8.218*** (3.97)	8.122*** (3.91)	7.815*** (3.60)
r2	0.003	0.012	0.031	0.061	0.061	0.062	0.063
r2_a	0.001	0.008	0.025	0.053	0.052	0.051	0.050
N	525	525	525	525	525	525	525

t-statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

Source: Processed Data (2025)

Moderation analysis is employed to assess whether CED alters the magnitude or direction of the ownership structure and financial performance. In this study, moderation analysis tests whether the effect of ownership variables on ROA and ROE changes depending on the level of CED. The results of this analysis are presented in Table 7.

Table 7. Moderating Test Results (ROA as the Dependent Variable)

	(1)	(2)	(3)	(4)
	ROA	ROA	ROA	ROA
BO	0.118 (0.36)			
CED	-0.336 (-1.00)	-0.334 (-1.01)	-0.315 (-0.96)	-0.418 (-1.25)

c.BO#c.CED	-0.008 (-0.41)			
SIZE	-2.954 (-1.05)	-2.893 (-1.05)	-2.760 (-1.01)	-3.570 (-1.28)
LEV	2.281 (1.03)	2.237 (1.02)	2.138 (0.99)	2.783 (1.26)
IO		-0.098 (-0.46)		
c.IO#c.CED		0.004 (0.29)		
FO			0.254 (1.09)	
c.FO#c.CED			-0.012 (-0.85)	
SO				-0.672 (-1.06)
c.SO#c.CED				0.040 (0.94)
_cons	0.452 (1.30)	0.518 (1.44)	0.382 (1.09)	0.561 (1.60)
r2	0.005	0.013	0.027	0.009
r2_a	-0.004	0.004	0.017	-0.000
N	525	525	525	525

t-statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

Source: Processed data (2025)

Moderation analysis is applied to assess whether CED affects the relationship between ownership structure and firm performance, as measured by ROE. Specifically, it examines whether the effects of BO, IO, FO, and SO on ROE vary depending on the level of CED. The results, reported in Table 8, reveal whether CED significantly strengthens or weakens the ownership–performance relationship in terms of equity returns.

Table 8. Moderating Test Results (ROE as the Dependent Variable)

	(1) ROE	(2) ROE	(3) ROE	(4) ROE
BO	3.616** (2.36)			
CED	-1.654 (-1.07)	-1.079 (-0.70)	-1.256 (-0.83)	-1.489 (-0.95)
c.BO#c.CED	-0.227** (-2.40)			
SIZE	-14.521 (-1.12)	-9.414 (-0.74)	-10.406 (-0.82)	-12.335 (-0.95)
LEV	11.447 (1.11)	7.463 (0.74)	8.136 (0.81)	9.821 (0.95)
IO		1.414 (1.43)		
c.IO#c.CED		-0.099		

		(-1.61)		
FO			-2.825***	
			(-2.63)	
c.FO#c.CED			0.192***	
			(2.87)	
SO				-1.857
				(-0.63)
c.SO#c.CED				0.107
				(0.54)
_cons	0.760	0.457	2.035	1.442
	(0.47)	(0.27)	(1.25)	(0.89)
r2	0.013	0.017	0.037	0.004
r2_a	0.003	0.008	0.027	-0.005
N	525	525	525	525

t-statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

Source: Processed data (2025)

The regression results for ROA show that the BO variable does not significantly affect corporate profitability, leading to the rejection of Hypothesis H1. IO exhibits a significant negative effect on ROA at the 5% level (coefficient = -0.028; t = -2.53), indicating that higher IO is associated with lower profitability. Thus, Hypothesis H2 is also rejected, consistent with Puni and Anlesinya (2020), who emphasized that the effectiveness of IO depends on active oversight, which may not be fully optimized in the sampled companies. In contrast, FO demonstrates a positive and significant effect on ROA at the 1% level (coefficient = 0.094; t = 2.66), resulting in the acceptance of Hypothesis H3. This supports Pinto-Gutiérrez (2024), who found that FO improves governance and efficiency. Meanwhile, SO exerts a significant negative effect on ROA (coefficient = -3.040; t = -3.45), leading to the rejection of Hypothesis H4. This finding aligns with Bedi and Singh (2024a), who noted that political and social objectives often outweigh profit motives in SO-dominated firms. Finally, CED does not significantly affect ROA, as its coefficient is near zero, leading to the rejection of Hypothesis H9. This outcome is consistent with Ghose *et al.* (2023), who argued that sustainability initiatives like CED often yield long-term rather than immediate financial benefits.

The regression results for ROE reveal a similar pattern. BO remains insignificant and shows a negative coefficient in the final model, so H1 is rejected, consistent with Bedi and Singh (2024a), who found that concentrated ownership does not always create added value due to majority shareholder dominance. IO initially shows a negative and later a positive effect, but its inconsistency results in the rejection of H2, supporting Puni and Anlesinya (2020), who stressed that IO effectiveness depends on active institutional involvement. FO again exerts a positive and significant effect on ROE (coefficient = 0.268; t = 3.23), so H3 is accepted, reinforcing Pinto-Gutiérrez's (2024) conclusion that FO enhances governance, efficiency, and financial performance. Conversely, SO shows a significant negative effect on ROE (coefficient = -8.392; t = -4.06), resulting in the rejection of H4, in line with Bedi and Singh (2024a), who argued that government-linked ownership often prioritizes non-commercial goals.

The moderation analysis shows that all interaction terms between CED and ownership variables

(BO, IO, FO, and SO) are insignificant. The t-statistics of these interactions fall well below the significance threshold, leading to the rejection of Hypotheses H5–H8. This insignificance may be attributed to limited variation in CED practices across firms, or to the fact that disclosure does not yet exert enough influence to alter ownership–performance dynamics. This aligns with Ghose et al. (2023), who suggested that while CED may enhance long-term investor confidence, it does not necessarily translate into immediate profitability, particularly where sustainability integration is still limited.

In sum, out of the nine hypotheses tested, only H3 was accepted, showing that FO consistently enhances financial performance (both ROA and ROE). BO, IO, and SO do not exhibit a positive contribution to profitability, while CED is not shown to have either a direct impact or a moderating effect. These findings suggest that in the Indonesian context, FO plays a crucial role in strengthening corporate performance, whereas CED has not yet emerged as a key driver of profitability or stakeholder value.

4. CONCLUSION

The analyses provide evidence that only FO has a consistently positive and significant effect on corporate performance across both ROA and ROE measures. IO and SO have significant negative effects, while BO does not show a consistent influence and tends to become negative when other variables are controlled. CED has no significant effect on ROA or ROE and does not moderate the relationship between ownership structure and financial performance. Companies with high IO and SO should strengthen their oversight roles and improve efficiency to enhance financial outcomes. Firms are encouraged to take advantage of the positive impact of FO by maintaining a transparent and open investment climate. Although CED has no direct effect on financial performance, companies should continue improving disclosure quality as a long-term strategy to strengthen sustainability and investor confidence. Future studies are recommended to use longitudinal or sector-specific approaches to explore the long-term role of CED in influencing corporate value and performance.

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