

## CARBON EMISSION DISCLOSURE UNDER CEO POWER: THE CONTINGENT ROLE OF FIRM VALUE



<https://journal.unpas.ac.id/index.php/jrak/index>

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### Article Info

#### History of Article

Received: 25/10/2025

Revised: 9/2/2026

Accepted: 13/4/2026

Available Online: 27/4/2026


Jurnal Riset Akuntansi Kontemporer

Volume 18, No. 1, April 2026,

Page 156-174

ISSN 2088-5091 (Print)

ISSN 2597-6826 (Online)

 <https://doi.org/10.23969/jrak.v18i1.34908>

**Keywords:** carbon emission disclosure; CEO power; corporate governance; environmental transparency; firm value; sustainability reporting

### Abstract

Climate concerns have heightened the importance of transparent carbon disclosure; however, leadership power may hinder such practices. This study aims at examining the effect of CEO power on Carbon emission disclosure (CED), with firm value as a moderating variable, among 87 firms listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023, using panel regression and interaction models in Stata. The results indicate that CEO power significantly reduces CED, and firm value positively moderates this negative relationship. This suggests that in firms with higher market value, CEOs wield greater influence and face weaker monitoring pressures, thereby enabling them to limit disclosure. The findings support stakeholder and upper echelons' perspectives by highlighting the constraining role of powerful CEOs in corporate transparency efforts. Practically, the study underscores the importance of strengthening governance mechanisms in high-value firms to ensure that increasing market valuation does not amplify managerial discretion that weakens carbon disclosure.

## INTRODUCTION

In recent years, concerns about environmental sustainability have intensified, leading to greater regulatory and public pressure on companies to disclose their carbon emissions (Shao & He, 2022; Luo et al., 2012). Carbon emission disclosure (CED) has become a vital element of corporate transparency, as stakeholders, including investors, customers, and regulators, demand increased accountability in

environmental management (Abdullah et al., 2020). From a stakeholder theory perspective, such disclosure represents a firm's response to social legitimacy pressures, where transparency functions as a mechanism to preserve stakeholder trust and corporate reputation. However, firms do not respond uniformly to these expectations, indicating that internal governance dynamics, particularly leadership characteristics, may shape how organizations translate stakeholder pressure into disclosure practices (Ntim et al., 2017).

Data indicate that a substantial proportion of global CO<sub>2</sub> emissions originates from a relatively small group of major emitters. Between 2016 and 2022, 57 entities, including state-owned and investor-owned corporations, accounted for approximately 80% of fossil fuel- and cement-related CO<sub>2</sub> emissions worldwide (Union et al., 2022). Furthermore, in Indonesia, the Indonesia Carbon Exchange (IDXCarbon) recorded a total trading volume of CO<sub>2</sub>e amounted to 613,894 tons within one year of its launch on September 26, 2023, with transaction values reaching IDR 37.06 billion (Respati & Setiawan, 2024). These figures highlight the expansion of regulatory and market-based mechanisms for carbon reduction. However, voluntary disclosure practices remain uneven, suggesting that, beyond external regulations, internal power structures, particularly CEO influence, play a decisive role in determining whether environmental information is fully disclosed or strategically withheld. The financial impact of carbon disclosure is also increasingly relevant, as companies with strong reporting practices attract investment through ESG-based decision-making (Kurnia et al., 2021; Tang & Demeritt, 2018), while firms with high carbon footprints face reputational risks and potential penalties following the launch of IDXCarbon in 2023 (IDXCarbon, 2023).

The absence of standardized reporting frameworks creates significant challenges in CED. While initiatives such as the Global Reporting Initiative (GRI), the Task Force on Climate-related Financial Disclosures (TCFD), and the Sustainability Accounting Standards Board (SASB) provide guidelines, their voluntary nature in many regions has led to inconsistencies across firms and industries (Fleacă et al., 2023; Goswami et al., 2023). A 2022 CDP report found that nearly 60% of companies did not disclose supply chain emissions (Scope 3), even though these often constituted the largest share of their carbon footprint (CDP Worldwide, 2023). This selective disclosure behavior may reflect managerial discretion—a concept central to the Upper Echelons Theory, which proposed that the outcomes of an organisation are reflective of the values and authority held by the senior executives within that organization. In this study, CEO power is operationalized as ownership-based power, reflecting the extent of control a CEO holds through equity ownership, while recognizing that power may also stem from other dimensions, such as structural position, tenure, or expertise (Sheikh, 2019). Hence, CEO power becomes a critical determinant of whether firms embrace or resist environmental transparency (Aibar-Guzmán & Frías-Aceituno, 2021).

Despite increasing regulatory and stakeholder pressure for environmental transparency, firms exhibit substantial variation in CED. Preliminary research has yielded a paucity of conclusive evidence regarding the influence of CEO power on such disclosure decisions, resulting in findings that are either inconclusive or limited in their scope. Moreover, it remains unclear whether firm value strengthens external monitoring and transparency or instead amplifies managerial discretion, thereby allowing powerful CEOs to strategically limit disclosure. This unresolved issue regarding how CEO power and firm value interact to influence CED constitutes the core problem addressed in this study.

The carbon disclosure literature presents competing theoretical perspectives on the role of CEO power in shaping environmental transparency. Some scholars argue that powerful CEOs, with greater discretion over corporate policies, may champion sustainability efforts by prioritizing transparency in environmental issues (Pucheta-Martínez & Gallego-álvarez, 2021). Conversely, other studies have suggested that these CEOs may also prioritize financial performance, potentially limiting CED by withholding unfavorable information (Rashid et al., 2020). Building on these contrasting views, this study assumes that CEO power fundamentally shapes corporate environmental strategies. Depending on their strategic priorities and incentives, powerful CEOs may either reinforce or suppress CED (Shan et al., 2021; Frye & Pham, 2018; Li et al., 2018).

This issue has remained insufficiently resolved because existing studies have largely examined leadership authority in isolation, thereby overlooking the direct role of CEO power in shaping

environmental disclosure decisions (Lo & Shiah-Hou, 2022; Breit et al., 2019; DeBoskey et al., 2019; Tanikawa & Jung, 2019). However, the impact of CEO power may not be uniform across firms; it can depend on contextual factors, including, but not limited to, performance pressure and corporate visibility. In firms facing intense scrutiny from investors and the public, CEOs may adjust their disclosure strategies to balance transparency with reputational risk management.

The relationship between CEO power and CED is contingent on firm-level contextual factors, particularly firm value. Companies with higher market valuations are typically more visible to investors, experience stronger stakeholder monitoring, and face greater reputational stakes (Ferreira & Matos, 2007). Such conditions heighten the strategic importance of disclosure decisions, as powerful CEOs must consider the potential merits of transparency in relation to the possible responses of the market. Therefore, firm value provides a meaningful lens through which to examine how external expectations interact with internal power dynamics to shape disclosure outcomes (Arya & Ramanan, 2019).

To bridge this gap, this study develops a model that examines the impact of CEO power on CED, incorporating firm value as a moderating variable. By grounding the analysis in the Upper Echelons Theory, the study interprets CEO power as a micro-level determinant of disclosure behavior. At the same time, Stakeholder Theory provides the macro-level rationale explaining why such behavior matters for legitimacy and accountability. Since firms with higher market valuations are subject to stronger external scrutiny, this study investigates whether such pressures reinforce or weaken the influence of CEO power on CED.

Building on this theoretical framework, this study empirically examines the effect of CEO power on CED and assesses the moderating role of firm value in this relationship. Specifically, this study seeks to ascertain whether a stronger correlation exists between greater CEO power and reduced levels of carbon disclosure, and whether this negative relationship is amplified or diminished in firms with higher market valuations. By doing so, the research seeks to uncover how the interplay between executive authority and firm value shapes corporate transparency in environmental reporting. Grounded in Upper Echelons Theory and Stakeholder Theory, this study systematically tests whether firm value, as a proxy for market scrutiny and stakeholder pressure, influences the extent to which powerful CEOs disclose or withhold information related to carbon emissions.

CEO power can influence corporate decision-making in ways that either support or hinder CED. On the one hand, powerful CEOs may prioritize activities that are oriented towards the maximization of short-term financial gains, often at the expense of long-term sustainability initiatives, thereby reducing transparency in carbon reporting (Lina & Devyanti, 2024; Rashid et al., 2020). When entrenched in their positions, these CEOs may become so focused on their own objectives and concerns that the interests of the organisation become secondary, avoiding green investments and limiting CSR disclosures, including carbon emissions (Shan et al., 2021). As a result, CEO power has a significant negative impact on CED, as powerful CEOs may prioritize personal gains over transparency and corporate responsibility (Majid et al., 2023). On the other hand, CEO power can positively affect CED if it is leveraged to align corporate strategies with stakeholder expectations regarding ESG practices (Itan et al., 2023; Pucheta-Martínez & Gallego-álvarez, 2021; Li et al., 2018). However, considering the possibility of self-serving decisions, a dominant CEO may weaken the effectiveness of the board, which may lead to a reduction in CED (Muttakin et al., 2018). According to Upper Echelons Theory, CEO power reflects the discretion leaders hold, which is shaped by their values, experiences, and priorities. This discretion allows CEOs to influence environmental transparency either positively or negatively, depending on how they balance personal preferences with stakeholder demands (Abatecola & Cristofaro, 2020; Hambrick, 2007; Waldman et al., 2004).

The effect of CEO power on CED may be influenced by firm value as a corporate-level factor. The extent of a CEO's control over corporate decisions, known as CEO power, has been the subject of extensive research regarding its impact on corporate transparency and sustainability practices. Several studies have suggested that higher CEO power can lead to less transparent environmental reporting, as powerful CEOs may prioritize financial performance over sustainability initiatives (Majid et al., 2023; Shan et al., 2021; Rashid et al., 2020).

Higher firm value often attracts greater market scrutiny, which can pressure powerful CEOs to prioritize financial performance over sustainability efforts (Qureshi et al., 2020). While these firms have more resources to support environmental transparency, increased investor expectations may shift the CEO's attention toward maintaining profitability and short-term performance (Awuah et al., 2024; Rashid et al., 2020). As a result, powerful CEOs may deprioritize voluntary carbon disclosure to protect the firm's image or avoid revealing information that could raise concerns. From a Stakeholder Theory perspective, this reflects a misalignment between stakeholder expectations for greater transparency in high-value firms and the strategic choices of powerful CEOs (Krisiyadi et al., 2025; Mahajan et al., 2023; Rashid et al., 2020; Pesqueux & Damak-Ayadi, 2005).

Taken together, Stakeholder Theory underscores that powerful CEOs may prioritize financial performance and reputation management at the expense of stakeholder expectations for transparency, particularly in firms with high market valuation. In parallel, Upper Echelons Theory emphasizes that CEO discretion, shaped by individual values and strategic orientations, becomes more salient under such conditions. The integration of these perspectives provides a more rigorous theoretical justification for the proposed hypotheses by demonstrating that external stakeholder pressures and internal leadership characteristics interact to explain how CEO power can undermine CED, particularly in firms with higher market value. Therefore, this study aims to test whether the effect of CEO power on CED is moderated by firm value.

Based on the above discussion, the following hypotheses are proposed:

H<sub>1</sub>: CEO power has a significant negative impact on carbon emission disclosure.

H<sub>2</sub>: Firm value positively moderates the effect of CEO power and carbon emission disclosure.

In line with the hypotheses and the preceding discussion, the following conceptual framework illustrates the proposed research model.

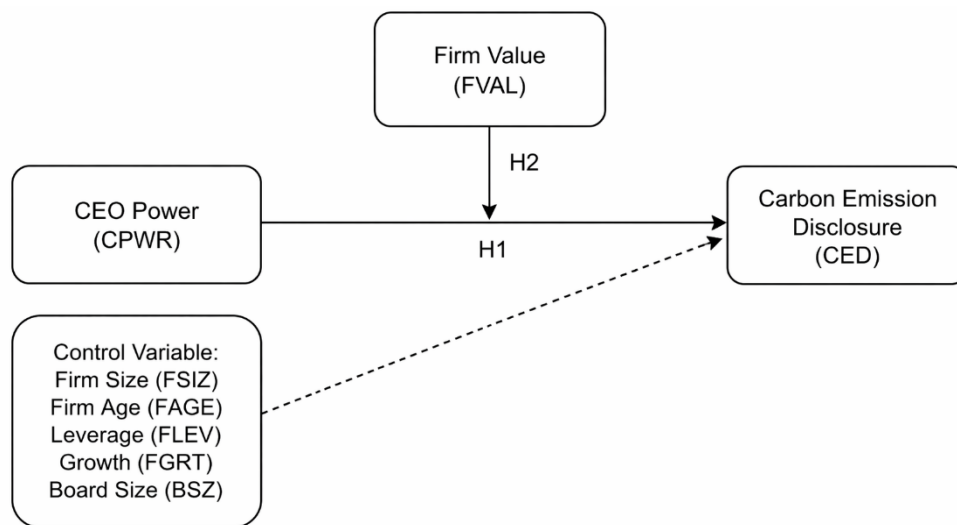


Figure 1. Conceptual Framework

This study makes several theoretical contributions. First, it deepens Stakeholder Theory by demonstrating that stakeholder expectations for transparency are not always fulfilled when CEO power suppresses disclosure decisions, suggesting that managerial dominance can weaken the link between external stakeholder pressure and actual corporate accountability practices. Second, it refines the Upper Echelons perspective by demonstrating that the effect of CEO power on disclosure is contingent on firm value: higher-valued firms face greater market scrutiny, which can either constrain or amplify the influence of powerful CEOs on disclosure behavior. By integrating these perspectives, the findings suggest that the interaction between leadership authority and firm value determines the extent to which firms respond to sustainability expectations, thereby linking micro-level executive characteristics with macro-level legitimacy outcomes.

From a literature standpoint, this research enriches the discourse on corporate governance and environmental transparency by addressing inconsistencies in previous findings. Notably, prior studies have not examined firm value as a moderating variable in the relationship between CEO power and CED, making this study a novel contribution. In practice, the insights from this study provide significant implications for regulators, investors, and corporate boards, underscoring the need to balance CEO authority with effective governance mechanisms to enhance CED. Ultimately, this research offers a more comprehensive understanding of the relationship between CEO power and corporate sustainability commitments.

### METHOD

This study explores the relationship between CEO power and CED, with the concept of firm value serving as a moderating variable. The sample is composed of 87 companies that are listed on the IDX from 2019 to 2023. The data were derived from their annual and sustainability reports, which are available on the IDX website. The selected companies are required to provide financial information and disclose sustainability activities to stakeholders. In this study, the data were analyzed using Stata to evaluate the influence of the independent variables on the dependent variable and to examine their moderating effects. Additionally, the analysis was executed by means of a panel regression model. The utilization of this approach facilitates a meticulous examination of dynamic interactions among variables, offering crucial insights into the complex effects of the independent, dependent, and moderating variables.

Table 1. Model Selection Tests for Panel Data Estimation

Model Comparison	Statistical Value	p-value	Decision	Preferred Model
<b>Chow Test</b>	F(86, 342) = 7.87	0.0000	Reject Pooled OLS	Fixed Effects
<b>LM Test</b>	chibar2(01) = 156.15	0.0000	Reject Pooled OLS	Panel Model
<b>Hausman Test</b>	$\chi^2(6) = 128.41$	0.0000	Reject Random Effect	Fixed Effects

Table 1 presents the results of the model selection diagnostics used to ensure the appropriate selection of the panel data estimator. The Chow test determined whether fixed effects were preferred to pooled OLS, and the result (F(86, 342) = 7.87, p = 0.0000) satisfied the p < 0.05 criterion, indicating that fixed effects were more appropriate. The LM test assessed whether panel estimation was superior to pooled OLS; the test statistic (chibar2(01) = 156.15, p = 0.0000) met the significance threshold, confirming the presence of panel effects. Finally, the Hausman test was ultimately employed to differentiate between fixed and random effects; a significant result at p < 0.05 indicated that the fixed-effects estimator was consistent. The obtained statistic ( $\chi^2(6) = 128.41$ , p = 0.0000) met this requirement, demonstrating that fixed effects were the consistent estimator. Collectively, all tests met their respective criteria and converged on the fixed-effects model as the most appropriate specification for this study. The regression equation model used for the analysis is as follows:

$$CED_{i,t} = \alpha_0 + \beta_1POWER_{i,t} + \beta_2SIZE_{i,t} + \beta_3AGE_{i,t} + \beta_4LEV_{i,t} + \beta_5GROWTH_{i,t} + \beta_6BSIZE_{i,t} + YEAR FIXED EFFECT + \epsilon_{i,t} \dots \dots \dots (1)$$

$$CED_{i,t} = \alpha_0 + \beta_1POWER_{i,t} + \beta_2TOBINQ_{i,t} + \beta_3POWERXTOBINQ_{i,t} + \beta_4SIZE_{i,t} + \beta_5AGE_{i,t} + \beta_6LEV_{i,t} + \beta_7GROWTH_{i,t} + \beta_8BSIZE_{i,t} + YEAR FIXED EFFECT + \epsilon_{i,t} \dots \dots \dots (2)$$

CED refers to the extent to which a company communicates information related to its carbon performance, including both historical outcomes and future projections, as well as broader climate-related aspects, to internal and external stakeholders (Velte et al., 2020). This form of disclosure plays a critical role in enhancing corporate transparency, as it enables stakeholders to assess the firm's environmental impact and its commitment to sustainability practices.

In measuring the level of disclosure, this study employs a dichotomous scoring approach, where each disclosed item is assigned a value of 1, while undisclosed items receive a score of 0. The overall disclosure index is calculated as the proportion of disclosed items relative to the total number of expected items. This ratio serves as an indicator of the completeness of reporting and reflects the firm’s accountability in communicating climate-related information (Yuliana & Wedari, 2023).

The disclosure items used in this study follow the Global Reporting Initiative (GRI) Standard 305, which includes indicators 305-1 to 305-7 covering Scope 1, Scope 2, and Scope 3 emissions, emission intensity, GHG reduction efforts, ozone-depleting substances, and other significant air emissions. Table 2 presents the list of CED items based on the GRI 305 indicators. Data collection began by identifying all firms that published sustainability or annual reports containing environmental information; each report was then systematically examined using a predefined checklist of GRI 305 indicators.

The writer primarily conducted the coding to maintain consistency across firms. To enhance transparency, the coding process followed a step-by-step protocol that included item identification, verification of disclosure wording, and documentation of evidence in a coding sheet. To ensure accuracy and reduce potential subjectivity, the coded results were cross-checked by another researcher with expertise in sustainability reporting. Any inconsistencies were discussed and resolved through consensus. Because the coding was chiefly executed by a solitary researcher and cross-checking served as a verification step rather than a parallel coding exercise, inter-coder reliability statistics were not calculated, consistent with prior studies that adopted a single-coder approach.

Table 2. List of Carbon Emission Disclosure (CED) Items Based on GRI 305

Indicator Code	Disclosure Item
<b>GRI 305-1</b>	Direct (Scope 1) GHG emissions.
<b>GRI 305-2</b>	Energy indirect (Scope 2) GHG emissions.
<b>GRI 305-3</b>	Other indirect (Scope 3) GHG emissions.
<b>GRI 305-4</b>	GHG emissions intensity.
<b>GRI 305-5</b>	Reduction of GHG emissions.
<b>GRI 305-6</b>	Emissions of ozone-depleting substances (ODS).
<b>GRI 305-7</b>	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions.

CEO power is an essential factor influencing leadership and corporate outcomes. CEO power is employed to denote the extent to which a CEO exerts influence over the company, measured by their ownership stake (Mousa et al., 2023). It is quantified as the percentage of company shares owned by the CEO (Malik et al., 2020). Although this measure is standard in prior studies, relying solely on ownership may not fully capture the multidimensional nature of CEO power. A multifaceted index combining ownership, structural, and expert power would provide a more comprehensive assessment of a CEO’s influence (Donkor et al., 2023; Sheikh, 2019).

Control variables include firm size, firm age, leverage, growth, and board size, which play essential roles in evaluating a company’s structure and financial health. Firm size refers to a company’s scale or capacity and is typically measured using the natural logarithm of total assets (Nguyen et al., 2023; Salehi et al., 2019). Firm age reflects the duration of a company’s existence and is calculated in years since the firm was incorporated (Ahmad et al., 2022; Salehi et al., 2019). Leverage indicates the extent of a firm’s financial obligations and is measured as the ratio of total debt to total assets (Nguyen et al., 2023; Kaur & Singh, 2018). Growth is assessed through the annual growth rate in sales compared to the previous year and is measured as the difference between current-year and prior-year sales divided by prior-year sales (Ahmad et al., 2022; Kaur & Singh, 2018). Lastly, board size represents the total number of executives on the board and is measured by the total number of board members per year (Mardini & Lahyani, 2021; Kaur & Singh, 2018). Table 3 summarizes the measurement of all variables used in this study.

Table 3. Summary of Study Variables Measurement

Variables		Measurement
Dependent Variable	Carbon Emission Disclosure	The index is computed as the fraction of disclosed items over the total expected disclosure items (Yuliana & Wedari, 2023).
Independent Variable	CEO Power	The extent of CEO ownership, expressed as the percentage of shares in the company held by the CEO (Malik et al., 2020).
Moderating Variable	Firm Value	(Market Value Shares + Total Debts) / Total Assets (Ahmad et al., 2022).
Control Variables	Firm Size	The logarithmic transformation of total assets using the natural log function (Nguyen et al., 2023).
	Firm Age	Current Year – Year of Founding (Ahmad et al., 2022).
	Leverage	Total Debts / Total Assets (Nguyen et al., 2023).
	Growth	This variable captures the change in sales over time by comparing current-year sales with those of the preceding year, expressed in relative terms (Ahmad et al., 2022).
	Board Size	In this study, board size refers to the number of board members present in the firm during each year of observation (Mardini & Lahyani, 2021).

While the panel regression model and inclusion of multiple control variables help mitigate omitted variable bias, this study is aware of the potential endogeneity concerns. One issue is the possibility of reverse causality, whereby firms with stronger CED practices may influence the degree of CEO power, rather than CEO power solely shaping disclosure. Similarly, firm value may simultaneously affect both disclosure and CEO power, thereby complicating causal inference. These concerns suggest that the observed relationships may, in part, capture associations rather than purely unidirectional effects. Although this study does not employ instrumental variable approaches due to data limitations, the use of robustness checks helps reduce certain endogeneity risks.

## RESULTS

Descriptive statistics are utilized to provide an overview of the key characteristics of the variables examined in this study (Saidu, 2019). As presented in Table 4, each variable is summarized using standard statistical measures, including the mean, standard deviation, as well as minimum and maximum values. These indicators not only describe the central tendency of the data but also reflect the extent of variability across observations. A relatively higher standard deviation suggests greater dispersion among the data points, whereas a lower value indicates a more concentrated distribution around the mean. Consequently, this analysis offers a clearer understanding of the overall data pattern and its distributional properties.

Table 4. Descriptive Summary of Research Variables

Variables	Sample Size	Mean	S. Dev.	Min	Max
CED	435	0.458	0.363	0.000	1.000
CPWR	435	0.005	0.021	0.000	0.152
FVAL	435	1.436	1.550	0.476	17.520
FSIZ	435	31.004	1.684	27.356	35.315
FAGE	435	47.814	23.128	4.000	128.000
FLEV	435	0.574	0.269	0.048	2.058
FGRT	435	0.102	0.435	-0.872	5.119
BSZ	435	11.989	4.502	5.000	31.000

As presented in Table 4, the CED variable records an average value of 0.458 (45.8%), suggesting that, on average, firms disclose less than half of the GRI 305 indicators. The observed min value of 0.000 and max value of 1.000 indicate a considerable range in disclosure practices, from firms that provide no carbon-related information to those that fully comply with the disclosure framework. The standard deviation of 0.363, which is relatively high compared to the mean, reflects a substantial dispersion in the data. This pattern implies that there is notable heterogeneity among firms in terms of their CED practices.

Furthermore, the CPWR variable has a mean of 0.005 (0.5%). This relatively small value reflects the limited scope of measurement of CEO power in this study, which is captured solely through ownership percentage, rather than implying that CEOs generally hold little influence within their firms. The minimum CPWR value of 0.000 indicates that some CEOs have no measurable ownership-based power, whereas the maximum value of 0.152 suggests that others hold relatively high ownership, up to 15.2%. Therefore, the variation in CPWR primarily represents differences in CEO ownership rather than overall leadership control. The standard deviation is 0.021, equivalent to 420% of the mean, indicating that the CPWR variable exhibits substantial variation.

FVAL has a mean value of 1.436 (143.6%), indicating that, on average, the market values the sampled companies above their book value. The minimum FVAL value of 0.476 shows that some companies are valued below their book value. In contrast, the maximum value of 17.520 indicates that some firms are valued at more than 17 times their book value, signaling strong market confidence. The standard deviation of 1.550, representing approximately 107.9% of the mean, further confirms a high degree of variability in firm value.

Table 5. Distribution of Firms Across Industry Sectors (SIC-Based)

Industry Code	Industry Classification	Number of Firms	Percentage (%)	Cumulative Percentage
1	Energy	80	18.39	18.39
2	Basic Materials	65	14.94	33.33
3	Industrials	25	5.75	39.08
4	Consumer Noncyclicals	45	10.34	49.43
5	Consumer Cyclical	15	3.45	52.87
6	Healthcare	30	6.90	59.77
7	Financials	95	21.84	81.61
8	Property and Real Estate	15	3.45	85.06
9	Infrastructure	55	12.64	97.70
10	Transportation & Logistics	10	2.30	100.00
		435	100.00	

Frequency tabulation is the process of arranging numerical data to produce a summary count (Cooksey, 2020). This summary facilitates the interpretation of various aspects of the dataset. As shown in Table 5, the financial sector accounts for 21.84% of the sample, whereas the transportation and logistics sector is underrepresented, comprising only 2.30% of the sample.

A Pearson correlation analysis quantifies the extent and direction of a linear relationship between a pair of variables. It indicates the strength and direction of the association between the variables.

Table 6. Pearson Correlation

	CED	CPWR	FVAL	FSIZ	FAGE	FLEV	FGRT	BSZ
CED	1.000							
CPWR	-0.080* (0.094)	1.000						
FVAL	0.002 (0.967)	-0.044 (0.357)	1.000					
FSIZ	0.243*** (0.000)	-0.223*** (0.000)	-0.158*** (0.001)	1.000				
FAGE	0.124*** (0.010)	-0.156*** (0.001)	0.165*** (0.001)	0.336*** (0.000)	1.000			
FLEV	-0.063 (0.190)	-0.142*** (0.003)	-0.015 (0.755)	0.418*** (0.000)	0.285*** (0.000)	1.000		
FGRT	0.042 (0.377)	0.062 (0.195)	-0.029 (0.549)	0.002 (0.969)	-0.133*** (0.006)	-0.076 (0.114)	1.000	
BSZ	0.221*** (0.000)	-0.166*** (0.001)	0.065 (0.177)	0.689*** (0.000)	0.352*** (0.000)	0.194*** (0.000)	-0.014 (0.764)	1.000

*p*-values in parentheses

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

According to Table 6, the correlation between CED and CPWR has a significance value of 0.094 and a coefficient of  $-0.080$ , indicating a negative yet weak association; greater CEO power is associated with lower levels of CED. The correlation between CED and FVAL, with a significance value of 0.967 and a coefficient of 0.002, indicates no meaningful relationship between the two variables.

For the control variables, the correlation between CED and FSIZ is significant ( $p$ -value = 0.000) with a coefficient of 0.243, indicating a positive but weak relationship. This suggests that larger firms tend to disclose more information about carbon emissions. Likewise, the correlation between CED and FAGE ( $p$  = 0.010; coefficient = 0.124) indicates that it is more likely that older firms will disclose their carbon emissions. In contrast, the correlation between CED and FLEV ( $p$  = 0.190; coefficient =  $-0.063$ ) and between CED and FGRT ( $p$  = 0.377; coefficient = 0.042) indicates no meaningful relationship. Lastly, the correlation between CED and BSZ ( $p$  = 0.000; coefficient = 0.221) indicates a positive but weak association, implying that information about carbon emissions is more likely to be disclosed by firms with larger boards.

Regression analysis is a widely utilized analytical technique in research. It facilitates the examination of relationships between dependent and independent variables. The dependent variable denotes the outcome of interest, whereas the independent variables are the factors used to explain or predict that outcome (Sarstedt & Mooi, 2018).

Table 7. Classical Assumption Test

Classical Assumption Test	Requirements	Notation	Result
Normality Test	Prob > 0.05		0.020
Autocorrelation Test	Statistic between -2 and 2		0.993
Multicollinearity Test	VIF < 10	CPWR	1.32
		FVAL	1.28
		FSIZ	3.18
		FAGE	1.43
		FLEV	1.65
		FGRT	1.18
		BSZ	2.23
Heteroscedasticity Test	Prob > 0.05		0.932

Table 7 presents the results of the classical assumption tests performed to assess the reliability of the regression model. The normality test reports a probability value of 0.020, which is below the 0.05 threshold. Although this indicates that the residuals deviate slightly from a perfectly normal distribution, the model's total of 435 observations minimizes this concern, as OLS estimators remain consistent in large samples. The autocorrelation test shows a statistic of 0.993, which falls within the acceptable range of  $-2$  to  $2$ , confirming the absence of autocorrelation. The multicollinearity test indicates that all Variance Inflation Factor (VIF) values lie between 1.18 and 3.18, well below the cutoff of 10, showing that multicollinearity is not present. Furthermore, the heteroscedasticity test yields a  $p$ -value of 0.932, exceeding the 0.05 threshold and indicating that the model does not exhibit heteroscedasticity. Overall, the results in Table 7 demonstrate that the regression model satisfies the required classical assumptions and is suitable for further analysis.

In Model 1 of Table 8, CEO power shows a significant negative effect on CED, with a coefficient of  $-0.015$ , a  $t$ -value of  $-3.62$ , and significance at the 1% level ( $p < 0.01$ ), indicating that H1 is supported. This finding is consistent with the conclusions previously drawn in related studies, which indicated that an increase in CEO power frequently results in decisions that favor the personal interests of the CEO rather than those that serve the interests of the firm or its stakeholders (Majid et al., 2023; Shan et al., 2021; Muttakin et al., 2018). Economically, the coefficient of  $-0.015$  implies that a one-unit increase in CEO power is associated with a 1.5% reduction in CED, suggesting a practically meaningful effect.

Furthermore, Model 2 in Table 8 shows that firm value significantly moderates the effect of CEO power on CED in a positive direction, with a coefficient of 0.004, a  $t$ -value of 2.13, and significance at the 5% level ( $p < 0.05$ ), supporting H2. The interaction plot indicates that in firms with higher firm value, the negative effect of CEO power on CED becomes stronger, suggesting that powerful CEOs of

firms with high market value are more inclined to impose limitations on disclosure. Although the magnitude of this moderating effect is modest (a 0.4% increase per unit of firm value), it underscores the practical importance of firm valuation in amplifying the adverse effect of CEO power on disclosure. This finding confirms that firm value intensifies the negative influence of CEO power on disclosure, consistent with the study's hypothesis.

Table 8. Regression Analysis

	(1) CED	(2) CED
CPWR	-0.015*** (-3.62)	-0.019*** (-3.83)
FSIZ	0.055*** (3.82)	0.054*** (3.60)
FAGE	0.001** (1.97)	0.001* (1.80)
FLEV	-0.177*** (-2.60)	-0.173** (-2.49)
FGRT	-0.005 (-0.20)	-0.006 (-0.26)
BSZ	0.008* (1.80)	0.009* (1.82)
FVAL		0.008 (0.78)
CPWRXFVAL		0.004** (2.13)
_cons	-1.447*** (-3.55)	-1.415*** (-3.39)
Industry FE	Yes	Yes
Year FE	Yes	Yes
F	17.801	16.164
r2_a	0.304	0.303
N	435	435

t statistics in parentheses

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

Among the control variables, FSIZ shows a positive and statistically significant effect on CED, with a coefficient of 0.054 and a t-value of 3.60, significant at the 1% level ( $p < 0.01$ ). Similarly, FAGE exhibits a positive and statistically significant effect on CED, with a coefficient of 0.001 and a t-value of 1.80, reaching significance at the 10% level ( $p < 0.1$ ). FLEV, in contrast, has a negative and statistically significant effect on CED, with a coefficient of  $-0.173$  and a t-value of  $-2.49$ , significant at the 5% level ( $p < 0.05$ ). BSZ also shows a positive and statistically significant impact on CED, with a coefficient of 0.009 and a t-value of 1.82, significant at the 10% level ( $p < 0.1$ ). In contrast, FGRT does not exhibit a substantial effect on CED.

In order to guarantee the robustness of the primary findings on the impact of CEO power on CED, this study employed Coarsened Exact Matching (CEM) as an additional analysis. CEM addresses potential selection bias by creating a more balanced sample based on key covariates, thereby enhancing the credibility of the estimated effects (Blackwell et al., 2009). A binary treatment variable was constructed to distinguish firms with low CEO power, taking the value of 1 when  $CPWR < 0$  and 0 otherwise. Matching was performed using firm characteristics that may jointly influence CEO power and CED, including FSIZ, FAGE, FLEV, FGRT, and BSZ, along with industry and year fixed effects. Continuous covariates were coarsened into three bins to reduce imbalance while retaining essential variation. Firms that were successfully matched were subsequently included in the regression models with robust standard errors. This procedure ensures that the robustness check relies on a more comparable sample, thereby strengthening the credibility of the estimated effects.

Table 9. Robustness Analysis

Matching Summary		
	CPWR = 0	CPWR = 1
All	249	186
Matched	241	183
Unmatched	8	3
	(1)	(2)
	<b>CED</b>	<b>CED</b>
CPWR	-0.013*** (-3.314)	-0.019*** (-3.674)
FSIZ	0.052*** (3.517)	0.050*** (3.285)
FAGE	0.001** (2.010)	0.001* (1.865)
FLEV	-0.156* (-1.906)	-0.151* (-1.830)
FGRT	0.040 (0.681)	0.037 (0.631)
BSZ	0.009** (2.034)	0.010** (2.078)
CPWRXFVAL		0.004** (2.305)
FVAL		0.007 (0.697)
_cons	-1.358*** (-3.311)	-1.315*** (-3.129)
Year FE	Yes	Yes
Industry FE	Yes	Yes
r2	0.331	0.334
r2_a	0.300	0.300
N	424	424

t statistics in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Based on Table 9, of the 249 companies with low CEO power, 241 were successfully matched with similar firms. Likewise, out of 186 companies with high CEO power, 183 were matched, indicating a well-balanced sample after the Coarsened Exact Matching (CEM) procedure. The findings of the regression analysis, employing a matched sample, demonstrate concordance with the primary analysis. The findings indicate that CEO power exerts a statistically significant negative influence on CED ( $\beta = -0.013$ ;  $t = -3.314$ ;  $p < 0.01$ ), implying that firms led by more powerful CEOs are less likely to engage in extensive environmental disclosure. Moreover, the effect of CEO power on CED is significantly conditioned by firm value. The interaction term between CEO power and firm value shows a positive coefficient of 0.004 and a t-value of 2.305 ( $p < 0.05$ ), indicating that the negative effect of CEO power on CED becomes stronger as firm value increases. These robustness results confirm the stability of the initial findings and highlight how firm value may intensify the adverse impact of CEO power on environmental disclosure.

An additional analysis was conducted to assess potential bias in the effect of CEO power on CED, moderated by firm value, by incorporating industry classification using Standard Industrial Classification (SIC) codes (Gartenberg et al., 2019). This approach examines whether the moderating effect of firm value on the relationship between CEO power and CED is consistent across industries or varies by sector. SIC classification captures structural, regulatory, and stakeholder differences that may influence managerial discretion and disclosure practices. By grouping firms according to SIC codes, the analysis provides a more detailed understanding of how industry context moderates the effect of CEO power on CED, with firm value as the moderating variable. For this analysis, the three industries with the largest number of observations were selected: SIC 1 (energy), SIC 2 (basic materials), and SIC 7 (financials).

Table 10. Additional Analysis

	(1) CED	(2) CED	(7) CED
CPWR	-0.027 (-0.558)	0.001 (0.056)	-0.111*** (-3.180)
CPWRXFVAL	0.012 (0.273)	0.018 (0.930)	0.095*** (3.060)
FVAL	0.107 (1.173)	0.042 (0.308)	0.304 (1.284)
FSIZ	0.080** (2.410)	0.066 (1.368)	0.078** (1.987)
FAGE	0.003* (1.932)	0.001 (0.411)	0.004** (2.629)
FLEV	-0.010 (-0.049)	0.329** (2.040)	0.250 (1.038)
FGRT	0.123 (1.057)	-0.038 (-0.741)	-0.027 (-1.018)
BSZ	0.031** (2.573)	0.021** (2.317)	0.003 (0.239)
_cons	-2.686*** (-2.945)	-2.176 (-1.544)	-3.156*** (-3.123)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
r2	0.486	0.551	0.503
r2_a	0.394	0.447	0.430
N	80	65	95

Table 10 presents the effect of CEO power on CED, moderated by firm value, across three industries. For SIC 1 (energy), CEO power has a coefficient of  $-0.027$  and a t-value of  $-0.558$  ( $p > 0.10$ ), indicating no statistically significant influence on CED. Firm value likewise shows no moderating effect, with a coefficient of  $0.012$  and a t-value of  $0.273$  ( $p > 0.10$ ). In SIC 2 (basic materials), CEO power exhibits a coefficient of  $-0.001$  and a t-value of  $0.056$  ( $p > 0.10$ ), while firm value as the moderator records a coefficient of  $0.018$  and a t-value of  $0.930$  ( $p > 0.10$ ); again, neither effect is significant. By contrast, in SIC 7 (financials), CEO power has a coefficient of  $-0.111$  and a t-value of  $-3.180$  ( $p < 0.01$ ), indicating a significant negative effect on CED. Firm value also shows a significant positive moderating effect (coefficient =  $0.095$ ,  $t = 3.060$ ,  $p < 0.01$ ), indicating that higher firm value amplifies the negative effect of CEO power on disclosure. This outcome aligns with Upper Echelons Theory, suggesting that the discretion of powerful CEOs continues to dominate strategic decisions even in firms with higher valuation. However, it contrasts with Stakeholder Theory, as firms with greater value despite heightened stakeholder visibility do not necessarily engage in more transparent carbon reporting when led by powerful executives.

## DISCUSSION

The findings indicate that CEO power exerts a considerable negative impact on CED. When CEOs possess greater autonomy, they gain broader control over corporate priorities and communication strategies. This control allows them to emphasize short-term financial achievements and suppress information that could expose operational weaknesses or environmental inefficiencies (Brahmana et al., 2021; Rashid et al., 2020). Such behavior frequently emanates from the aspiration to sustain a favorable market image and safeguard performance-based incentives. Weak governance structures further intensify this effect, as limited oversight enables CEOs to exercise discretion with minimal accountability, making it easier to downplay or postpone sustainability initiatives when financial outcomes are at stake.

Firm value significantly moderates the relationship between CEO power and CED in a positive direction, indicating that higher firm value intensifies the negative influence of CEO power on disclosure. This effect may result from increased investor pressure in high-value firms, prompting

powerful CEOs to prioritize short-term financial outcomes and limit transparency to protect the firm's reputation (Awuah et al., 2024; Qureshi et al., 2020; Rashid et al., 2020). This dynamic creates a paradox: instead of encouraging transparency, external pressure from investors can lead powerful CEOs to engage in strategic silence, using selective reporting to manage image rather than ensure accountability. The interaction between CEO power and firm value, therefore, reflects a convergence of executive discretion and market expectations, where performance preservation outweighs openness, ultimately reinforcing the tendency to restrict environmental transparency.

Beyond the underlying strategic mechanisms, the results can also be interpreted through alternative theoretical perspectives. From an agency perspective, when CEOs hold significant power, they may act in a manner that is self-serving by assigning a higher priority to short-term financial performance than to environmental disclosure, particularly when monitoring by boards or stakeholders is weak (Itan et al., 2024; Shan et al., 2021; Cherian et al., 2020). The theory of the firm further explains that disclosure decisions can be viewed as part of a cost–benefit calculation; powerful CEOs in high-value firms may limit CED if they perceive that the potential costs, such as reputational risks or revealing sensitive information to competitors, outweigh the benefits (Demsetz, 1988). Meanwhile, legitimacy theory emphasizes that firms disclose to maintain societal acceptance, but the results suggest that disclosure may instead be selectively managed (O'Donovan, 2002). In high-value firms, powerful CEOs may choose symbolic or minimal disclosure to preserve legitimacy while avoiding detailed transparency (Burhanuddin et al., 2025). Considering these perspectives enriches the theoretical interpretation by showing that the interaction between CEO power and firm value reflects not only managerial discretion but also agency conflicts, efficiency trade-offs, and legitimacy concerns.

However, the magnitude of this relationship differs across industries. In sectors that are characterized by a significant carbon intensity, such as energy and basic materials (SIC 1 and SIC 2), environmental reporting is largely compliance-oriented and heavily regulated, leaving limited room for CEOs to exercise discretion in shaping disclosure outcomes (Avram et al., 2018). As a result, the effect of CEO power and firm value on carbon transparency is muted, as disclosure practices are primarily dictated by external requirements rather than managerial discretion. By contrast, in the financial sector (SIC 7), where firms are less directly engaged in emissions-generating activities, carbon-related disclosures often reflect financed emissions or investment exposure rather than operational performance (Haslam et al., 2019). This relative flexibility allows top management greater control over reporting strategies, making CEO power a more salient factor in shaping disclosure decisions. These industry variations illustrate the boundary conditions of the theoretical model. While the mechanism of managerial discretion applies broadly, its influence is weaker in industries with strict reporting standards and stronger in those where disclosure remains more interpretive and voluntary.

Regarding the control variables, the findings suggest that larger firms are more inclined to disclose their carbon emissions due to greater public visibility, increased stakeholder pressure, and the availability of more resources to implement and report sustainability initiatives (Krisyadi et al., 2025; Tambunlertchai et al., 2013; González et al., 2008). In the Indonesian context, this pattern aligns with the OJK's growing regulatory push, as reflected in POJK No. 51/POJK.03/2017, which mandates that financial institutions and listed companies publish sustainability reports. Larger firms also face stronger media and investor scrutiny in the IDX market, making voluntary non-disclosure reputationally costly. Similarly, as firms age, they may become more transparent in their carbon emissions reporting. The positive effect of firm age suggests that older firms have accumulated institutional experience and are more accustomed to complying with emerging sustainability disclosure frameworks, particularly because long-established firms are typically under closer supervision by regulators and rating agencies (Fadilah et al., 2022).

In contrast, enterprises with elevated leverage levels demonstrate a propensity to accord precedence to the reimbursement of outstanding debt obligations and financial stability over transparency (Meiryani et al., 2023). This trade-off is particularly relevant in Indonesia's capital market, where companies rely heavily on bank-based financing and face creditor pressure to maintain consistent profitability rather than allocate resources to extensive voluntary reporting. Meanwhile, a larger board size enhances transparency by incorporating more diverse perspectives among commissioners and

directors, thereby encouraging stronger accountability toward stakeholders (Nasih et al., 2019). This result aligns with Indonesia's two-tier board system, in which the supervisory board plays a central role in overseeing disclosure quality and ensuring compliance with sustainability reporting standards issued by the OJK and IDX.

From a policy perspective, these findings highlight the need for Indonesian regulators, such as OJK and P2PK, to strengthen enforcement of sustainability reporting requirements, particularly under the framework of POJK No. 51/POJK.03/2017 on Sustainable Finance, which mandates that financial institutions, issuers, and public companies prepare sustainability reports (OJK, 2017). Policymakers could also implement capacity-building initiatives to assist firms with limited resources, introduce incentives such as eligibility for green financing programs under Indonesia's Sustainable Finance Roadmap, and enforce penalties for persistent non-compliance. Furthermore, IDX's efforts to encourage listed companies to publish sustainability reports could be complemented by standardized disclosure formats that integrate GRI 305 indicators, ensuring consistency and comparability across industries.

These findings contribute to the theoretical understanding of disclosure behavior by challenging the assumption that stakeholder or market pressure automatically enhances transparency. The evidence shows that when CEO power is high, these external pressures may instead trigger strategic suppression of disclosure, indicating that stakeholder influence can backfire under certain governance conditions. This insight refines Upper Echelons Theory by demonstrating that managerial discretion operates not only through internal decision-making preferences but also through market-driven image management. Furthermore, by showing how the moderating effect of firm value strengthens the negative link between CEO power and disclosure, the study extends existing theory to capture how short-term performance incentives interact with leadership discretion in shaping transparency outcomes. Finally, the industry-level results clarify the boundary conditions of these theories: CEO discretion is strongest where disclosure standards are voluntary and weakest where external regulation constrains managerial control.

## CONCLUSION

This study examines how CEO power influences CED and how firm value, measured by Tobin's Q, moderates this relationship. The results reveal that CEO power has a significant negative effect on CED, indicating that greater managerial authority reduces transparency in environmental reporting. This suggests that powerful CEOs prioritize financial outcomes and strategic control over open sustainability communication. Interestingly, the moderating role of firm value reveals a paradox: rather than promoting transparency, higher market valuation intensifies the tendency of powerful CEOs to withhold environmental information. This finding highlights a leadership dilemma, where the same market confidence that signals success also increases pressure to maintain a flawless financial image, often at the expense of genuine sustainability disclosure. Together, the findings of this study highlight the intricate nature of the interplay between leadership power, market performance, and corporate environmental responsibility.

Theoretically, these findings deepen the understanding of corporate environmental disclosure by advancing both Stakeholder Theory and Upper Echelons Theory. From the stakeholder perspective, the results challenge the assumption that greater stakeholder or market pressure necessarily promotes transparency. Instead, they show that when CEOs hold significant power, such external pressures may lead to strategic or symbolic disclosure aimed at maintaining legitimacy rather than ensuring genuine accountability. From the perspective of the upper echelons, the findings refine the theory by illustrating that CEO discretion does not operate in isolation. Leadership behavior toward sustainability disclosure is dynamically influenced by market performance signals such as firm value that shape managerial priorities and perceptions of risk. Together, these insights extend the two theoretical perspectives by emphasizing that disclosure outcomes reflect the interaction between external stakeholder expectations and the internal exercise of executive power.

The findings provide significant insights for regulators, investors, and corporate boards seeking to enhance environmental transparency in Indonesia. Regulators, such as OJK and IDX, should intensify

enforcement of sustainability reporting standards under POJK No. 51/POJK.03/2017 and promote consistency across industries by providing clearer guidelines and standardized GRI 305-based disclosure formats. Regular audits or public scoring systems could further hold companies accountable and reduce opportunities for selective reporting by powerful executives. For corporate boards, improving governance quality through stronger oversight and independent sustainability committees can limit excessive CEO discretion and encourage balanced disclosure decisions. Aligning CEO incentives with long-term sustainability targets—rather than short-term financial metrics—would help ensure that leadership power is directed toward responsible transparency. Investors, meanwhile, should integrate carbon disclosure performance into their valuation and risk assessment frameworks to incentivize more comprehensive reporting. Collectively, these measures can help shift the market from compliance-driven sustainability reporting toward a culture of genuine accountability and long-term value creation.

While this study provides a valuable set of insights into the effects of CEO power and firm value on CED, several limitations should be acknowledged. Firstly, the assessment of CEO power is predominantly determined by share ownership, a metric that may not fully encapsulate the multidimensional nature of the entity's influence, including structural and expert power. In future research, this limitation could be addressed by employing more comprehensive measures, such as composite indices of CEO power. Second, as the analysis is confined to the Indonesian regulatory and institutional context, the findings may not be readily generalizable to countries with different governance environments, highlighting the need for cross-country comparative studies. Third, this study focuses exclusively on CEO power, excluding other executive characteristics such as age, tenure, gender, or educational background, that may also influence disclosure decisions. Future studies could incorporate these attributes to develop a more complete understanding of leadership effects. Fourth, potential endogeneity concerns, including reverse causality and omitted variable bias, cannot be entirely ruled out. Future research is encouraged to address these issues using more robust econometric techniques, such as Two-Stage Least Squares (2SLS) with appropriate instrumental variables, or alternative research designs. Overall, these limitations highlight avenues for further theoretical and empirical refinement in examining managerial influence on environmental disclosure.

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