

The Influence of Green CEO and Family CEO on Water Disclosure in Indonesia

Ivone Ivone^{1*}, Susanti Susanti², Sukiantono Tang³, Santi Yopie⁴

Universitas Internasional Batam, Kepulauan Riau, Indonesia^{1,2,3,4}

ivone.chen@uib.ac.id^{1*}, 2242043.susanti@uib.edu², sukiantono.tang@uib.ac.id³, santi.yopie@uib.ac.id⁴



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Abstract

Purpose: Water disclosure in Indonesia has become an important mitigation key for building public trust in anticipatory responses to conflicts related to natural resource scarcity issues. In this case, corporate transparency through water disclosure has become an urgent issue. Therefore, this study aims to analyze the influence of green and family CEO on water resource disclosure related to environmental responsibility. This study was conducted to show transparency and accountability to the public regarding the company's commitment to water disclosure.

Research Methodology: Approximately 350 data samples were collected from the Indonesia Stock Exchange (IDX) website after data processing for the period 2021 to 2023. The data were obtained from financial and sustainability reports of various companies and analyzed using descriptive statistical tests, Pearson correlation, and regression analysis.

Results: Green CEOs positively influence water resource disclosure, whereas family CEOs have a more dynamic influence. On the one hand, they prioritize data confidentiality, which can limit transparency if considered a threat. However, they are considered a driving force in the disclosure of water-related information.

Conclusions: CEO characteristics are a factor in determining crucial water disclosure strategies. Corporate leadership plays an important role in determining transparency. Green CEOs tend to encourage accountability, whereas family CEOs exert a dynamic influence on water disclosure within companies.

Limitations: The research period was limited, and the sample was only from Indonesia. Furthermore, the processed data relied on company reports and were subjective, making independent confirmation impossible.

Contributions: This study helps in understanding the various characteristics and behaviors of leadership in implementing information-disclosure strategies related to water resources.

Keywords: *Family CEO, Green CEO, Water Disclosure*

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1. Introduction

Water scarcity has become a pressing global challenge due to climate change, threatening the security of water availability for companies and communities (WEF, 2024). Amidst the growing awareness of this crisis, transparency in water management has become a crucial issue. Water disclosure has emerged as a crucial practice that not only impacts a company's sustainability but also demonstrates its commitment to responsible resource management (Zhang, Tang, & Huang, 2021). This study positions water disclosure as a dependent variable. Furthermore, previous studies indicate that the primary

motivation behind this practice, or the independent variable driving it, is companies' anticipation of potential future government regulations ([Liu, Su, & Zhang, 2021](#)).

Companies that are more focused on the shareholder perspective tend to disclose more information related to water ([Wicaksono, Setiawan, Anni Aryani, & Hartoko, 2024](#)). This is because shareholders are interested in the sustainability of the company, which is reflected in management's attention to social and environmental responsibilities to mitigate various risks, such as public demands due to the operational impact of the business ([Adhariani, 2021](#)). In addition to shareholder orientation factors, the characteristics of individual leaders play an important role. A combination of ethical leadership style in a CEO can reflect the company's commitment to improving environmental performance ([Ren, Tang, & Jackson, 2020](#)). In this context, the CEO plays a key role in promoting good resource management practices, including transparency through the disclosure of water-related information. Based on these two driving factors, shareholder pressure and ethical CEO leadership, this study aims to examine their influence on water disclosure practices in Indonesia ([Hasibuan & Ismail, 2024](#)).

Leadership diversity, particularly the role of female CEOs, is an important factor in promoting corporate environmental transparency. Research shows that female CEOs tend to make more positive and intensive contributions to addressing environmental risks, including promoting environmentally friendly innovation and strengthening corporate sustainability ([C. J. Huang, Wan Ahmad, & Saad, 2024](#)). The presence of female CEOs has also been shown to moderate the negative impact of financial pressure on environmental initiatives by prioritizing sustainability goals over short-term profits ([Gu, Zhang, Sha, & Wang, 2023](#)). In other words, female leadership not only promotes better environmental performance but also directly improves corporate transparency through more extensive disclosure of water use.

Previous studies have confirmed that an increase in the proportion of female directors contributes positively to corporate concern for environmental issues ([Liu, Su, & Zhang, 2022](#)). In this context, gender diversity on boards of directors is not only a matter of equality but also a sustainable business strategy that encourages more responsible environmental performance. More specifically, the presence of a large number of female directors has been shown to positively impact the quality and credibility of water disclosure in companies ([Dewi & Ludya, 2024](#)). However, the effectiveness of female directors does not exist in isolation. Research shows that their influence on sustainability practices becomes relatively less significant when the company is led by a CEO who is committed to environmental friendliness ([Karina, Mardianto, & Wahyuni, 2023](#)). In other words, pro-environmental CEO leadership can act as a dominant reinforcing factor, making the role of female directors in promoting water transparency more secondary and complementary.

A CEO's characteristics play a crucial role in determining the direction of company policy, particularly regarding environmental reporting ([Dennis & Suhendah, 2024](#)). Furthermore, a company's sustainability performance is also influenced by the role of its CEO ([Ramadana, Phang, & Karina, 2025](#)). The implementation of green strategies by companies helps drive improved financial performance while strengthening their sustainability efforts ([Sukiranto, Suhariyanto, & Sumaryo, 2025](#)). Disclosure of a company's sustainability performance, including environmental aspects such as water disclosure, contributes to increased transparency and improved corporate performance ([Azzahra, Damayanti, & Dewi, 2025](#)). Thus, environmental disclosure and green investments are key components of a company's environmental transparency that can impact its financial performance ([Palupi & Nariman, 2025](#)).

The importance of environmentally oriented knowledge can play a positive role in corporate sustainability ([Liu et al. \(2021\)](#)), increasing resource efficiency and reducing negative environmental impacts. In this case, a green CEO can be defined as a company leader who pays more attention to environmental sustainability, whereas a family CEO tends to focus more on the view as a founder, heir, or having share ownership in a company. With good corporate governance, improving water disclosure in companies will be more controlled ([Itan, Laudeciska, Karjantoro, & Chen, 2023](#)). In companies led by an environmentally friendly CEO, governance helps accelerate the water disclosure mechanism,

while in companies led by a CEO with family ties, governance helps harmonize the dominance of the owners. [Meier and Schier \(2020\)](#) revealed that a CEO is the main actor in implementing business strategy, including his commitment to the company's environment. [Putra, Mela, and Putra \(2022\)](#) Green CEOs possess more specialized knowledge regarding their environmental responsibility. This study provides several contributions, including empirical evidence of water disclosure by various companies in Indonesia.

Previous studies have examined the relationship between ownership type and water disclosure. This study examines the impact of green and family CEOs on water disclosure and can be used as an insight to raise awareness of water disclosure in Indonesia. Therefore, this study aims to analyze the influence of leadership, specifically family ownership and green leadership, on the level of water disclosure in various companies listed on the Indonesia Stock Exchange (IDX). Previous research has focused on general environmental disclosure rather than more specific aspects ([CDP, 2020](#)).

The disclosure of sensitive environmental aspects due to water scarcity will be tested and revealed in this study by combining two dependent variables of CEO types with different characteristics namely green CEOs who tend to be more environmentally oriented than family CEO who may pay more attention to family interests. Water disclosure is an independent variable by connecting the big4 variables, independent commissioner, leverage, profitability (ROA), firm size, and firm aa control variables of this study, so that this study can increase awareness regarding the importance of water disclosure for companies.

2. Literature Review and Hypothesis Development

2.1. Stakeholder Theory

According to stakeholder theory ([Jones, Wicks, and Freeman \(2008\)](#)), companies are not only responsible to their stakeholders but also to all parties that influence and are affected by the company's achievements. These stakeholders include employees, customers, the community, the government, and the environment. Stakeholder theory states that the responsibility of a company must be fulfilled to shareholders and all parties involved in the achievement of a company ([Freeman, Harrison, Wicks, Parmar, & Colle, 2010](#)). Within this framework, corporate activities and water disclosure are viewed as part of fulfilling responsibilities and accountability to all stakeholders, especially those affected by water-related policies and operations in the company. One effective strategy for maintaining good relationships with stakeholders is for companies to present clear and comprehensive information through sustainability reports ([Hörisch, Schaltegger, & Freeman, 2020](#)).

This theory emphasizes that transparency is necessary for managing the relationships and expectations of various interested parties. However, the effectiveness of its implementation depends on how the perspectives of stakeholders are internalized and prioritized by interested parties within the company. In particular, how the company responds to pressure from stakeholders to remain open in disclosing environmental transparency related to water. This indirectly influences the cognitive orientation of decision-makers. A CEO who is highly committed to sustainability will respond to stakeholder demands regarding water as a priority and strategic issue, making its implementation more feasible ([Borghesi, Houston, & Naranjo, 2014](#)). A CEO's green orientation is often a strategic move in response to pressure from various stakeholders ([Qalati, Siddiqui, & Wu, 2024](#)). The findings underscore the significance of the green CEO's role in coordinating more sustainable environmental goals with the company's core strategy. In this regard, a CEO's role extends internally and externally, interacting directly with stakeholders, particularly those concerned with the environment ([Chiu, Hoskisson, Kong, Li, & Shao, 2023](#)).

Independent commissioners act as representatives of broader external stakeholder interests on the board. They provide oversight and balance to ensure that stakeholder demands are adequately met while promoting more credible and intensive disclosure policies as part of optimal corporate governance. Thus, although stakeholder theory assesses water disclosure as a means of fulfilling responsibility towards public perception, a more comprehensive explanation is obtained when individual executive-level factors and board structure are evaluated. The combination of internal leadership motivations for

environmentally friendly CEOs and board oversight mechanisms shapes how the process of this theory becomes concrete action. Based on this, we hypothesize that Green CEOs have a significant positive effect on water disclosure.

2.2. Stewardship Theory

The stewardship theory is a theory that explains situations where actions are taken in the interests of the owner rather than for personal gain ([Davis, Frankforter, Vollrath, & Hill, 2007](#)). The theory assumes that a company leader will focus more on the interests of the company than on personal interests. In the context of this study, this theory provides the view that management, as stewards, will strive to improve transparency and accountability in water disclosure as a form of responsibility to the owners and company interests. CEO who value corporate environmental values significantly improve the quality of corporate environmental disclosure, including water disclosure ([S. K. Huang, 2012](#)).

In addition, family ownership structures can enhance corporate social responsibility activities, including transparent environmental disclosures, when linked to good governance practices ([Cruz, Larraza-Kintana, Garcés-Galdeano, & Berrone, 2014](#)). In this case, proper water disclosure will reduce the impact of future conflicts and regulations on the company's environmental sustainability. Based on stewardship theory, CEOs who act as stewards are motivated by a vision of corporate sustainability that preserves value, rather than by obligations that tend to focus on the short-term interests of owners ([Battisti, Nirino, Leonidou, & Salvi, 2023](#)).

Although stewardship theory provides a relevant perspective on the alignment of interests between management and owners and can also encourage responsible decision-making, this theory acknowledges the existence of real differences in the characteristics of each steward in its real-world application. A stewarding CEO tends to focus on long-term goals and the health of the organization. However, the success of this role can be influenced by the context of the CEO's work environment, such as the capabilities of the organization within a company and whether it is family owned. The strength of stewardship's influence on corporate actions, such as maintaining transparency, is thought to depend on these factors.

The stewardship assumption limits its application in the real world and reduces it to actual situations ([Chrisman, 2019](#)). Therefore, this theory identifies that leadership by CEOs who are motivated by emotional and social values encourages accountability practices with full environmental disclosure. Based on this, we hypothesize that family CEOs have a significant positive effect on water disclosure. In other words, family CEOs as stewards with a high long-term orientation and company size as an indication of resource capacity in facing legitimacy pressures will together shape the application of stewardship principles, particularly in water-related transparency within the company.

2.3. The Role of Company Characteristics as Control Variables

Disclosure of water use is a form of corporate accountability regarding environmental sustainability. The urgency of this accountability is driven not only by increased shareholder attention to the long-term sustainability of the company but also by a lack of consistency and transparency in reporting practices. Research shows that corporate social responsibility disclosures tend to be less transparent than information presented for the benefit of shareholders, even though shareholders are paying increasing attention to companies' long-term sustainability ([Wahyuningrum et al., 2023](#)). This gap highlights the need for internal mechanisms that can ensure corporate commitment to environmental accountability, including water disclosure. One crucial internal mechanism is the role of top-level leadership.

In reporting water information, some companies prioritize cost efficiency by considering their financial performance based on profits earned ([Lusmeida & Amelia, 2023](#)). In their efforts to present water information, many companies face limitations in terms of quality and cost efficiency constraints, which tend to encourage some companies to cut reporting costs, resulting in less detailed information. This condition shows a trade-off between the desire for transparency and the reality of limited resources. This is where the role of regulation becomes very important in promoting transparency related to water information disclosure. Without adequate supervision, company compliance with disclosures tends to

be weak. According to research ([Talbot & Barbat, 2019](#)), companies in the mining sector often violate social and environmental responsibility guidelines by failing to disclose information and data clearly. These findings highlight the importance of strict supervision of corporate disclosure regulations related to the resources they produce, which will be one of the research topics to be explored. The complexity of the relationship between financial performance and water disclosure is also reflected in the inconsistent empirical findings. Previous research [Yu, Kuo, and Ma \(2020\)](#) shows a negative relationship between profits and the level of water information disclosure, identifying that highly profitable companies tend to avoid transparency. However, these findings are not supported by other studies, which suggest that companies with high profits have a greater capacity to influence the level of water information disclosure within the company. This inconsistency reinforces the need to re-examine this relationship by considering other factors that may influence it.

Strategic leadership plays a crucial role in establishing a corporate culture that supports sustainability. Companies led by individuals with a strong environmental orientation will be more responsive and resilient to public demands, regardless of the cost efficiency faced by the company. In line with the findings of [Ren et al. \(2020\)](#), that collective efforts by CEOs have proven effective in promoting environmental performance, a shared commitment from top leaders is needed to ensure transparency on specific aspects such as water disclosure.

However, to gain a more comprehensive understanding of the factors that influence water disclosure and address the inconsistencies in previous findings, this study considers specific company characteristics that may influence disclosure policies. These control variables include firm size as a reflection of the scale of operations, whereby in this case, large companies tend to face greater pressure to be transparent; profitability as a financial performance indicator that is included to retest the inconsistency between profits and water disclosure in companies; company age, which is used to reflect a more structured level of experience and maturity; and audit quality with its reputation, which tends to encourage better and more structured transparency towards applicable reporting standards. Independent commissioners contribute to internal governance mechanisms that help supervise management to comply with stakeholder directives, including aspects of environmental transparency. By controlling these factors, the influence of ethical leadership on water-use disclosure can be tested more accurately, without bias from the fundamental characteristics of the company or the inconsistencies in profitability that have been identified in previous studies.

2.4. The Influence of Green CEO leadership on Water Disclosure in Companies

CEO with a background in environmental concerns are more proactive in taking responsibility for improving the quality of environmental sustainability activities. A green CEO, through their leadership characteristics, tends to shape an organizational culture aligned with sustainability principles. [Putra et al. \(2022\)](#) revealed that a CEO with high knowledge of environmental competency has more responsibilities and leaders now see that there are competitive advantage competencies in the responsibility of the scope of an environment. With the growing issue of environmental sustainability, it has become the main motivation for green CEOs to create sustainable environments within their companies. Sustainability-oriented decisions depend on the CEO's characteristics in handling strategies to determine the direction of the company's disclosure of the surrounding environment ([Mahran & Elamer, 2023](#)). Therefore, the role of a green CEO is crucial in facing the dynamic global challenges of corporate sustainability and expressing environmental concerns, including water disclosure. Factors related to the characteristics of a CEO are crucial dynamics affecting company performance.

Company size is often a contributing factor to water disclosure. The larger the company's scope, the greater its water disclosure requirements. According to previous research [Zeng, Zhang, Zhou, Zhao, and Chen \(2019\)](#), companies with small scope and are not very active are companies that often ignore the impact of company management, especially on disclosures related to water risks or disclosure of water information about data leaks and disclosure of their costs. The size of a company's position in the monopoly industry has become a benchmark for water information disclosure that can help the government to more actively encourage corporate responsibility towards the environment, especially regarding water risks.

Large companies are more likely to disclose more water information than smaller companies because they have the financial qualifications to finance the implementation of certain programs (such as water management) and disclose information about them in sustainability reports ([Wahyuningrum et al., 2023](#)). Therefore, large companies tend to be more transparent in disclosing water information because this is a form of realization of the board of directors or commissioners who have the duties to direct or oversee company activities to benefit shareholders and stakeholders.

Previous research [Immanuel and Sambuaga \(2024\)](#) revealed that the independence of the board of commissioners does not significantly impact the quality of water information disclosure. The lack of water disclosure has become a challenge for companies worldwide. Environmentally friendly companies tend to disclose more water information as a result of shareholder pressure. According to [Wicaksono et al. \(2024\)](#), if a company's shares are focused on a few shareholders, disclosure can decrease. Water disclosure is a part of sustainability. In addition, if a company is supported by an independent board of commissioners, its disclosure will be more credible and effective in maintaining a balance between stakeholder interests ([Wati & Malik, 2019](#)). To achieve this, strong mechanisms and strict supervision are required to create a sustainable environment.

Green CEOs not only have environmental concerns but also actively translate these values into strategic company policies by establishing a sustainable organizational culture. High environmental competency encourages CEOs to view sustainability as a source of competitive advantage rather than merely compliance. With the increasing urgency of global environmental issues, the intrinsic motivation of green CEOs has become a key driver in determining the direction of corporate disclosure policies, including the transparency of water-related information. Thus, CEO characteristics are crucial determinants of variations in the comprehensiveness of environmental disclosure across companies.

This commitment is implemented through three main mechanisms. First, green CEOs tend to integrate sustainability values into corporate governance structures, for example, by establishing sustainability committees, incorporating environmental performance indicators into executive compensation schemes, or strengthening internal monitoring systems. Second, they are more willing to allocate financial and human resources to build adequate environmental management systems and reporting infrastructure. Third, green CEOs are more responsive to stakeholder pressure, particularly from regulators and global investors, who are increasingly demanding transparency regarding water use, risk exposure, and the mitigation strategies that companies implement. This mechanism is particularly relevant in the Indonesian context, where water scarcity, watershed degradation, and industrial water pollution are increasingly drawing public scrutiny. Regulatory frameworks and global sustainability reporting standards have increased the expectations for transparent water disclosure. In this institutional environment, CEOs with strong environmental values are more likely to respond proactively by increasing the comprehensiveness of water-related reporting rather than adopting a purely symbolic disclosure strategy.

H₁: The presence of green CEOs is positively associated with the comprehensiveness of corporate water disclosure.

2.5. Family CEOs leadership in the Company

A family owned CEO is more likely to maintain the sustainability of their company rather than suffer losses that cause the company to cease operations. [Bauweraerts, Sciascia, Naldi, and Mazzola \(2019\)](#) state that governance is crucial for addressing family management issues. Good governance can drive a company's sustainability and success. Family ownership tends to be more concerned about the sustainability of its business. The impact of a family CEO on a company varies depending on the company's operations. CEOs who are not related to the family but have close relationships with the family seem to be more likely to stay in office for a long time and perform well ([Waldkirch, 2020](#)). Differences in the understanding of family ownership regarding water disclosure across companies have a significant impact. Previous findings ([Kelleci, Lambrechts, Voordeckers, & Huybrechts, 2018](#)) revealed that the personality of a non-family CEO significantly boosts company performance without involving personal matters compared to direct family ownership.

However, several studies have shown that CEO have a significantly positive potential compared to non-family CEO regarding corporate social and environmental responsibility disclosure (Meier & Schier, 2020). Managing directors with high abilities are more likely to use their abilities to engage in other investment strategies that require general rather than specific abilities (Putra et al., 2022). Companies led by high-ranking family CEOs are not always environmentally friendly. Pressure from government regulations and society is increasingly pushing companies to be more environmentally friendly. Previous research Rehman, Ahmad, Belas, Battisti, and Santoro (2024) revealed that CEO experience has the potential to significantly improve company performance in terms of commitment to environmental innovation. CEOs with relevant experience are naturally more oriented toward sustainability and environmental issues and possess intellectual experience in environmental strategy, particularly in water resource disclosure. The kind of background sends a strong signal to investors that the company is led by people who understand the long-term social context in which the company operates.

In the context of water disclosure, family CEOs tend to be more transparent, especially in high-environment-risk industries, in an effort to maintain social legitimacy and demonstrate a commitment to long-term responsibility. This transparency serves as a strategic tool to protect the company’s image while responding to the pressure from local communities and regulators. In contrast, family control can also encourage a lack of transparency. Concerns about maintaining privacy, avoiding external interference, and protecting concentrated ownership structures can reduce incentives for extensive disclosure. In contexts where regulatory enforcement is uneven, family CEOs may perceive limited benefits from voluntary transparency. Thus, the influence of family CEOs on water disclosure is conditional and depends heavily on the balance between two opposing forces: the drive to protect reputation. When reputational motivations are dominant, family CEOs tend to encourage transparency to gain social legitimacy. Conversely, when concerns about external interference and privacy protection are more prominent, disclosure tends to be limited.

In Indonesia’s increasingly scrutinized environment, with increasing pressure from regulators and the public regarding water scarcity and pollution, reputational considerations are expected to become more dominant. Family firm CEOs are likely to respond to this pressure by increasing the comprehensiveness of water disclosures rather than withdrawing them, as the reputational risks of non-transparency far outweigh the privacy benefits.

H₂: The presence of family CEOs is positively associated with the comprehensiveness of corporate water disclosure.

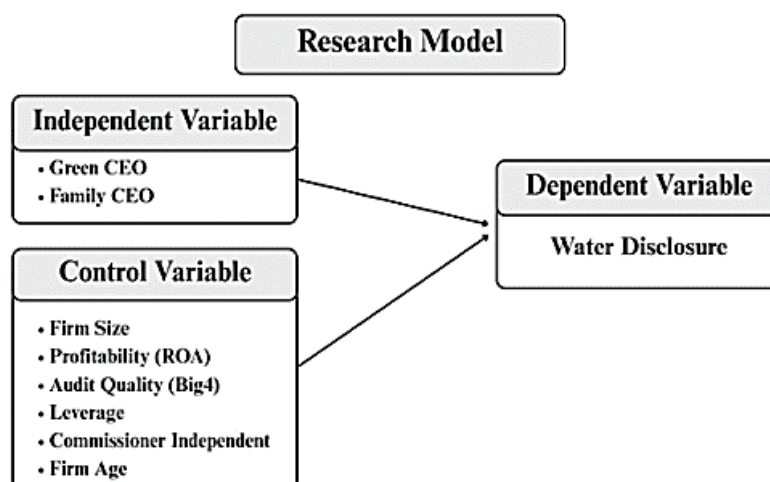


Figure 1. A research model for analyzing the impacts of green CEO and family CEO on water disclosure

3. Methodology

This study used quantitative data for the research and secondary data for the data collection method. The focus of the research is the financial and sustainability reports of various companies listed and published on the Indonesia Stock Exchange (IDX) during the 2021-2023 period, with the criteria being that the financial reports have been audited prior to publication and that they have a sustainability report. The research presents a descriptive statistical analysis to illustrate the test results from the sample and research variables. This study examined over 350 companies listed on the IDX, using cross-sectional data as the basis for the analysis. The sample comprised all sectors except the financial sector and listed-investment products. In this study, Firm Size (FSIZE), Profitability (ROA), Audit Quality (BIG4), Leverage (LEV), Commissioner Independence (COMIND), and Firm Age (FAGE) serve as control variables.

The big 4 variables serve as dummy variables with a value of 1, indicating a positive relationship with the variable, and 0 indicating no significant relationship. Water Disclosure (WTD) serves as the dependent variable, and Green CEO (GCEO) and Family CEO (FCEO) serve as independent variables. Data testing was performed using the STATA application. Correlation and classical assumption tests will be conducted using the F-test to assess the relationships between the independent, dependent, and control variables. This will be followed by a t-test to compare the significance values between the influencing variables and additional analysis and robust standard errors (Huber-White). Multicollinearity was evaluated using the Variance Inflation Factor (VIF) to ensure the reliability of the empirical results. The following is the formulation of the research variable measurement.

Table 1. Formula for measuring research variables

Variable	Formula Description
Dependent Variable:	
1. Water disclosure	Based on the GRI 303 disclosure, each part that is fulfilled is given a score of 1, and 0 if it is not fulfilled. The total score was calculated using the formula: total score obtained/total number of parts in the disclosure.
Independent Variables	
1. Green CEO	Dummy variable with a value of 1 if the CEO cares about the company's environment. A CEO is classified as a green CEO if they meet at least one of the following three criteria: (1) have an educational background in the field of environment or sustainability; (2) have professional experience in a position or company engaged in environmental issues; or (3) have received awards or public recognition for their concern for the environment. If, after an in-depth search of various sources of information, these characteristics are not found in a CEO, then that CEO is conservatively categorized as a non-green CEO and valued at 0.
2. Family CEO	Dummy variable with a value of 1 if the CEO has a family relationship and 0 otherwise.
Control Variables	
1. Independent commissioner	Number of independent commissioners.
2. Firm age	Log (Company age since being listed on the stock exchange).
3. Firm size	Log (total assets).
4. ROA	Total net profit/total assets ratio.
5. Big4	Dummy variable with value 1 if the company is audited by big4 (Deloitte, PricewaterhouseCoopers, Ernst & Young, and KPMG) and 0 otherwise.
6. Leverage	Total debt/total assets ratio.

3.1. Research Data Analysis

The hypothesis testing process will be conducted by applying the panel data regression method, where the regression equation is as follows:

$$WD_{i,t} = \beta_0 + \beta_1 \text{Green CEO}_{i,t} + \beta_1 \text{Family CEO}_{i,t} + \beta_1 \text{FAGE}_{i,t} + \beta_2 \text{COMIND}_{i,t} + \beta_3 \text{BIG4}_{i,t} + \beta_4 \text{FSIZE}_{i,t} + \beta_5 \text{ROA}_{i,t} + \beta_6 \text{LEV}_{i,t} + \varepsilon_{i,t} \quad (1)$$

Detail:

Green CEO = Environmentally conscious CEO at the observation unit *i* and time to *t*

Family CEO = Family relations CEO at the observation unit to *i* and time to *t*

FAGE = Firm age at the observation unit *i* and time to *t*

COMIND = Independent commissioner at the observation unit *i* and time to *t*

BIG4 = Big4 at the observation unit *i* and time to *t*

FSIZE = Firm size at the observation unit *i* and time to *t*

ROA = Return on Asset at the observation unit *i* and time to *t*

LEV = Leverage at the observation unit *i* and time to *t*

4. Results and Discussions

Descriptive statistical tests of the variables studied from various corporate sectors, except finance and investment products recorded from 2021 to 2023, are presented as follows.

Table 2. Descriptive data

Variable	Mean	Median	Minimum	Maximum
WTD	0.438	0.400	0.000	1.000
FSIZE	28.721	28.789	0.000	38.050
ROA	0.041	0.033	-1.673	0.616
LEV	0.458	0.419	-0.872	9.384
COMIND	1.548	1.000	0.000	5.000
FAGE	1.945	2.197	0.000	3.784

The test results in Table 2 show an average water disclosure value of 0.438, indicating that some companies care about environmental management, even if only partially, in terms of water disclosure within the company. Approximately 43,8% of the information disclosed by the company is based on GRI 303 disclosure regarding water and effluent standards ([GSSB, 2023](#)). In addition, there is a minimum value of water disclosure of 0.000 with a maximum of 1.000, which means that some companies choose not to disclose it at all. Conversely, if there is disclosure, it will be disclosed in its entirety using the water disclosure information standards. This is in line with the proposition that the environmental commitment of top management is a major factor driving corporate transparency in sustainability.

Table 3. Descriptive analysis of dummy data

Independent Variable (X)	Category	Frequency	Percent (%)	Cumulative Percentage (%)
Green CEO	0	155	14.76	14.76
	1	895	85.24	100.00
	Total	1,050	100.00	
Family CEO	0	579	55.14	55.14
	1	471	44.86	100.00
	Total	1,050	100.00	

Based on the results of the descriptive statistical tests in Table 3, the proportion of companies led by family CEOs reached 44.85%, while approximately 55.14% were led by non-family CEOs. This indicates that some companies prefer leadership based on the professional nature of corporate governance rather than ownership. However, this variable remains possible in research.

The results for the non-green CEOs were 895, or 85.23%, compared to 14.76% for non-green CEOs. This distribution indicates that a company is more likely to be influenced by an environmentally conscious CEO, where transparency is often a priority. Thus, this composition is valid for testing the differences in disclosure practices between the two authorities.

Table 4. Descriptive analysis of dummy data

Control Variable	Category	Frequency	Percent (%)	Cumulative Percentage (%)
Big4	0	754	71.81	71.81
	1	296	28.19	100.00
	Total	1,050	100.00	

The results of descriptive statistical data testing, based on secondary data previously collected in Table 4, show that 296 companies or 20,19% use the services of big4 public accounting firms. This indicates that the majority of companies listed on the IDX 71,80% prefer to use non-big4 service providers.

Table 5. Pearson correlation test results

	WTD	GCEO	FCEO	FSIZE	ROA	BIG4	LEV	COMIND	FAGE
WTD	1.000								
GCEO	0.554** *	1.000							
	(0.000)								
FCEO	0.055* (0.074)	0.008 (0.789)	1.000						
FSIZE	0.105** *	0.231***	-0.001	1.000					
	(0.001)	(0.000)	(0.962)						
ROA	0.074** (0.016)	-0.006 (0.847)	0.092*** (0.003)	0.047 (0.124)	1.000				
BIG4	0.182** *	0.112***	-0.088***	0.080** *	0.124***	1.000			
	(0.000)	(0.000)	(0.004)	(0.009)	(0.000)				
LEV	-0.004 (0.886)	0.018 (0.571)	-0.035 (0.251)	0.164** *	-0.281*** (0.000)	0.073** (0.017)	1.000		
COMIND	0.243** *	0.177***	-0.058* (0.061)	0.137** *	0.076** (0.014)	0.304*** (0.000)	0.041 (0.183)	1.000	
FAGE	0.244** *	0.271***	-0.134***	0.158** *	-0.083*** (0.007)	0.240*** (0.000)	0.132*** (0.000)	0.287*** (0.000)	1.000
	(0.000)	(0.000)	(0.000)	(0.000)					

p-values in parentheses

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

The Pearson correlation test data explains the significance value for the correlation between water disclosure and green CEOs as 0.554, because the coefficient is < 0.01 . This shows that water disclosure has a positive correlation with Green CEOs and a strong correlation, supporting Hypothesis 1 (H_1). This indicates that environmentally oriented CEOs tend to encourage companies to disclose transparency related to sustainability, especially in the disclosure of information related to water. The higher the sustainability characteristics of a CEOs, the greater the tendency for companies to disclose information related to water. This is in line with stakeholder theory, which emphasizes that a company is obligated to be responsible not only to shareholders but also to all stakeholders. The successful implementation of the green CEOs concept will reflect improved transparency that is more comprehensive and of higher quality in relation to corporate water disclosure to stakeholders.

The significance value for the correlation between water disclosure and family CEOs is 0.055 because the coefficient is < 0.1 , indicating that water disclosure has a positive correlation and shows a weak significant relationship with family CEOs, supporting hypothesis 2 (H_2). These findings are consistent with [Santoso and Setiawan \(2024\)](#), who categorized ownership structures based on families, and family CEO played a central role in determining water disclosure policies in companies. Thus, this decision-making mechanism is not only seen from a non-dynamic ownership structure but also from the influence of top-level decision-making, which is directly influenced by family identity. Thus, family CEOs, as part of the ownership structure, have a special influence on the disclosure of water-related environmental sustainability in companies. This is reflected in the research findings, where only a majority of companies with family CEOs disclosed water-related information.

The control variables have various relationships with the dependent variable; some show positive results, while others show negative results. Leverage is the only variable that shows a negative relationship with the dependent variables. This indicates that the amount of liabilities that companies must pay is not directly related to sustainable water disclosure. This suggests that the impact of corporate responsibility is driven by diversity, employee relations and environmental sustainability ([Sheikh, 2019](#)). High leverage indicates that a company has a large amount of debt, thereby increasing its responsibility to creditors. In such situations, companies tend to limit the disclosure of non-financial information, including water disclosure, as this could potentially attract attention or pressure from debt holders. In addition, highly leveraged companies prioritize resource allocation to meet debt obligations rather than carry out additional activities or reporting, such as water disclosure in sustainability reports. Thus, leverage is negatively correlated with water disclosure in companies.

In contrast to other variables, such as ROA, Big 4, independent commissioners, firm size, and firm age, show a positive relationship with the dependent variable. Based on the test results, it can be concluded that profitable companies will provide more positive results for the environmental sustainability process through the funds generated by the company, thereby increasing the transparency of water disclosure in the company. Regarding reputation and professional requirements, auditors from large firms tend to apply stricter policies and advise companies to continue reporting water disclosure to the company's environment so that the resulting report can be trusted.

The more independent the commissioners, the better the water disclosure practices. In this case, independent commissioners are believed to increase a company's transparency and accountability. The longer a company has been established, the more experienced it is in dealing with the regulations and demands of the surrounding community. Therefore, it tends to be more established in compiling detailed reports on environmental aspects, such as water disclosures within the company.

Furthermore, larger companies are more likely to be familiar with sustainable environmental practices to maintain their reputation. In this case, water disclosure within the company is more organized and easier to understand. Thus, these control variables reinforce each other, creating a more transparent and high-quality environment for water disclosure within the company.

Table 6. Robust standard errors (huber-white)

Linear regression				Number of obs	=	1,050
				F(2, 1047)	=	1324.40
				Prob > F	=	0.0000
				R-squared	=	0.3100
				Root MSE	=	0.2735
WTD	Coefficient	Robust std. err.	t	P > t	[95% conf. interval]	
GCEO	0.5136	0.0100	51.42	0.000	0.4940	0.5332
FCEO	0.0334	0.0170	1.96	0.050	0.0000	0.0668
_cons	-0.0146	0.0076	-1.93	0.053	-0.0295	0.0002

To avoid heteroscedasticity, which can hinder the interpretation of statistical results, the regression model in this analysis was applied using the robust Huber-White standard, so that the model remained identifiable. In this case, the model as a whole is significant (Prob > F = 0.000), with an R-square value of 0.3100, which means that the independent variable describes approximately 31% of the total variation included in the research model, while the remaining 69% is contributed by other factors outside the model.

To evaluate the possibility of multicollinearity among the independent variables, a VIF analysis was performed. The results showed that all variables had VIF values significantly lower than the common threshold of 10, with an average VIF of 1.55. This indicates that there are no significant multicollinearity problems in the models. Furthermore, the tolerance value (1/VIF) for each variable was above 0.1, further strengthening the conclusion that the regression model was free from multicollinearity. Thus, the regression estimation results are reliable.

Table 7. Regression analysis test

Variables	Coefficient	t-statistic	Ssignificance	Interpretation
GCEO	0.456	30.01	*** (p < 0.01)	It was strongly positively significant. Green CEOs substantially improve water disclosure.
FCEO	0.043	2.53	** (p < 0.05)	It was strongly positively significant. CEOs with family backgrounds also contribute to water disclosure, although their influence is minimal.
FSIZE	-0.003	-1.84	* (p < 0.1)	
ROA	0.126	2.62	*** (p < 0.01)	
BIG4	0.055	2.73	*** (p < 0.01)	
LEV	-0.009	-0.42	Insignificant	
COMIND	0.043	3.94	*** (p < 0.01)	
FAGE	0.020	2.85	*** (p < 0.01)	

Overall, based on the regression results, green CEOs have a stronger and more significant influence than other variables; therefore, the first hypothesis is accepted (H_1). This is evident in the fact that environmentally friendly CEOs tend to be more transparent in disclosing water-related issues in their companies that are related to sustainability, and vice versa. The results show that CEOs who care about the environment are the main drivers of water disclosure, even more so than other factors such as profitability, company size, or leverage. This means that the personal commitment of a company's size or leverage. This implies that the personal commitment of a company's top leader to green issues has a

greater impact on the decision to disclose information about water management. This is in line with stakeholder theory, which emphasizes the importance of companies serving the interests of various stakeholders.

Due to their concerns, CEOs will be more responsive to the demands of non-stakeholders, such as local communities and regulators, who need certainty about responsible water management. By increasing transparency through water disclosure, companies not only meet these demands but also build legitimacy and trust in the eyes of the public. This is certainly in line with previous research [Haque and Ntim \(2017\)](#), which showed that CEOs who care about the environment tend to be more oriented towards broad corporate sustainability disclosure. Leadership and corporate governance are crucial for promoting environmental transparency. In addition, it encourages a concentrated ownership structure that has the potential to strengthen water disclosure in companies, making management more efficient ([Itan, Putri, Ang, & Butar-butur, 2024](#)). In this case, green CEOs tend to encourage comprehensive water disclosure.

The results of the subsequent regression analysis show that family CEOs have a significant positive effect on water disclosure, thus accepting the second hypothesis (H_2). This significance proves that even though CEOs come from founding families, concern for the reputation of family business continuity is maintained by encouraging water disclosure in companies, even if this is not always oriented toward explicit transparency. This limitation is due to efforts to maintain internal control and the long-term sustainability of the company, as well as the pressure received. [Liang and Renneboog \(2017\)](#) This is in line with previous research findings which reveal that family leadership involvement can influence environmental sustainability issues, but transparency efforts in this case will be limited by this approach. Family firm CEOs are more selective in disclosing water-related information, focusing more on the interests of owners and economic profitability, thereby strengthening the role of ownership structure. This is in line with stewardship theory (Chrisman [Chrisman \(2019\)](#), which suggests that family businesses do not only pursue economic profits but also care about their reputation, so that disclosures related to sustainability will maintain the stability of the company. CEOs from founding families tend to have greater emotional attachment and responsibility for the company's sustainability; therefore, they are more motivated to increase transparency, including through the disclosure of water-related information.

Therefore, even though large and small companies require greater resources to disclose sustainability transparency within the company, water disclosure tends to be more influenced by pressures from external factors than by the scale of the company itself. Furthermore, to test the control variables of ROA, firm age, and big4, there is a positive significant relationship with water disclosure in companies. This study shows that these factors tend to play a role in the corporate governance and legitimacy of a company with respect to stakeholders and the public. Companies with high profitability, more dominant operational age, and audited by auditors with high reputations are more likely to encourage the implementation of more transparent environmental information disclosure, including water information disclosure issues in companies.

5. Conclusions

5.1. Conclusion

This study analyzes the influence of CEO characteristics on water disclosure in companies listed on the IDX. The results show that CEOs with a strong environmental orientation (green CEOs) are significantly associated with a more comprehensive level of water information disclosure. These findings indicate that the personal values and sustainability orientation of company leaders play an important role in promoting transparency in water resource management. Conversely, CEOs from family-owned companies also show concern for water disclosure, but their influence is relatively limited compared to that of CEOs with a strong sustainability orientation. This indicates that family-based leadership tends to balance corporate transparency and family privacy interests. The findings of this study support the stakeholder and stewardship theory perspectives, which emphasize that companies have a responsibility to respond to stakeholder demands through more transparent disclosure practices. In addition to leadership characteristics, corporate governance factors and operational conditions

contribute to water disclosure practices. Overall, the results indicate that corporate leadership plays an important role in determining the extent to which companies disclose information about water management as part of their corporate sustainability practices.

5.2. Research Limitations

The limitations of this study include incomplete company data from 2020 to 2023, which resulted in some data being eliminated from the sample, and observations that are still limited to the annual reports of companies listed on the Indonesia Stock Exchange. Furthermore, the independent variables and several control variables, which are still measured using dummy variables, have limitations in terms of the various interaction variances of other factors. This condition has the potential to affect the equality of sample characteristics because the sample analyzed may not fully represent the actual population. Thus, these limitations in quality have the potential to weaken the statistical data used in hypothesis testing.

5.3. Suggestions and Directions for Future Research

Future research should expand the analysis by exploring more diverse data sources and considering additional variables that could potentially influence corporate water disclosure. For example, future research could examine the interaction effects between CEO characteristics and corporate governance factors, such as family ownership or environmental regulatory pressure, to understand how these factors combine to influence the level of water disclosure.

In addition, future research could use a mixed methods approach by combining quantitative analysis with interviews or surveys of company management and the surrounding community. This approach could provide a deeper understanding of how CEO leadership values and stakeholder pressure influence corporate decisions regarding water management information disclosure. Furthermore, future research could consider the use of more advanced statistical analysis techniques, such as moderation models, to reduce potential bias and provide a more comprehensive picture of the dynamics of water disclosure. This approach is expected to produce stronger findings and make a more profound contribution to the literature on corporate sustainability disclosure.

Author Contributions

S was involved in data collection, data analysis, drafting the initial manuscript and manuscript revision. IC contributed to the conceptualization, research design, supervision, and final approval of the manuscript for publication. ST and SY supervised and guided the research process. All authors have read and approved the final version of the manuscript.

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