



# Corporate Characteristics and Water Disclosure in Indonesian Water-Sensitive Industry

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**Abstract.** Due to Indonesia's negative impacts on water quantity and quality, the water-sensitive industry receives greater attention and pressure from its stakeholders to disclose water-related information. As previous studies indicate that firm characteristics are the drivers of corporate social responsibility disclosure, this study investigates the effect of corporate characteristics on water disclosure in the Indonesian water-sensitive industry. Firm characteristics are employed to represent the stakeholders. The samples are all water-sensitive industry listed on Indonesia Stock Exchange (IDX) in 2018–2019. Data are collected from annual reports and sustainability reports, which are published on corporate and IDX websites. All the developed hypotheses are examined using random effect model. This research finds that firm size positively and significantly influences water disclosure. It means that bigger firm receives higher pressure from stakeholders to create water disclosure. On the other hand, profitability does not substantially influence water disclosure practices. Similarly, higher leverage does not stimulate Indonesian water-sensitive companies to disclose water stewardship information.

**Keywords:** Water disclosure · Water-sensitive industry · Listed companies · Indonesia

## 1 Introduction

Today, Indonesia is suffering many water-related problems because of climate change, population growth, and business activities [1]. These cause water availability and quality in this country are gradually decreasing. On the other hand, water is essential for human and other creatures' survival [2]. In terms of business impact on water, companies contribute significantly to the water crisis because they use a higher amount of water, and their waste can contaminate water sources with hazardous elements such as metal, mercury, etc. [3, 4]. If companies have poor water management, it can ruin the ecosystem, and human health, in extreme cases, resulting in human death [5].

As the disaster of the water crisis is approaching, stakeholders will more actively scrutinize company's activities [6, 7]. They want companies to use the water effectively and efficiently and minimize the potential for environmental damage [8]. The

water-sensitive industry is believed to receive higher stakeholder attention than the non-sensitive industry. Therefore, companies receive higher pressure from stakeholders to show water stewardship activities and communicate them to the stakeholders through water disclosure [9]. According to stakeholder theory, companies must satisfy stakeholder demands to maintain good relationships [10, 11]. Hence, water disclosure can be an effective medium to share water information, which is expected to meet the demands and pressures of stakeholders [7–9]. In addition, such disclosure can maintain a corporate “social contract” [8]. On the other hand, stakeholders will revoke corporate licenses if companies fail and can no longer operate [12].

In terms of determinants of corporate disclosure, firm characteristics are understood as important drivers of disclosure related to corporate social responsibility [13, 14]. First, previous studies suggest that larger companies are more likely to be subject to public scrutiny [7]. Larger firms have more stakeholders interested in social and environmental activities [15]. Hence, larger firms are more willing to disclose social and environmental information. Second, environmental-related disclosure is sensitive to firm’s financial performance [7]. It provides companies with abundant resources to respond to stakeholder demands; thus, corporate disclosure will be created. Third, companies with a greater leverage ratio will be expected to meet creditor expectations in socially responsible activities [15]. Creditors influence companies to make social and environmental disclosure because they want to assess corporate risk in non-financial aspects such as environmental risk [9]. Therefore, this study adopts these characteristics to investigate their effect on water disclosure in the Indonesian water-sensitive industry. These corporate characteristics can also be discussed in relation to stakeholder pressures [8].

## 2 Theoretical Framework and Hypothesis

Various theories have been adopted to explain corporate social responsibility (CSR) related disclosure drivers. Stakeholder theory [16] and legitimacy theory [17, 18] are the most dominant theories adopted by scholars. Stakeholder theory postulates that a company’s management is expected to show activities that are expected by stakeholders [15]. Two branches of stakeholder theory represent how companies respond to stakeholder expectations and demands [8]. The normative branch suggests that all stakeholders have a right to be given information about the organizational impact, although stakeholders do not use it [10]. The managerial branch believes that it is impossible for a company to satisfy all unlimited stakeholders [11]. Therefore, managers pay attention to stakeholders that are critical to achieving the company’s goals [19].

Legitimacy theory is closely related to stakeholder theory. It posits that a company needs to ensure that it operates within the bounds and norms of stakeholders. This theory relies on the concept of “social contract” between companies and societies [17, 18]. If a company operates in unacceptable ways, stakeholders will effectively revoke the contract to continue the operations. However, stakeholder demands are not fixed and change over time. Hence, it requires the managers to be responsive to the unpredicted needs. Companies can use corporate disclosure to share information with stakeholders and maintain legitimacy [20].

Corporate characteristics are the common factors investigated in social and environmental disclosure literature. This study only examines the effect of firm size, firm profitability, and leverage ratio. Larger firms are more visible to the public eye so that they more easily attract stakeholder interests [21]. Larger firms are more likely to be subject to consumer hostility, militant employees, and the attention of government regulation bodies [22]. It can be assumed that larger firms use more water so that stakeholders focus on them. Hence, bigger firms are more willing to disclose more water-related information to avoid stakeholders' negative attention. Therefore, this study develops the following hypothesis:

H1: there is a positive association between firm size and water disclosure.

Financial performance can stimulate corporate capability to undertake programs related to social demands [23]. The highly profitable firm is more credible to the public; thus, it raises social expectations of accountability and transparency [15]. Managers need to ensure that the company not only focuses on financial and non-financial aspects, including water disclosure. Previous studies support a positive association between financial performance and corporate disclosure [7]. Therefore, this study proposes the following hypothesis:

H2: there is a positive association between financial performance and water disclosure.

When companies have a higher leverage ratio, it can be said that the creditor is a powerful stakeholder who can influence corporate activity and disclosure [15]. In addition, high-leverage firms are riskier, so managers are expected to disclose information to assure the stakeholders [24, 25]. Yu et al. [7] find that creditor provides significant pressure on the company to disclose water-related information. Hence, it is hypothesized that:

H3: there is a positive association between leverage and water disclosure.

### 3 Research Method

This study uses 258 water-sensitive companies listed on the Indonesia Stock Exchange from 2018 to 2019. The samples include material, consumer non-cyclical, energy, infrastructure, and properties and real estate industry sector [8]. Data are collected from companies' annual and sustainability reports, which are available on companies' websites.

The dependent variable (water disclosure) is evaluated using an index based on the 24 water parameters developed by Morikawa, Morrison, and Gleick [26]. This study assumes that all parameters are equally important. A value of 1 is given if a water parameter is disclosed in the corporate report and 0 otherwise. A total of these scores are used to measure the extent of water disclosure. Firm size is measured by the total asset presented in the annual report. To avoid non-normality, this variable is transformed using a natural logarithm. Financial performance is defined as return on asset, which is

**Table 1.** Descriptive Statistics

Variable	Mean	Min	Max	Std. Deviation
WD	2.034	0	8	1.457
SIZE	28.636	22.376	33.030	1.916
PRF	0.016	-1.538	0.606	0.157
LEV	0.518	-0.300	2.629	0.312

**Note:** WD = water disclosure; SIZE = firm size; PRF = firm financial performance; LEV = leverage.

the ratio of net income and total assets. Leverage is defined as the ratio of total debt and total assets.

The following model is used to test the proposed hypothesis:

$$\text{WD: } \beta_0 + \beta_1 \text{ SIZE} + \beta_2 \text{ PRF} + \beta_3 \text{ LEV} + \varepsilon$$

where:

WD = water disclosure

SIZE = firm size

PRF = profitability

LEV = leverage.

## 4 Results and Discussions

Table 1 depicts the descriptive statistics for the variables examined in this study. The mean value of water disclosure is 2.034 from a minimum score of 0 to a maximum score of 8. It reports that the level of water disclosure in the Indonesian water-sensitive industry is very low. It supports Zhang, Tang, and Huang [27] that water disclosure is relatively new, meaning water sustainability is not perfectly understood compared to other natural resources [5]. The firm size variable has an average value of 28.636, with a minimum value of 22.376 and a maximum value of 33.030. Firm financial performance ranges from a value of -1.538 to a value of 0.606, with a mean value of 0.016. It shows that companies' financial performance is relatively poor, so they have limited resources to satisfy stakeholder demands, including water stewardship activities and disclosures. Leverage ratio has a mean value of 0.518 indicating that companies highly relies on debt, therefore, creditor may provide higher pressure to companies.

Table 2 shows the correlation matrix for all variables. First, water disclosure positively correlates to firm size ( $\rho = 0.095$ ). Similarly, firm financial performance positively affects water disclosure ( $\rho = 0.076$ ), but it is insignificant. Last, firm leverage ratio is negatively and insignificantly related to water disclosure ( $\rho = -0.006$ ). This study also checks that there is no multicollinearity problem between predictor variables. Gujarati [28] states a multicollinearity problem occurs if the correlation coefficient value exceeds 0.8. It can be seen in Table 2 that all coefficient values are less than 0.8; thus, there is no serious multicollinearity problem. This study also uses the variance inflation factor

**Table 2.** Correlation matrix

	WD	SIZE	PRF	LEV
WD	1			
SIZE	0.095**	1		
PRF	0.076	0.168***	1	
LEV	-0.006	-0.321***	0.007	1
VIF		4.25	4.24	1.14

**Note:** WD = water disclosure; SIZE = firm size; PRF = firm financial performance; LEV = leverage. \*, \*\*, \*\*\*, represent significance at 10%, 5%, and 1%, respectively.

**Table 3.** Regression Result

Variable	Coefficient	P-value	Decision
SIZE	0.270	0.000*	Supported
PRF	0.189	0.547	Not supported
LEV	0.028	0.906	Not supported
R2	0.148		
F-Stat	40.95		
Prob.	0.000*		

**Note:** WD = water disclosure; SIZE = firm size; PRF = firm financial performance; LEV = leverage. \*, \*\*, \*\*\*, represent significance at 10%, 5%, and 1%, respectively.

(VIF) values to assess this issue. Sekaran and Bougie [29] suggest that the value of VIF should not be higher than 10. The values of VIF presented in Table 2 are less than 10, indicating that the multicollinearity problem is unlikely.

Table 3 reports the regression results based on random effect model (REM). This study finds that firm size has a positive and significant effect on water disclosure ( $\beta = 0.301$ ,  $p < 0.01$ ), hence H1 is supported. It is consistent with previous studies finding that larger firms provide a higher level of disclosure [7, 9]. This study confirms that larger firms receive higher stakeholder pressure to show water performance and disclosure. Because their visibility to the public is higher than smaller firms, stakeholders expect bigger companies to be more concerned about the environment, including water. In addition, stakeholders need information regarding water stewardship activities to understand that companies operate in effective and effective ways. Therefore, managers of larger firms cannot ignore stakeholders' demands; thus, water disclosure is produced to maintain the social contract.

This study also finds an interesting finding that the effect of financial performance is insignificant to water disclosure ( $\beta = 0.189$ ,  $p > 0.10$ ). Hence, H2 is not supported. However, this study supports the finding of Burritt et al. [8], who suggest that firm financial performance is not a determinant of water disclosure. This finding indicates that

water stewardship activities and disclosure do not depend on firm profitability. Previous studies argue that highly profitable firms are more credible to the public, raising public expectations to show socially responsible activities [15]. On the other hand, as the water scarcity issue is emerging today, stakeholders ignore the firm financial performance and expect all companies to consider protecting water quantity and quality. Ullah, Muttakin, and Khan [30] document that profitable organizations are more visible and experience greater pressure and demand for non-financial information. Yet, our finding reports that all firms are under public scrutiny because water is important for human life and the ecosystem. Although profitable firms have sufficient financial capability to resolve environmental issues quickly, non-profitable firms must provide a budget to show water performance for their going concern. Therefore, it can be concluded that stakeholders have demands and expectations to all companies to perform water responsibility activities and disclose them to the public without respect to profitability.

Our last finding documents that leverage positively affects water disclosure but is insignificant. This finding supports Wicaksono and Setiawan [9], but it contradicts Yu et al. [7] that firm leverage is a significant driver of water disclosure. Our finding suggests that creditor is likely not interested in water disclosure. It is because the creditor does not use water information to assess corporate risk, so the creditor does not want to influence the manager to produce water disclosure. However, this study assumes that creditors expect the company to disclose all aspects of social responsibility (CSR) rather than a specific subset [9, 24]. It is because the whole set of CSR disclosure provides comprehensive information about corporate non-financial risks; therefore, creditor is more interested in influencing manager to produce CSR disclosure.

## 5 Conclusions

This paper investigates the effect of corporate characteristics on water disclosure in the Indonesian water-sensitive industry. Following Burritt et al. [8], corporate characteristics can correspond with stakeholder pressures for managers to create water disclosure. This paper finds that firm size is a significant driver for water disclosure in the Indonesian water-sensitive industry. It suggests that larger firms create a higher level of water-related disclosure than smaller firms. It is because a larger firm is more visible so that it receives more attention from the public. However, this study provides unexpected results as firm profitability and leverage have insignificant relationships to water disclosure. It indicates that stakeholder provides pressure without considering firm profitability because a water-sensitive industry contributes significantly to the decrease in water quality and quantity. In addition, the creditor is not interested in water disclosure because it wants the whole set of corporate social disclosure to assess non-financial risks. This research contributes to the literature by providing empirical evidence about corporate characteristics' influence on stakeholder pressure. This paper acknowledges research limitations as research findings should be interpreted cautiously. First, the results may differ if non-sensitive industry is included in the research sample. Second, the use of two years data set may restrict the generalization of the research findings.

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