Literature Review on Factors Influencing Corporate Water Disclosure

Noor Afzalina Mohamad*, Zalailah Salleh and Roshaiza Taha

Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, 21030 Kuala Terengganu, Malaysia.

Abstract: The existing literature and knowledge on factors affecting corporate water disclosures remain fragmented and not consistent. The mixed results require further investigations. Previous studies convinced that some important characteristics possessed by a company can motivate water disclosure practices while others evidenced that stakeholders play significant role in driving company's water disclosure practices. The objective of this manuscript is to review prior studies on corporate water disclosure and to identify factors affecting such disclosure, with specific focus on corporate characteristics and stakeholders' pressure. Based on this review, the study indicates that company's financial performance, size and categorization in water-sensitive industries contribute to explaining water disclosure practices. Stakeholders including shareholders, creditors, the government and media exposure are also possible determinants of corporate water disclosure.

Keywords: Water disclosure, water reporting, stakeholders, shareholders, media exposure.

1. INTRODUCTION

Environmental reporting has emerged as an important business agenda in the corporate world (Deegan, 2017). The growth of environmental awareness within the community has boosted management response through provision of environmental reporting. Environmental reporting is considered part of corporate social responsibility (CSR) disclosure. In general, CSR disclosure recognises the obligation for a company to use its economic resources in its operations to satisfy its internal and external stakeholders' expectations (Cahaya et al., 2017; Kok et al., 2001; Sari et al., 2021; Nyahas et al., 2018). Environmental reporting studies have received much attention from researchers to discover influential factors of corporate social and environmental disclosures (Cahaya et al., 2017; Nyahas et al., 2018). However, research examining specific environmental element - water disclosure practices is relatively limited.

Various types of environmental information are presented in corporate reports, including environmental issues in general and specific environmental information such as climate change, water management, carbon management, waste treatment, soil erosion, and others. Among these, many studies use water as one of the elements to be investigated (see, for example, Chandok & Singh, 2017; Meng et al., 2014; Gunawan 2016). These studies embed a water theme in the analysis of the findings, albeit not focusing specifically on water reporting. Nevertheless, literature suggests that studies on water disclosure provide a similar understanding to environmental reporting that companies are disclosing information for efficiency and business continuity (Jones et al., 2014; Alrazi et al., 2017), to assist investors in their decision-making processes (Barton, 2010; CDP, 2014), and to satisfy demands by different stakeholders (Burritt et al., 2016). However, literature on water reporting is limited in quantity and only limited review of the latest developments have thus far been presented.

Water scarcity and increasing population worldwide have resulted in rising water demand from various industries, which exacerbates the need to manage water efficiently (Daniel & Sojamo, 2012; Martinez, 2015; Wicaksono & Setiawan, 2022). Furthermore, there has been a remarkable shift in the importance of reporting water information as the potential cost of water risks for the world economy is estimated at between US$10 to 50 billion (World Economic Forum, 2010). Businesses and investors are recognising the potential physical, reputational, and regulatory risks around water (Morrison et al., 2009). In reducing water risks and addressing effective water management through policy and management reforms (Daniel & Sojamo, 2012), the critical importance of high-quality water-related information to inform decision-making is gaining recognition (Chalmers et al., 2012; Wicaksono & Setiawan 2022). Due to this, water-related disclosure is increasingly recognized as an important item contributing to corporate sustainability (Burritt et al., 2016). Thus, it is not surprising that the topic receives growing attention in business and academia.

Hazelton (2014) supports the notion that reporting water-related information is an important practice, particularly in businesses that manufacture products using large volumes of water. He claims that if a company reports sufficient water information, managers can use the information to enhance customers' understanding of the company's water usage. Therefore, water reporting could make a significant contribution to water literacy about products that consume extensive amounts of water.

*Address correspondence to this author at the Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, 21030 Kuala Terengganu, Malaysia; E-mail: noorafzalina@umt.edu.my

There are some factors argued by researchers to be the determinants of corporate water disclosure practices. Burritt et al. (2016) contend that one of the most important issues in water disclosure-related studies is to understand the factors influencing companies' decisions in disclosing water-related information to stakeholders, and how such understanding is useful for companies to improve quantity and enhance quality of firms' non-financial reports. These factors can be broken down into three groups: general contextual factors; corporate characteristics; and the influence of stakeholders (Freyman et al., 2015). This paper specifically discusses the latter two factors because many previous studies assert that companies with certain corporate characteristics such as profitability and categorised as water-sensitive companies (Burritt et al. 2016; Yu et al. 2020) disclosed more water information while stakeholders including shareholders (Wicaksono& Setiawan, 2022; Yu et al. 2020) and creditors (Burritt et al., 2016; Christ & Burritt, 2017; Yu et al., 2020) are demanding corporate water disclosures. Companies are expected to use water wisely to gain legitimacy from stakeholders who have access to water and there is possibility that the legitimacy will be revoked when the company fails to be responsible for water management (Burritt et al., 2016). Hence, stakeholders have tendency to influence companies to act and be responsible for adverse impact of water consumption (Wicaksono & Setiawan, 2022).

We contribute to literature by answering the question "what are the factors driven water disclosure practices?". We specifically identify factors which influence the adoption and the extent of reporting because these proved to be the main themes in contemporary studies. We identify the few determinants (for example, water-sensitive industries) that are covered by a significant amount of studies and show consistent results which allow clear conclusions. Furthermore, we contribute by offering detailed insights on (in)consistencies with regard to other determinants such as profitability or government's pressure.

Finally, we contribute by introducing potential research areas by providing an overview over gaps and underexposed factors in extant research especially on the influence of other stakeholders' pressure in relation to the corporate water disclosure practices.

The paper is structured as follows. Firstly, the literature review on corporate characteristics as internal determinants of corporate water disclosures is presented in section 2. Secondly, section 3 illustrates the current state of knowledge on stakeholders' pressure as external determinants that driven corporate water disclosures. We will then specifically discuss the gaps in the literature and the main research findings from previous studies in Section 4. Finally, section 5 summarizes the study and provides opportunities for future research before concluding the paper.

2. CORPORATE CHARACTERISTICS AS INTERNAL FACTORS FOR WATER DISCLOSURE PRACTICES

Research on the variables affecting the practices of water reporting mainly focuses on the decision or likelihood to engage in reporting. The following paragraph illustrates findings on corporate characteristics or internal determinants of water reporting. This encompasses issues of financial performance, firm size and water-sensitive industries classification.

2.1. Financial Performance

A report published by the CEO Water Mandate (2014) shows that water disclosures have implications for the operational and financial performance of companies. When water disclosures increase, companies can identify and evaluate water-related risks, such as water scarcity and water pollution, which can affect their financial performance (ACCA, 2010; CDP, 2013). Raja Ahmad et al. (2010) suggest that companies in a strong financial position should be able to provide greater water disclosures because they have the financial ability to manage water resources sufficiently. Companies with good financial performance are more likely give attention to environmental concerns as they have more resources to quickly resolve social and environmental issues (Cormier & Magnan, 2003; Lu & Abeysekera, 2014). Additionally, in a period of low financial performance, a company's financial performance may be given priority over environmental issues (Magness, 2006; Moreno & Duarte-Atoche, 2019). This is consistent with Christ (2014) which indicates that financial performance is associated with water reporting. This shows that financial performance could influence the provision of water-related information.

Nevertheless, Ben-Amar & Chelli (2018) found no association between profitability and companies' water reporting practices while according to Yu et al. (2020) study's in a sample of 347 US firms, the relation between profitability and water disclosure level is negative. Similar to Yu et al. (2020), Wicaksono and Setiawan (2022) found negative association between profitability and water disclosure in agriculture companies globally. In addition, a study by Burritt et al. (2016) evidenced that financial performance is not significantly related to water disclosures, as companies are committed to managing water-related issues regardless of whether the company is making a profit or loss.

Despite this, a recent study by Wicaksono & Setiawan (2023) on 263 Asian mining companies reveals that those with strong financial performance are more likely to provide water disclosures. A report commissioned by the Carbon Disclosure Project (2013) on water disclosure of 23 largest companies listed on the Australian Securities Exchange (the ASX) also found that companies reporting water information strategically performed better financially, and companies that are responding to water challenges are consequently able to identify profitable business opportunities. Similarly, Yu (2022) found positive association between profitability and water disclosures, which suggests that companies with high profitability have tendency to disclose greater water information to reduce their political costs.

The discussions above imply that there is inconclusive evidence to suggest that financial performance could reflect management's ability to utilize a company's resources efficiently in serving stakeholders' interests on water reporting (Kent & Chan, 2009). However, given that s study on water reporting is still in its infancy stage, the literature above certainly could be used to predict the relationship of financial performance and water reporting practices in future research.

2.2. Firm Size

Previous environmental reporting studies suggest that larger companies tend to provide more environmental disclosure than smaller companies because they are more likely to be under public scrutiny (Patten, 1991; Neu et al., 1998; Elijido-Ten, 2011). It is also suggested that larger companies are more capable of having superior environmental resources (Yu et al., 2020). The size of a firm can be measured in several ways, such as total assets, number of employees or market capitalisation (Akben-Selcuk, 2019; Botha et al., 2022; De Villiers & Van Staden, 2010; Lu & Abeysekera, 2014; Wicaksono & Setiawan, 2023).

A study by Christ (2014) which investigate the use of water management accounting information within Australian winery companies found company size is associated with water management accounting. Similarly, Burritt et al. (2016) indicate that company size is significant predictor of water-related disclosure in Japanese companies. In addition, using total assets to measure company's size, Zhou et al. (2018), Botha et al. (2022), Yu (2022) and Wicaksono & Setiawan (2022;2023) found a positive association between firm size and water disclosure practices

However, in a water reporting study conducted by Mohamad (2020) among companies in Australia, no significant relationship is found between the size of a company and its decisions in reporting a certain quantity or quality of water disclosure, suggesting that both small and large companies may provide extensive disclosure of water-related information. Consistent with Mohamad (2020), Lambooy (2011) reveals that companies operating in specific sectors consuming large quantities of freshwater tend to report more information on targets for water reduction, regardless of company size.

Although the findings are inconclusive, these studies provide evidence that the identification of company size as a possible factor for water reporting can contribute towards a more comprehensive understanding of how corporate entities behave, particularly in adapting to the rapidly changing business environment where environmental issues including water are increasingly becoming important (Lu & Abeysekera, 2014; Wicaksono & Setiawan, 2022; 2023).

2.3. Water sensitive-industries

Literature indicates that companies in high water risk-sensitive industries are more likely to experience pressure to disclose water-related information than companies operating in low water risk-sensitive industries (Burritt et al., 2016). In examining the 100 largest Japanese companies categorized as belonging to high water risk-sensitive industries, Burritt et al. (2016) define high water risk-sensitive industries as those companies that consume large amounts of water and are associated with significant wastewater and pollution concerns. That study categorized the following industries as high water risk-sensitive – apparel, automobile, biotech/pharmaceutical, chemicals, forest products, food manufacturing, high-technology/electronics, metal/mining, refining and utilities. Although the issue of water has not been considered vital in Japan, the findings reveal that large water-risk sensitive companies have higher water-related disclosures, particularly if high ownership concentration exists.

Furthermore, studies by Linneman et al. (2015) and Botha & Middelberg (2016) suggest that the level of water disclosures is not dependent on company size, but instead on the classification of water sensitive industries. A study conducted by Botha & Middelberg (2016) among companies in South Africa reveals mining companies that are identified as water sensitive organizations outperformed other companies in communicating water information to stakeholders because it is crucial for them to develop corporate policies and standards on water-related management activities to manage water quality in their mining areas. Linneman et al. (2015) agree that companies categorised under consumer goods (includes beverage manufacturing companies) and basic materials sectors provide a greater level of water disclosures compared to companies in other sectors, due to the large amounts of water used in their operations. Similarly, Lambooy (2011) finds that beverage companies provide extensive disclosures of water information. Specifically, food and beverage companies in Australia have a significant impact on water resources and exposure to global concerns on food security, which drives them to provide disclosures on water (Egan et al. 2015).

In Australia, Leong et al. (2014) and Mudd (2008) argue that as water sensitive industry, mining companies reporting water information in most detail and providing continuous improvement in environmental disclosure (including water information). These companies consume a significant amount of water (Burritt & Christ, 2018) and their operations often impact on water in the natural environment, including through pollution and water depletion (Leong et al., 2014).

It is conceivable that companies in water-risk sensitive industries are exposed to many water-related impacts and receive pressure from multiple sides (Egan et al., 2015; Lambooy, 2011; Leong et al., 2014). As such, they are most likely the ones that manage their relationships with various government agencies through the provision of better water resource management and water disclosures, and most likely to reduce any possible regulatory action or government intervention that could impact on their operations (Burritt et al., 2016; Morrison et al., 2009; Signori & Bodino, 2013).

Empirical studies conducted by Burritt et al. (2016) and Yu et al (2020) found water-sensitive industries as significant driver of water disclosure. Burritt et al.'s (2016) confirmed that Japanese companies from water-sensitive industries are more likely to experience pressure to disclose water information because they are facing with high levels of economic and environmental water risks compared to companies in non-water sensitive industries. Yu et al. (2020) evidenced that water-sensitive industries are associated to US companies' disclosures of water information, given that water-sensitive industries are exposed to close attention by the government, environmental groups and the public.

In addition, Zhang et al. (2021) and Yu (2022) provided evidence that water-sensitive industries are disclosing more water-related information as they consumed much water than the others. They tend to disclose water information to show their commitment in managing water resources and to gain stakeholders' trust (Zhang et al., 2021; Yu, 2022; Wicaksono & Setiawan, 2022).

3. STAKEHOLDERS' PRESSURE AS EXTERNAL FACTORS FOR WATER DISCLOSURE PRACTICES

Analysing whom the stakeholders are, identifying their interests and how they act is fundamental to an organisation, especially in terms of those stakeholders who have the greatest importance for a firm's survival or the powerful stakeholders (Hill & Jones, 1992; Mainardes et al., 2011). Sustainable profitability depends upon the company's capacity to comply with its economic and social purpose, such as distributing value or wealth, to ensure each group of primary stakeholders continues to be a part of the economic system (Clarkson, 1995; Mainardes et al., 2011). Thus, an organisation may be seen as a set of interdependent relationships between stakeholders; a perspective that has seen significant research in the organisational management field (Hill & Jones, 1992; Kotter & Heskett, 1992; Harrison & St John, 1996; Jones, 1995; Greenley & Foxall, 1998; Hillman & Keim, 2001; Weiss, 2003).

Research on the external determinants of water reporting mainly covers aspects of stakeholders' pressure. Recent literature identifies pressure by shareholders, creditors, the government and the media as the potential drivers for water reporting (see for example, Burritt et al., 2016; Yu et al., 2020; Yu, 2022; Wicaksono & Setiawan, 2022;2023; Zeng et al., 2020)

3.1. Shareholders

When looking at shareholders, company may start providing water-related disclosure when there is an existence of shareholders that can exercise a direct influence on an organisation through voting rights afforded to them by the holding of company shares (Ben Lahouel et al., 2014). The voting power allows shareholders to express their consent about major strategic changes in an organisation's operations (Greenwood & Van Buren III, 2010), including decisions on the implementation of social and environmental programs (Ben Lahouel et al., 2014). Shareholders are also considered as legitimate because they can provide new information on emerging issues to the company and make use of standards and norms as a basis for engagement with other stakeholders (Gifford, 2010).

The literature has seen an increase in shareholder resolutions on water-related management activities in large, publicly listed companies (Barton, 2010; Burritt et al., 2106; Signori & Bodino, 2013). Shareholder resolutions at annual general meetings create a source of urgency as they involve time-sensitivity (Gifford, 2010).[1] This saliency implies that shareholders are significant in driving companies' disclosure practices as they possess all three attributes and, thus, can be considered as powerful stakeholders (Ullmann, 1985).

Christmann (2000), Knox-Hayes and Levy (2011), Zhang and Tang (2013) and Zhang et al. (2021) claim that the Carbon Disclosure Project program (including its water survey) is a predominant force towards water reporting practices because the power of institutional shareholders influences it. Indeed, shareholders are showing great interest in water-related issues since they are seeking information on water disclosures from public listed companies (Signori & Bodino, 2013). Shareholders acquire such disclosures because they are concerned about the potential impacts of water scarcity on the bottom line and the threats that poorly managed water impacts pose to future company performance (CDP, 2014; Christ, 2014; Morrison et al., 2009).

Burritt et al. (2016) examine the influence of shareholder structure on corporate water disclosures for Japanese listed companies between 2013 and 2014. Using corporate ownership concentration - the percentage of total shares owned by the top five shareholders - the study indicates that there is a significantly negative association between shareholder structure and corporate water-related disclosures. This is consistent with Brammer and Pavelin (2008) and Gamerschlag et al. (2011) that find corporate ownership concentration is negatively associated with corporate disclosure.

On the other hand, a study by Yu et al. (2020) found positive relationship between shareholders and water disclosure among US companies. Using blockholders' ratio as a measure for shareholders' pressure, the study implies that shareholders' need will increase attention to water disclosure of the firm and can drive the manager to respond to the informational need of these shareholders (Yu et al., 2020). When shareholders' attention in corporate disclosure meets other stakeholders' expectations, this can help the company establish legitimacy in society and achieve sustainable development (Ullmann, 1985).

Furthermore, studies on the association of listed companies and water disclosure practices indicate that government shareholding is positively related with corporate voluntary water disclosure (Yu, 2022; Ben-Amar & Chelli, 2018), assuming that the respective organizations are subject to stringent reporting requirements and greater scrutiny. However, due to the limited number of studies, definite conclusions on the influence of shareholders or on the influence of government-owned companies cannot be drawn from current literature.

3.2. Creditors

A creditor not only assesses corporate financial performance but also measures corporate survival from non-financial aspects, such as water responsibility, once the company is considered sensitive to water and contributes to water scarcity (Wicaksono & Setiawan, 2022).

Numerous studies agree that the market considers a company's environmental commitments when assessing that company's environmental liabilities, and creditors will consider how risky the company is before the lending process (Christ & Burritt, 2017; Cormier & Magnan, 1997; Roberts, 1992). Morrison et al. (2009) claim that companies with high volumes and concentration of chemicals in wastewater are exposed to significant financial risks, and thus, need to provide more disclosure regarding this issue to convince financial providers. Morikawa et al. (2007) support the assertion that companies' decisions to source debt financing from financial providers influence the disclosure of water information. Additionally, the financial services industry is considering how

[1] Shareholder resolutions involve time-sensitivity because staff need to follow the datelines to work through the issue within the company before the annual general meeting (Gifford 2010).

water risks impact decision making on corporate growth and market valuation, corporate creditworthiness and bond rating (Larson et al., 2012). Christ and Burritt (2017) further assert that financial risks in terms of higher loan rates and insurance premiums are part of business-related water risks[2] that can be reduced through water accounting.

A study by Yu, Kuo and Ma (2020) provides evidence that the debt ratio is positively related to the water disclosure level. This suggests that when firms have higher leverage, in response to pressure from creditors, they will disclose more information on issues that are concerned by creditors (e.g., water risks and opportunities). This is consistent with a study by Bhalla and Singh (2018) that find a high level of debt financing makes it more likely that creditors will exert more influence on companies to be disclosing social and environmental information.

Despite this, an empirical study conducted by Wicaksono & Setiawan (2023) on Asian mining companies suggests that creditor power is not a driver of water disclosure. Calculated as total debt divide by total asset, the study uses this leverage ratio to measure creditors' power. Similarly, Wicaksano and Setiawan (2022) found insignificant relationship of creditor power and water disclosure in a sample of global agriculture companies.

3.3. The government

The government is identified as an external entity that can influence companies to change perceptions held by corporate managers about water management, which consequently drives companies to act in responsible ways (Martinez, 2015). The government is known as a powerful stakeholder that can strongly influence disclosure practice by enacting regulations where these rules must be obeyed (Alfraih & Almutawa, 2017). As water is an essential resource for human life and for economic growth (Wang et al., 2017), the government needs to ensure that companies do not abuse water sources and contribute to water shortages (Wicaksono & Setiawan, 2022). The government has a duty to maintain and increase public quality of life and thus, the government will drive the company's direction to comply with standards and regulations to promote sustainable companies and to be accountable and transparent to all stakeholders (Sari et al., 2021).

Chakraborti and McConnell's (2012) study provides evidence that voluntary water reporting and management initiatives abide by a federal US regulation that sets limits on pollutants discharged into surface waters by industrial facilities. Indeed, in an Australian water law reform study, McKay and Gardner (2013) conclude that communities can use water disclosure to drive political and social pressure on governments and companies to ensure compliance with environmental requirements. However, regulatory pressure is more prominently applied to companies or products that require a significant quantity of water (Morrison et al., 2009).

Egan et al. (2015) provide further evidence in that without government and water authorities' support, a decreasing trend in water disclosure was reported among food and beverage companies in 2013 and 2014. In a worsening of this scenario, due to cutbacks in government funding for water issues in Australia, Egan et al. (2015) claim that investment in water disclosure practices could be further eroded in the future. This potential erosion suggests that government involvement is required to encourage improvement in water management and disclosure practices.

Indeed, Chalmers et al. (2012, p. 1019) emphasize that water disclosure practice "has the potential to be influenced by powerful stakeholders with strong vested interests in the reporting and policy outcomes". This potential influence includes regulatory or government power that imposes water restrictions during periods of water scarcity (Chalmers et al., 2012). Leong et al. (2014) also suggesting that government agencies have the power to impose any appropriate disclosure requirement in ensuring water security in a state or country. Additionally, due to the power of government agencies, Australia has developed the only country-specific water accounting framework in the world known as Australian Water Accounting Standards (Chalmers et al., 2012; Egan et al., 2015).

It is critical for a company to satisfy the government because potential conflicts with the government could result in restrictions imposed on a company's activities or resources usage and penalties (Flammer et al., 2020). As water scarcity has become a severe problem in many parts of the world, government regulations play an important role in company-wide water management (Jaspers, 2003; Saleth & Dinar, 2000; Zhang et al., 2021).

In an empirical study, Zeng et al. (2020) suggests that companies disclosing more water information as a means to attain government support and comply with government's desire for environmental protection. In addition, Zhang and Tang (2013) illustrate that government involvement through the country-level legal system influences firms' water disclosures. A very recent study by Wicaksono & Setiawan (2023) which used the stringency of the government's environmental regulations as a proxy for government pressure, found a positive association between government pressure and water disclosure in Asian mining companies. This implies that it is crucial for companies to comply with government sanctions stipulated in the regulation.

Although not directly examined government as stakeholder, Botha et al (2022) did used different regulatory bodies as proxy to test the relationship of specific country and water disclosure. However, the study found insignificant relationship, which indicates that companies' operation in different countries and regulations are not affecting water disclosure practices.

Although there are inconsistent results reported in an empirical study on water disclosures, literature suggests that water policy and new laws are established to govern new principles and strategies for water management (Jaspers, 2003). The promulgation of water law has significantly affected the in-

[2] Christ and Burritt (2017) state that according to the World Business Council for Sustainable Development and Sustainability and International Union for Conservation of Nature (2012), there are five business related water-risks potentially faced by companies, namely financial risk, operational risk, product risk, reputational risk and regulatory risk.

stitutional arrangements for water management in the Mexico river basin (Wester et al., 2003). This influence also is the case in many other places in the world because water laws are commonly considered as the foundation for changes in water policy and water administration practices (Saleth & Dinar, 2000). Indeed, environmental regulations are identified as a factor driving one water-related industry in Australia which is wineries towards improved environmental performance (Christ, 2014; Gabzdylova et al., 2009). This experience suggests that government legislation is important in influencing water management practices, and thus, it needs further consideration in the literature (McKay & Gardner, 2013).

3.4. The Media Exposure

When looking at media exposure, companies may increase their environmental disclosure (including water) to respond to higher degree of news/media exposure relative to environmental issues (see, for example, Aerts & Cormier, 2009; Brown & Deegan, 1998; Deegan et al., 2000; El Ghoul et al., 2019; Elijido-Ten, 2011; Li et al., 2019; Patten, 2002). In particular, Aerts and Cormier (2009) and Brown and Deegan (1998) find that firms increase the level of disclosure when the media raises a community's social and environmental awareness about an issue or issues.

Much of the literature documents increasing interest in water reporting from the 2000s onwards by the media (Burritt et al., 2016; Campbell et al., 2011; Hurlimann & Dolnicar, 2012; Leong, 2010). Considering that the media can influence community expectations on water-related issues, companies that do not attempt to address this issue may be penalised (Freeman, 1984; Roberts, 1992). One of the approaches that can be used to respond to this community awareness is through the provision of corporate water reporting (Burritt et al., 2016). In this respect, if community awareness about particular environmental issues is reported on with prominence in the news, companies need to respond by providing more disclosures to increase their legitimacy (Deegan & Gordon, 1996; Roberts, 1992).

In addition, a few sporadic research endeavors investigate media exposure as water reporting determinant (Burritt et al., 2016; Wicaksono & Setiawan, 2022; 2023; Zeng et al., 2020). Burritt et al. (2016) examines the relationship between water disclosures and media coverage, in particular among Japanese companies. It is envisaged in the study that media coverage increases a company's visibility, which sets a public agenda and leads to further scrutiny from the public. A company then will provide higher levels of corporate disclosure to respond to the issue (Burritt et al., 2016). However, the study observes a negative relationship, suggesting that companies with low media attention are more susceptible to negative press on environmental matters, thereby motivating them to disclose a greater level of water data by way of compensation.

Although Burritt et al. (2016) fail to provide evidence that media coverage on water issues that are of interest to the public increases water disclosure, the media has been found to be particularly influential in driving public perceptions about water-related issues (Hurlimann & Dolnicar, 2012; Leong, 2010; Willis et al., 2013). Specifically, the community is affected by negative media coverage[3], such as drought occurrence or water pollution, because this information attracts community concern over water issues (Campbell et al., 2011). However, Hurlimann and Dolnicar (2012) examine media coverage of water issues and indicate that positive media coverage, such as articles about water conservation or recycled water acceptance, also influences community attitudes. Similarly, the media is viewed as an important tool that can be used to shape public perception (e.g., recycled water projects) (Leong, 2010). This view indicates that both positive and negative media coverage play an important role in mobilising community awareness.

Additionally, a study conducted by Zeng et al. (2020) argues that the media can exert supervisory power on firms' water reporting practice. The study found media plays an important role to force companies to publish water-related information because the media is able to make topics on water issues salient in the society. When companies are highly aware of water issues discuss in the media, they would actively disclose water-related information and practice water resource management.

A very recent empirical study done by Wicaksono & Setiawan (2023) which examine the relationship of media coverage and water disclosure indicates that media coverage has positive and significant association to water disclosure. Using total number of media articles to measure the media coverage, the study found the media reports put pressure for companies to respond by actively release corporate report on water issues (Wicaksono & Setiawan, 2023).

4. DISCUSSIONS

Literature on the influences of water reporting - based studies have sought to understand two main factors - corporate characteristics and stakeholders' pressure as the possible drivers for companies to disclose water-related information in their corporate reports. The literature presented in this study provides a starting point for improving global water reporting practices. In the following we will highlight gaps in literature based on the studies reviewed above.

Research displays a bias toward corporate characteristics related to a company's size and financial performance because much of water disclosure literature examining these variables. However, there are ambiguous results found for both variables as researchers provide inconsistent findings. The only corporate characteristic that is consistently found to have a positive association with water disclosure is company's categorization in water-sensitive industries.

Research on external determinants i.e. the stakeholders' pressure is again found to be inconsistent and rather providing ambiguous findings. As a general remark we noticed that there is a strong focus in the reviewed literature that identify the government pressure as a factor that could drive companies' disclosure. Merely seven papers (see, for example, Egan et al., 2015; Leong et al., 2014; Morrison et al., 2009;

[3] According to Brown and Deegan (1998), negative media coverage comprises negative information about environmental activities that have a deleterious impact on society, while positive media coverage is news about environmental activities that are beneficial to society.

Wicaksono & Setiawan, 2022; 2023; Zeng et al., 2020; Zhang & Tang, 2013) do so exclusively.

However, only few papers address the shareholders as possible determinant for water reporting (Burritt et al., 2016; Yu et al., 2020; Yu, 2022). Given that shareholder is an important stakeholder that possess an element of saliency (Ullmann, 1985), it is interesting to further examine shareholders' interaction with companies' water disclosure in future studies.

Although the research on factors of water disclosure practice is currently emerging, the infuence of stakeholders' pressure related to employees, suppliers and non-governmental organisation (NGO) have thus far been more neglected and much existing studies provide inconsistent results. However, we can cautiously note that research tends to confirm a positive influence of blockholders' ratio, stringent government regulations and the media exposure on company's water-related activities. On the other hand, a company's concentrated ownership structure seems to impede water disclosure practices. Finally, research tends to show inconclusive evidence on the significant effect of a company's leverage ratio and profitability.

5. CONCLUSIONS AND FUTURE RESEARCH

This paper provides a review of literature on water disclosure and contributes to the literature by giving a broad overview of the results on the internal and external factors driven corporate water disclosure practices. While we noticed a shift in focus on various stakeholders' pressure through empirical research, there is a lack of qualitative research using interviews to examine possible drivers. We noted a continuous growth in empirical research which coincides with current growth in water disclosure practices.

Our discussion of findings, gaps and inconsistencies in current literature mainly focuses on internal and external factors driven water disclosure practices or determinants of the adoption of corporate water reporting since we noted a growing literature focusing on the issues. Although researchers examining the effects of many determinants, only a number of variables - most notably company's size and financial performance are predominantly investigated although inconsistent results are reported. Furthermore, research in other determinants tend to derive inconsistent results, make it difficult to draw clear conclusions. This reveals that current literature is still at its infancy and insufficient, which implies there are plenty of opportunities for future research to be conducted.

In future, an in-depth investigation of water disclosure factors for large sample companies among several industries are required to provide more comprehensive results, as certain specific industries are more sensitive to media coverage and government sanctions (Burritt et al., 2016; Zeng et al., 2020). Thus, such study may enhance understanding of differences in water disclosure practices among various industries.

Next, many researchers have called for more water disclosure studies in different contexts or for researchers to include other critical factors that have not been explored (Alrazi et al., 2017; Burritt et al., 2016; Lambooy, 2011). These factors include CEO duality, the existence (or absence) of an environmental committee, audit committee and ISO certification. Such structures could be used to investigate the company's intention to be transparent, accountable, and committed to environmental management (Haniffa & Cooke, 2005). Thus, including these factors could enrich the interpretation of the determinants of water disclosure practices.

Studies related to stakeholders' perception on water-disclosure items that should be reported by corporation are extremely scarce and could be an important avenue for future researchers. Stakeholders' need and interest should be taken into consideration in developing reliable water report since they are the one that uses the report for decision making process. Thus, an investigation through interviews or case studies to examine factors driving water disclosures, from stakeholders' perspectives will provide insights and enable further understanding of companies' commitment towards water disclosures.

This study has practical implications as it informs companies and practitioners concerning the unique influence of shareholders, creditors, the government and the media exposure on corporate water disclosure practices. A company's management may use the findings of this study to gain a better understanding of potential water disclosure influences. For example, companies that intend to enhance their relationship with stakeholders through water-related activities may respond to media pressure to acknowledge rising local communities' concerns about negative water impacts on the surrounding business environment. Also, companies may respond to these concerns by demonstrating their efforts in mitigating negative news on water issues and providing this information in corporate reports to regain stakeholders' trust and confidence in water management. This confidence then increases competitive advantage while sustaining companies' relationship with communities.

For stakeholders, water reporting should provide valuable information regarding a company's water management practices, performance, and impacts, which can inform their decisions and actions. This can facilitate stakeholders in investment decisions, influence public opinion, and shape policies and regulations related to water management. Hence, this study is important as it can assist companies to provide transparent and reliable water disclosures as required by specific stakeholders i.e. shareholders, creditors, the government and the media. In turn, this will improve stakeholder relations and promote companies' accountability.

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