DETERMINANTS OF CLIMATE-RELATED FINANCIAL DISCLOSURE: CONCEPTUAL ANALYSIS

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Abstract: *As countries worldwide are concerned about climate change issues, the importance of climate-related financial disclosure has grown in recent years. The Task Force on Climate-related Financial Disclosure (TCFD) has published a framework to assist companies in preparing such reports. However, the quality of climate-related financial disclosure by companies is still discouraging. This study aims to review prior studies on the determinants of climate-related financial disclosure in alignment with TCFD recommendations. On the basis of the review, this study proposes environmental performance, corporate governance (i.e., CSR committee, chief sustainability officer, directors' knowledge/expertise on sustainability issues) and share ownership (i.e., government share ownership and foreign share ownership), as key determinants of TCFD-aligned climate reporting. This study employs five theoretical frameworks, i.e., agency, signaling, legitimacy, stakeholder and institutional theories to formulate six hypotheses. Our conceptual analysis contributes to the literature by highlighting the relationships between these determinants and TCFD climate-related financial disclosure.*

Keywords: Climate disclosure, Climate risk, Conceptual analysis, Malaysia, TCFD.

1. Introduction

Climate change poses significant challenges to environmental sustainability, population and economy (Rogers, 2023). It presents the single biggest obstacle towards achieving sustainable development (Abdul Majid et al., 2023a; UNFCCC, 2020; World Bank, 2014). Climate change is defined as the long-term change in temperatures and weather patterns (United Nations, 2021). Thus, it is crucial to mitigate climate change issue, particularly by reducing greenhouse gas (GHG) emissions, a major contributor to climate change (Tang, 2019). Prior studies (Amran et al., 2014; Giannarakis et al., 2018; Ngo et al., 2022) argue that one of the strategies to mitigate climate change is through climate-related financial disclosure.

Climate-related financial disclosure is part of the broader field of environmental and non-financial reporting that gained significant importance in recent years. It discloses non-financial information about greenhouse gas (GHG) emissions, climate-related risks and opportunities in the companies' operation, strategy, and financial planning (TCFD, 2017). By incorporating climate-related financial disclosure into their business operation, companies can clearly understand the risks and opportunities associated with climate change. This can assist companies in making decisions and strategies that can mitigate potential negative impacts and capitalize on emerging opportunities of climate change (Hale, 2022). One of the prominent initiatives in the climate-related financial disclosure is the Task Force on Climate-related Financial Disclosures (TCFD).

TCFD covers the disclosures of climate-related risks and opportunities from four elements, which are governance, strategy, risk management, and metrics and targets (TCFD, 2017). TCFD recommendations have gained support from various parties, such as the Carbon Disclosure Project (CDP) and countries including Denmark, France, Singapore, Australia, and Canada (TCFD, 2021). In addition, some countries have proposed mandating climate-related disclosure aligned with TCFD recommendations, such as New Zealand in 2023 and Hong Kong and the United Kingdom in 2025 (Ngo et al., 2022).

In Malaysia, authoritative bodies have made significant move toward mandating TCFD-aligned climate disclosure. Specifically, the establishment of guidelines by the Joint Committee on Climate Change (JC3), a collaborative effort involving Bank Negara Malaysia and Securities Commission Malaysia, emphasizes the significance of TCFD-aligned climate disclosure. This guideline mandating financial institutions regulated by Bank Negara Malaysia to adopt TCFD-aligned climate disclosures commencing from the end of year 2024 (Bursa Sustain, 2023). In addition, Bursa Malaysia (i.e., the Malaysian stock exchange) has announced new requirements mandating Main Market listed companies to implement TCFD-aligned climate disclosure starting from the end of the year 2025 (Bursa Malaysia, 2022). Thus, exploring climate-related financial disclosures aligned with TCFD recommendations becomes crucial to encourage companies in Malaysia to proactively implement this framework.

The challenge with regard to TCFD-aligned climate-related financial disclosure in Malaysia is that factors influencing the determination of climate-related financial disclosure practices based on TCFD recommendations by Malaysian companies remain poorly understood, leading to a lack of uniformity and consistency in the level of disclosure across various sectors (Fifka, 2013; Ngo et al., 2022). A review of empirical literature by Fifka (2013) found that the determinants impacting companies' climate-related reporting remain unresolved due to the limited number of existing studies and inconclusive findings. Besides, Ngo et al. (2022) reviewed studies on determinants of adopting the TCFD framework and found that very few published studies are available on factors that affect climate-related information disclosure aligned with TCFD recommendations. This is probably due to TCFD recommendations being released in the year 2017 and most of the research has predominantly focused on broader environmental disclosures rather than specific climate-related financial disclosures following TCFD recommendations (for example, Caby et al., 2020).

Understanding key determinants that influence climate-related financial disclosures aligned with TCFD recommendations in Malaysia is important for encouraging greater disclosure and environmental accountability. This can assist companies in making the transition to more transparent reporting of climate-related information, therefore facilitating compliance with upcoming regulatory requirements. Consequently, this study aims to review prior studies on the determinants of climate-related financial disclosure in alignment with TCFD recommendations.

On the basis of the review, this study proposes a conceptual framework for future empirical research to assess the influence of environmental performance, CSR committee, chief sustainability officer, directors' knowledge or expertise on sustainability issues, government share ownership and foreign share ownership on TCFD-aligned climate-related financial disclosures comprehensively. Overall, this study serves as a valuable resource for researchers, policymakers and practitioners interested in promoting more effective and standardized climate-related financial disclosure practices across various sectors.

2. Research Method

To undertake this conceptual analysis, this study has reviewed the literature under four topics, i.e., TCFD, climate change, environmental disclosure and sustainability reporting. These studies have been gathered through Google Scholar, Emerald Insight, Science Direct and Scopus. The timeframe used is from the year 2000 to 2024.

In addition to focusing on the four topics, as highlighted above, this study also search the prior studies using keywords, such as, carbon disclosure, climate change disclosure, climate risk, corporate governance, chief sustainability officers, determinants, environmental performance and Malaysia. These keywords have been used with various OR/AND operators to ensure a comprehensive study to be collected.

3. Literature Review

In earlier 20th century, several studies were conducted to explore the motivations for environmental reporting since CSR is in practice by companies worldwide (for example, Hackston & Milne, 1996). Besides, few studies have been conducted specifically on climate change over the past decade as climate-related financial disclosure has been in practice for a few years (for example, Caby et al., 2020; Giannarakis et al., 2014). However, the studies in developing countries remain unexplored (Abdul Majid et al., 2023b; Luo & Tang, 2014), especially the studies on factors motivating climate change disclosure aligned with TCFD recommendations are limited (Ngo et al., 2022). For instance, Achenbach (2021) conducted a study on global North countries and identified both intrinsic and extrinsic factors that influenced the level of climate change reporting based on TCFD's recommendations. Although TCFD has provided guidelines to enhance the disclosure of climate risk information, there is a need for more comprehensive studies as there have only been a few empirical research on this topic (Ngo et al., 2022).

The drivers for environmental disclosure investigated by previous studies included social factors, such as corporate size (Prado-Lorenzo et al., 2009), economic factors and financial and economic performance. The drivers also included incorporated factors, such board size (Amran et al., 2014; Giannarakis et al., 2014; Said et al., 2009), board gender diversity (Amran et al., 2014; Caby et al., 2020) and age (Caby et al., 2020). In addition, other determinants of environmental disclosure include corporate governance (for example, Achenbach, 2021; Said et al., 2009), ownership structure (for example, Hackston & Milne, 1996; Kalu et al., 2016), industry membership (for example, Amran et al., 2014); investor and stakeholder pressure (Achenbach, 2021) and environmental performance (Luo & Tang, 2014).

From the studies conducted, the findings regarding determinants of climate change disclosure remain inconsistent. For instance, Hackston and Milne (1996) found no significant relationship between profitability and corporate social disclosures, while Giannarakis et al. (2014) found profitability positively affected climate change disclosures. This lack of consistency highlights the complexity of the issue and the need for further research to provide clearer insights. This study emphasizes on environmental performance, corporate governance and share ownership as the factors affecting TCFD climate-related financial disclosure.

3.1 Environmental Performance and TCFD Climate-related Financial Disclosure

Previous studies examined environmental performance as a determinant of climate change disclosure (for example, Giannarakis et al., 2018; Hassan & Romilly, 2018; Luo & Tang, 2014). Several studies discovered that there is a significant and positive relationship between environmental performance and environmental disclosure (for example, Gallego-Álvarez et al., 2011; Luo & Tang, 2014). However, some studies found that companies with poor environmental performance (higher polluting companies) tend to voluntarily disclose more environmental information (Braam et al., 2016). Apart from the result above, Hassan and Romilly (2018) found mixed results between environmental performance and disclosure. The result showed that in developed countries, better environmental performance companies disclose more information, while companies in developing countries with worse environmental performance have higher environmental disclosure. The mixed result of the relationship between environmental performance and climate change disclosure can be explained by two contrasting theories, signaling theory and legitimacy theory.

Signaling theory predicts a positive relationship between companies' environmental performance and disclosure. According to signaling theory, information asymmetry exists as the managers have better knowledge about the companies' environmental strategies compared to the stakeholders. Therefore, to avoid information asymmetry, companies who commit resources to socially responsible activities aligned with their shareholders' long-term interests have incentives to signal the message to their stakeholders through voluntary disclosure (Braam et al., 2016). High environmental performance companies tend to offer reliable information that is difficult to replicate by competitors to distinguish themselves from poor-performance companies to avoid adverse selection problems and ensure they are valued appropriately by stakeholders (Braam et al., 2016; Luo & Tang, 2014). However, poor environmental performance companies will remain silent and provide more soft and non-specific information about their environmental performance which is hard to verify and could be provided by any company regardless of their performance (Braam et al., 2016; Luo & Tang, 2014).

According to the legitimacy theory, environmental performance negatively affects climate change disclosure (Patten, 2002). According to legitimacy theory, companies are members of society; thus, they need to comply with social and ethical standards and meet the expectations of the community. If they fail to do so, they will face threats to their legitimacy (Luo & Tang, 2014). The increased community environmental concerns put more sociopolitical pressures on the poorer environmental performance companies (Hassan & Romilly, 2018; Patten, 2002). They have strong incentives to engage in communication strategies such as voluntarily disclosing more climate-related information to enhance their legitimacy and improve their image in society. Such disclosure of climate-related information signals that the company is taking steps to align its activities with the community's expectations (Gallego-Álvarez et al., 2011).

From an economic perspective, poor environmental performance companies are expected to benefit more from credible disclosure compared to better environmental performance companies. Therefore, poor environmental performance companies tend to voluntarily disclose more hard and verifiable performance indicators. However, there is a risk for poor-performance companies to do so when public scrutiny is high. The stakeholders might perceive their disclosure as an effort to cover up poor environmental performance. Such perception can damage the companies' reputation, and perceived integrity and threaten their legitimacy (Braam et al., 2016).

Based on the findings of Malaysian studies, there is a positive relationship between environmental performance and environmental disclosure of Malaysian companies (for example, Ong et al., 2021). The findings of these studies suggest that better environmental performance companies tend to report their environmental and climate change information to signal their performance and commitment to the public. Similar to prior studies and in line with signaling theory, the following hypothesis is formulated:
H1: Environmental performance is positively associated with climate change disclosure.

3.2 Corporate Governance and TCFD Climate-related Financial Disclosure

Stakeholders consider sustainability as a material factor when making decisions (Securities Commission Malaysia, 2021). According to legitimacy theory, the board of directors are under pressure to satisfy the demands and expectations of various stakeholders (Cosma et al., 2022). Thus, effective corporate governance positively contributes to the rising climate change disclosure (Gerged, 2021). Several studies investigated corporate governance as the determinant of climate change disclosure (Cosma et al., 2022). This study explores the governance characteristics namely, the Corporate Social Responsibility (CSR) committee, chief sustainability officer and directors' knowledge or expertise on sustainability issues based on MCCG 2021.

3.2.1 CSR Committee

The CSR committees are responsible for managing environmental risks and opportunities, monitoring performance and reporting on environmental and social information (Selahudin et al., 2021). The presence of CSR committees plays an important role in promoting better CSR communication. Companies signal their commitment to their environmental and social reputation through CSR committees (Pucheta-Martínez & Gallego-Álvarez, 2019). According to stakeholder theory, a CSR committee is an effective mechanism to support the board of director's interest in meeting the demands and expectations of stakeholders as they provide a sufficient level of disclosure quality (Cosma et al., 2022; Pucheta-Martínez & Gallego-Álvarez, 2019). Besides, the CSR committees are concerned about issues that may affect the companies in the medium to long term, which can provide long-term risk information to the stakeholders (Cosma et al., 2022). Therefore, the presence of CSR committees positively influences the transparency and completeness of climate change information (Cosma et al., 2022).

Empirical findings from previous studies discovered that the presence of a CSR committee positively affects the quality and quantity of climate change disclosure (Cosma et al., 2022; Pucheta-Martínez & Gallego-Álvarez, 2019). However, a study on Malaysian publicly listed companies found that there is no significant relationship between CSR committees and e-waste reporting because of the limited presence of CSR committees within companies and the committees might prioritise physical corporate social responsibility activities over e-waste reporting (Selahudin et al., 2021).

Overall, the presence of CSR committees indicates a commitment to address sustainability issues at the board level. The voluntary establishment of CSR committees assists the companies in managing environmental issues more specifically and communicating their climate change concerns and actions to stakeholders. Similar to prior studies and in line with stakeholder theory, the following hypothesis is formulated:
H2: The presence of CSR committees is positively associated with climate change disclosure.

3.2.2 Chief Sustainability Officer

Chief sustainability officer is a designated person appointed within the management team to oversee and strategically manage sustainability, including the integration of sustainability principles into the company's operations (Securities Commission Malaysia, 2021). The stakeholder theory posits that the person responsible for sustainability should respect the interests of the stakeholders and be motivated to satisfy their interests. Consequently, the chief sustainability officer is responsible for monitoring sustainability initiatives and effectively conveying sustainability information to stakeholders. This communication can be achieved by disclosing comprehensive information in sustainability reports (Thun & Zülch, 2023). Therefore, the presence of chief sustainability officer is expected to improve the extent of sustainability reporting which includes climate change disclosure.

Previous studies on chief sustainability officers are concerned with addressing their impact on sustainability performance, and limited studies have been conducted on their impact on sustainability reporting (Thun & Zülch, 2023). Thun and Zülch (2023) found that the presence of chief sustainability officer positively affects sustainability disclosure and external assurance of sustainability reports.

Overall, the presence of a chief sustainability officer on the board of directors can assist the companies in managing the interest of stakeholders in sustainability. Similar to prior studies and in line with stakeholder theory, the following hypothesis is formulated:
H3: The presence of chief sustainability officer is positively associated with climate change disclosure.

3.2.3 Directors' Knowledge or Expertise on Sustainability Issues

MCCG 2021 emphasize the importance of boards having sufficient understanding and knowledge of the sustainability issues of their companies. The board's capability and competency can be measured by its ability to address sustainability questions, deliberate on sustainability matters, and evaluate associated risks and opportunities (Securities Commission Malaysia, 2021). This indicates the significance of directors' expertise in sustainability issues to the companies' sustainability practices. According to agency theory, the board of directors act as a control mechanism to align the interests of managers and shareholders to reduce information asymmetry and agency costs. The board of director with sustainability expertise tend to prioritize sustainability practices and the sustainability information conveyed to stakeholders (Subramaniam et al., 2023). The extent of climate-related financial disclosure is expected to improve as they are well-equipped to identify sustainability risks and opportunities (Maswadi & Amran, 2023). Thus, such directors have a significant impact in reducing information asymmetry by aligning the internal and external stakeholders' interests related to sustainability issues.

Several studies explored whether the directors' knowledge or expertise on sustainability issues affect climate change disclosure (for example, Maswadi & Amran, 2023; Subramaniam et al., 2023). The findings from several studies observed that board members with more experience in sustainability improve companies' sustainability reporting quality (Subramaniam et al., 2023). However, Maswadi and Amran (2023) found that there is no relationship between directors' expertise and climate change disclosure quality.

Overall, the background knowledge of the directors assists them in improving the extent of sustainability reporting. Similar to previous research and in keeping with agency theory, the following hypothesis is formulated:

H4: The directors' knowledge or expertise on sustainability issues is positively associated with climate change disclosure.

3.3 Share Ownership and TCFD Climate-related Financial Disclosure

Within the studies of environmental reporting, the influence of different categories of share ownership on environmental disclosure has been investigated by some researchers (for example, Amran & Haniffa, 2011; Gerged, 2021; Said et al., 2009). The separation of ownership and control in companies leads to information asymmetries, thus, information disclosure is necessary to mitigate information asymmetries between managers and shareholders (Kalu et al., 2016). During the selection of information to be disclosed, the managers need to consider the interest of each shareholder. This study explores the influence of two categories of share ownership which are government share ownership and foreign share ownership on climate change disclosure.

3.3.1 Government Share Ownership

Several studies found that government share ownership significantly and positively affects voluntary disclosure (Giannarakis et al., 2018). However, Amran and Haniffa (2011) discovered that there is no significant relationship between government shareholding with sustainability reporting. The coercive isomorphism under institutional theory can explain the government share ownership as a determinant of climate change disclosure. According to coercive isomorphism, companies who is dependent, face pressures exerted by external stakeholders, including government, and internal stakeholders. The companies that received significant government investment are under pressure to follow the government's aspirations (Amran & Haniffa, 2011). Therefore, these companies are expected to disclose more climate-related information following the government policy to encourage listed companies to practice voluntary climate-related disclosure aligned with TCFD recommendations.

Overall, companies with government shareholding face pressure generated by government interventions and the need to conform to external regulations. Similar to prior studies and in line with institutional theory, the following hypothesis is formulated:
H5: The government share ownership is positively associated with climate change disclosure.

3.3.2 Foreign Share Ownership

Foreign share ownership is the ownership of a portion of equity by foreign investors. Foreign investors from developed countries are concerned about the environmental practices of companies because they have a higher awareness of environmental and social issues. Based on institutional theory, companies that compete for resources abroad or depend on foreign shareholders face coercive pressure to convey their environmental practices with these investors' expectations. This is because these companies need to retain their existing foreign investors and attract new potential investors (Amran & Haniffa, 2011). The finding from Amran and Haniffa (2011) shows that companies owned by foreign shareholders normally disclose their environmental information in the independent report which indicates that such companies are more advanced compared to local companies in sustainability reporting. Thus, such companies are expected to improve their environmental reporting, including climate change disclosure under coercive pressure.

A previous study discovered that foreign share ownership has a positive and significant influence on voluntary disclosure (Gerged, 2021). However, Amran and Haniffa (2011) and Said et al. (2009) found that foreign share ownership did not have a relationship with voluntary disclosure. The result may be because the foreign company disclose their environmental information in independent reports such as sustainability reports that are not considered by the researchers (Amran & Haniffa, 2011).

Overall, companies that depend on foreign shareholders are under coercive pressure to disclose climate change information to meet their interests. Similar to prior studies and in line with institutional theory, the following hypothesis is formulated:
H6: Foreign share ownership is positively associated with climate change disclosure.

4. Conclusion

This conceptual analysis has reviewed the literature on determinants of climate change disclosure and has proposed a conceptual framework based on the hypotheses formulated (Refer to Figure 1). Based on the hypotheses proposed, the framework predicts positive associations between the six independent variables, namely, environmental performance, CSR committee, chief sustainability officer, directors' knowledge or expertise in sustainability issues, government share ownership and foreign share ownership, and the dependent variable, climate change disclosure. As limited studies focus on determinants of climate-related financial disclosure aligned with TCFD recommendations, further empirical study is needed to support these hypotheses.

This study provides some implications for companies and policymakers. It highlights the factors that can assist companies in improving their climate-related financial disclosure aligned with TCFD recommendations. In addition, this study highlights the determinants of climate-related financial disclosure, which is hoped to assist the policymaker in developing targeted policies and initiatives that are aimed at promoting more effective and standardized climate-related financial disclosure practices across various sectors.

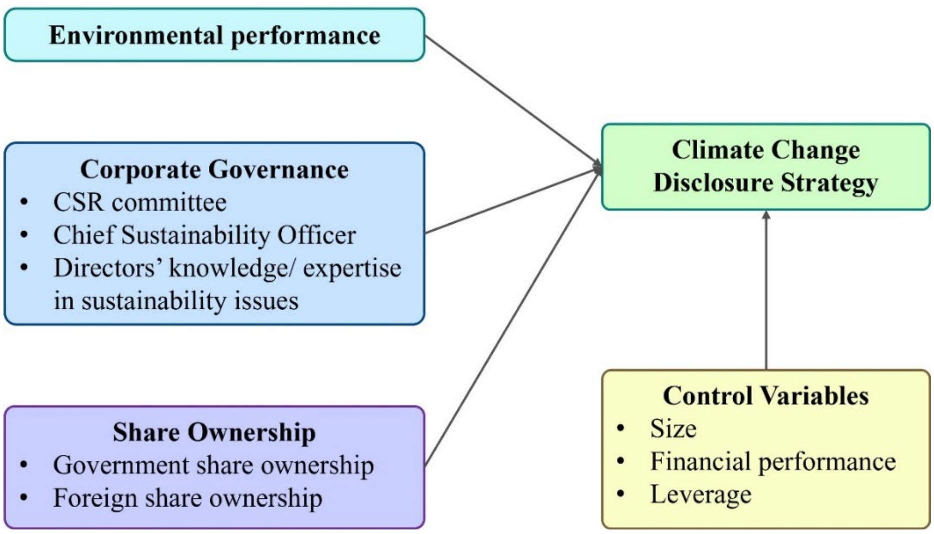

Figure 1. Conceptual Framework

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