

Business Strategy and Climate Change Disclosure

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Climate change disclosure (CCD) in accounting literature refers to the practice of providing detailed and transparent information in a company's financial reports, statements, and official documents about the current, actual, and potential financial impacts of climate change on the company. This disclosure is essential for all categories of stakeholders, including regulators, investors, and the public, to build an overall view and understand how a company is dealing with and managing the opportunities and risks related to climate change.

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1. Introduction

Climate change is widely seen as a main source of physical, social, and economic risks at the global community level, and it affects the business environment directly or indirectly ([Eleftheriadis and Anagnostopoulou 2015](#)). Directly, economic sectors, such as forestry, agriculture, and tourism, are particularly vulnerable to the direct physical impacts of climate change because of their dependence on the environment, and thus face increased risks ([Lash and Wellington 2007](#)). Indirectly, energy-intensive sectors such as power production, cement, and aluminum are more vulnerable to risks associated with current or imminent legislation to reduce greenhouse gas emissions. Due to the growing interest and increasing risks, disclosure about climate change issues become of great importance. [Kim et al. \(2022\)](#) and [Newman et al. \(2023\)](#) argued that disclosure of climate change risks is associated with a significant increase in strengths related to climate change and a significant decrease in concerns related to it, indicating that this disclosure is reflected in the companies' operations that help address climate change. Therefore, academic studies should seek to build a more in-depth understanding of the determinants behind companies' tendency to voluntarily provide such disclosure.

Moreover, global concern about climate change has been embodied since the 1990s, beginning with the formulation of the United Nations Framework Convention on Climate Change at the Earth Summit in 1992. However, the main impetus for the development and adoption of climate change mitigation policies is the establishment of the Kyoto Protocol, which entered into force in 2005, and represents a legally binding agreement to reduce emissions in industrialized countries ([Maamoun 2019](#)). To achieve the goals of the Kyoto Protocol, national and international policies have been adopted to mitigate the effects of climate change, including the imposition of a cost of carbon emissions in the form of carbon taxes. Therefore, the climate change risks are not limited to the physical risks facing the planet but also represent substantial risks for companies, investors, and the financial system ([Attenborough 2022](#)). These increasing risks have attracted the attention of stakeholders, such as government agencies, institutional investors, accounting organizations, banks, consumers, and nonprofit organizations who have required information related to corporate climate change practices ([Maamoun 2019](#)). Companies play an essential role in controlling climate change risks by reducing greenhouse gas emissions ([Tang and Luo 2014](#)), and they should provide information related to environmental and carbon performance ([Meng et al. 2014](#)), where one aspect of adaptation to climate change is the disclosure of climate change information ([Attenborough 2022](#)).

Furthermore, companies show carbon emissions data and demonstrate low-carbon behaviors through climate change disclosure ([He et al. 2021](#)) to create a positive image of the company regarding climate change issues ([Peng and Li 2022](#)). Recent years have seen a growing interest in climate change disclosure globally, due to the support of the Climate Financial Disclosure Working Group (TCFD), the Sustainability Accounting Standards Board, the Carbon Disclosure Project, and the Securities and Exchanges Commission (SEC) ([Iriyadi and Antonio 2021](#)). Disclosure of greenhouse gases and carbon is the newest area of environmental disclosure, and investors consider climate change disclosure as crucial as traditional disclosure ([Ilhan et al. 2019](#)). Due to the development of big data technologies, climate change disclosure has become more efficient and less costly, prompting more companies to provide climate change information. Therefore, understanding the determinants behind that disclosure can provide information of high importance to the business environment. Among the possible determinants is the nature of the company's strategic direction, which is

expected to determine the company's practices, including disclosure practices ([Frank et al. 2019](#); [Hilary et al. 2016](#)), as well as management characteristics that can significantly interfere in determining the company's disclosure practices.

The strategic direction is a major and important factor in formulating the company's directions, including those related to the various aspects of disclosure, where business strategy can affect the financial reporting process and voluntary disclosure ([Bentley-Goode et al. 2019](#)), and it is also one of the determinants of the complexity of the annual reports ([Lim et al. 2018](#)). Therefore, it can be argued that the strategic direction affects the company's disclosure strategy, including the extent of providing climate change information. Companies may adopt different business strategies, and those strategies can be classified depending on their basic point of view into two main types, which are the initiative strategy that largely follows new opportunities and the defense strategy that depends on exploiting existing strengths ([Hsieh et al. 2019](#)). Moreover, ([Bentley-Goode et al. 2019](#)) indicated that prospector companies are more likely to provide voluntary disclosure, therefore it can be suggested that prospector companies adopt a more open disclosure strategy, making them more inclined to provide climate change information. Prospector companies are characterized by a greater degree of uncertainty and risk in their business environment, so they largely need to expand their disclosure, including disclosure of the climate change risks, which helps mitigate agency costs and information asymmetry. In addition, prospector companies have greater public opinion exposure; therefore, climate change disclosure can limit future negative reactions, as risk disclosure and providing negative information helps them to gain legitimacy ([Oliveira et al. 2013](#)). In addition, the prospector companies heavily rely on external funding, therefore they prefer to expand disclosure to show transparency to all stakeholders.

2. Climate Change Disclosure in Accounting

Climate change disclosure (CCD) in accounting literature refers to the practice of providing detailed and transparent information in a company's financial reports, statements, and official documents about the current, actual, and potential financial impacts of climate change on the company. This disclosure is essential for all categories of stakeholders, including regulators, investors, and the public, to build an overall view and understand how a company is dealing with and managing the opportunities and risks related to climate change ([Hassan 2023](#)). Moreover, key elements of climate change disclosure (CCD) in accounting mainly include:

2.1. Risk Assessment

Climate change risk assessment in accounting involves the measurement, evaluation, and disclosure of the actual and potential financial risks that climate change poses to a company's operations, assets, liabilities, and overall financial performance ([Zhang et al. 2023](#)). This process is essential for managing and understanding the impact of climate-associated risks on a business's ongoing financial stability ([Li et al. 2022](#)). Therefore, companies need to identify and assess the climate change-associated risks that could affect their operations. These risks can be divided into two main factors: (a) Transition risks come from the shift to changes in market preferences, regulations, and technology, especially in a low-carbon economy. (b) Physical risks come from the physical impacts of climate change, such as extreme weather events, sea-level rise, and natural disasters ([Kim et al. 2022](#)).

2.2. Financial Impacts

Disclosing the actual and potential financial impacts of climate change-associated risks on a company's assets, liabilities, operations, and overall financial performance is crucial. This may involve evaluating and assessing the costs of adaptation, mitigation, or liabilities related to environmental aspects ([Saragih et al. 2021](#)).

In addition, businesses should consider regulatory rules and requirements associated with climate change risk disclosure. In some countries, regulators are imposing requirements that mandate it to disclose climate-associated risks in their annual financial statements and reports. Thus, the climate change risk assessment results should be integrated into financial reports, including the annual financial disclosures and statements. This ensures that stakeholders have a deep understanding of how these risks may affect the business's performance from the financial aspect ([Aksar et al. 2022](#); [Iriyadi and Antonio 2021](#)). Based on that, once climate change risks are identified, businesses should evaluate their potential implications. This involves assessing the costs related to it, including damage to fixed assets, increased cost of insurance, litigation, and supply chain ([Biddle et al. 2009](#); [Lee 2016](#)).

2.3. Governance and Strategy

Companies are encouraged to disclose information about their governance, and how climate change-associated issues are integrated into their overall business strategy. This includes details about board oversight, policies, and decision-

making processes related to climate change. Furthermore, risk disclosure should show any climate-related targets, objectives, or commitments the business has established, such as energy efficiency, carbon reduction, or sustainability ([Li et al. 2022](#); [Lim et al. 2018](#); [Yunus et al. 2016](#)).

2.4. Adaptation, Resilience Measures and Sensitivity Analysis

Data and information about efforts to adapt to the physical impacts of climate change and enhance its resilience, such as infrastructure improvements or supply chain adjustments. In addition, sensitivity analysis involves evaluating how changes in key variables or assumptions, such as carbon prices, affect a company's financial valuations and projections. It helps identify which climate-associated elements have the most significant impact on the company ([Attenborough 2022](#); [Dawkins and Fraas 2011](#)).

2.5. Disclosure Frameworks

Many reporting frameworks have been developed, such as “Task Force on Climate-related Financial Disclosures-TCFD” to guide managers and accountants in preparing and disclosing climate-associated information effectively. Moreover, climate change disclosure is becoming increasingly important in the business world as environmental sustainability and climate risk management gain prominence. Regulatory bodies in different countries are also pushing for more standardized and comprehensive climate change reporting to ensure that all stakeholder categories have the appropriate information to make decisions ([Ananzeh 2022](#); [Grewal et al. 2019](#); [Meng et al. 2014](#)).

Moving deeply forward in accounting literature, sustainability disclosure in the past decade has attracted the attention of international and official bodies that working towards a green economy ([Abdullah et al. 2015](#); [Amanati and Arifa 2022](#); [Athanasakou et al. 2023](#); [Hassan 2021, 2023](#); [Li et al. 2022](#)). These bodies have developed several frameworks, such as the Global Reporting Initiative, the International Integrated Reporting Council, the Sustainability Accounting Standards Board, and the Carbon Disclosure Project. These frameworks provide businesses with clear guidance on non-financial disclosure like environmental disclosure and corporate social responsibility disclosure ([Ellili 2022](#)). Within the sustainability disclosures, climate change disclosure addresses the risks and opportunities related to climate change issues that may affect revenues and expenses in the income statement and on assets, liabilities, capital, and financing in the balance sheet. The authors ([Hahn et al. 2015](#); [TCFD 2018](#)) indicated three theoretical approaches that can be used to explain the motives of environmental disclosure: socio-political, economic, and institutional. Going further, socio-political theories are stakeholders and legitimacy theories, which represent two complementary points of view, as the company works in response to pressures from stakeholders to obtain legitimacy. When companies are unable to act in accordance with certain social values, their survival may be threatened. Therefore, they take certain actions to align with society's values to mitigate the threat ([Grubnic 2014](#)). In this context, some studies have indicated that environmental disclosure after environmental incidents is considered an act to obtain legitimacy ([Choi and Wang 2009](#); [Lim et al. 2018](#)). Economic theories include the signal theory, where voluntary carbon disclosure is a signal from a company to regulators that it is taking potential climate risks seriously. Where ([Berthelot and Robert 2011](#)) found that businesses exposed to constraints—especially political ones—provide higher levels of climate change disclosure in their environmental, social, and governance (ESG) reporting, and ([Dawkins and Fraas 2011](#)) found that businesses that control their carbon emissions can create a competitive advantage. The view of institutional theory suggests that companies make decisions about voluntary carbon disclosure not only according to economic models but also because they are monitored by the institutional context. In addition to these theories, ([Maxwell et al. 2000](#)) indicated the economic theory of regulation, where companies will preemptively act in the face of a regulatory threat. If regulatory risks become a priority, while the marginal cost of self-regulation is relatively low, firms will be socially responsible. In this context, the company's orientation towards protecting the environment refers to its commitment to operating and making decisions in accordance with the expected future legislation in the absence of binding industrial standards ([Decker 2003](#)), which can apply to actions related to climate change issues.

3. Business Strategy and Climate Change Disclosure

Previous studies argue that business strategy is an important element in defining corporate identity ([Athanasakou et al. 2023](#); [Hambrick 1983](#)), and business characteristics like management models, values, and resource utilization are related to business strategy ([Zhang et al. 2023](#)). The strategy is stable over time, as it can be modified over more than the possibility of changing it ([Amanati and Arifa 2022](#); [Bentley-Goode et al. 2019](#)) because the strategy includes a massive amount of detail and interactions between those details to make a change in the strategy are more complex than what is required to retain them ([Hsu et al. 2013](#)). Therefore, it is likely that the business strategy is considered one of the basic determinants of the company's practices, such as disclosure practices ([Hassan 2023](#)).

There are different theoretical insights that can be used to clarify the relationship between business strategy and climate change disclosure. Authors ([Li et al. 2022](#); [Weber and Müßig 2022](#)) indicated that the relationship between disclosure and strategy can be understood through the viewpoint of political cost theory, where the companies that are seen as having high profits and significantly growing (characteristic of entrepreneurial companies) attract the attention of outside stakeholders (regulators and public opinion), which lead to bearing additional loads ([Hassan 2023](#)). Thus, companies need to deal with the views of external parties through public relations or social work, and this may also take place by adopting a disclosure strategy that improves the external parties' views regarding the company ([Hassan 2021](#)). In this context, it can be suggested that due to the growing importance of climate change issues, the companies face increasing pressure that could represent a motive to expand the disclosure of climate change information to mitigate pressures. According to legitimacy theory, risk communication assists stakeholders in assessing potential litigation and reputational risks ([Weber and Müßig 2022](#)). To avoid negative reactions in the future, prospectors signal their legitimacy by promptly disclosing their negative information and related risks ([Oliveira et al. 2013](#)).

The prospectors' business environment is characterized by high risk levels due to the focus on research and innovation activities, which are usually risky activities ([Lim et al. 2018](#)) and are subject to greater uncertainty ([Bentley-Goode et al. 2019](#)). The high level of risk indicates information asymmetry ([Deumes and Knechel 2008](#)), and according to agency theory, disclosure about risk issues in the annual financial report can increase information asymmetry and agency costs between a company's managers and shareholders ([Saragih et al. 2021](#)). According to organizational theory, prospectors reveal more information ([Bentley-Goode et al. 2019](#)), which can be the case of climate change disclosure, given its semi-voluntary or semi-mandatory nature. According to ownership cost theory, companies face a trade-off between the benefits and costs of reporting risk information ([Abdullah et al. 2015](#)). Moreover, disclosing excessive information about potential risks may create an impression of inadequate risk management practices. Furthermore, revealing sensitive information could inadvertently benefit competitors. Given their reliance on external financing, prospectors have a heightened need for transparency to maintain investor confidence and attract additional funding ([Weber and Müßig 2022](#)).

4. CEO Overconfidence and Climate Change Disclosure

The CEO is the main driver of the company's operations and relationships, and he is the most influential person on performance, ([Chen et al. 2017](#)) indicated that CEOs have the right to speak in the major decisions and they can determine the main operations and activities, such as financing and investment ([He et al. 2021](#)). Moreover, one of the decisions of the CEO's authority is carbon information disclosure. CEO characteristics can affect his decisions, and the most significant psychological deviation in behavioral finance is managerial overconfidence ([Nkukporu et al. 2020](#)). Overconfident CEOs overestimate the total amount of potential company's resources, and their ability to deal with the problem. Also, the overconfident CEO believes that he can control the company's development, so when making decisions, he tends to adopt riskier and biased methods, and the risk level for his company will be higher ([Abdullah et al. 2015](#)). When making carbon disclosure decisions, managers will weigh risks against benefits, and overconfident managers have a higher willingness to take risks, which will decrease their companies' willingness to disclose carbon data to a certain extent ([Tang and Luo 2014](#)), while non-overconfident managers often reveal more carbon data because of risk aversion. An overconfident CEO tends to underestimate stakeholders' ability to provide resources and thus neglects the mutual benefits with those parties through climate change data ([He et al. 2021](#)). An overconfident CEO ignores corrective feedback. Thus, the CEO's overconfidence supports the culture of dictatorship in the company ([Ahmed 2023](#)), and the dictatorship culture makes the company less able to adapt to the changing environment. According to previous perceptions it can be expected that CEO overconfidence negatively affects the level of voluntary climate change disclosure.

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