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Disclosure of climate change performance and financial distress

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1. Introduction

The purpose of this study is to investigate the relationship between climate change performance and the financial health of the company. Disclosing more information about climate change can improve the company's financial performance (Al-Shahrani et al., 2023). Investing in sustainability projects helps improve stakeholder relations and can increase economic profits (Alvarez et al., 2014). Voluntary disclosure of carbon emissions and assessment of the economic consequences of climate change can help the company's financial performance (Al-Saifi et al., 2020). Climate change is one of the most widespread environmental issues (Kotai, 2019), with risks that are transforming the way companies do business (Beg et al., 2018) and threatening fundamental elements of people's lives around the world (access to water, food, health, and land use and the environment) (Stern, 2006). Industrial activities and greenhouse gas emissions have had a significant impact on global climate change since the Industrial Revolution; this has resulted in ongoing and evident impacts observed around the world (Futak and Wolynska, 2023). It seems necessary to develop a comprehensive theoretical framework that can explain the determinants and effects of corporate climate change reporting and disclosure (Han et al., 2015).Climate change, such as greenhouse gas emissions, rising sea levels, loss of forests and rangelands, ecosystem changes, and droughts, affects health, well-being, and environmental conditions (Mohammadi et al., 2022; Futak and Wolynska,

2023; Ramakrishnan and Agha Mohammad, 2024). These changes can have a wide-ranging impact on migration, economic growth, political stability, agricultural productivity, animal and crop losses, labor productivity, individual health, income, and savings (Zomente and Bystrova, 2021). Climate change can also have a wide impact on social security, in addition to affecting natural resources, through a chain of secondary consequences (Roumina, 2025). Climate risk disclosure is associated with stock performance (Kouloukoui et al., 2019). Corporations play a pivotal role in achieving climate objectives, and many of them are exposed to climate-related risks. Accordingly, the integration of climate-related risks into enterprise risk management systems and external reporting practices is imperative. In this context, the recommendations and framework issued by the Task Force on Climate-related Financial Disclosures (TCFD, 2017) provide a valuable foundation. Nevertheless, the reporting of climate-related risks and opportunities—particularly with respect to their implications for financial statements—remains at an early stage of development. Firms are still endeavoring to comply with these recommendations and to determine the interrelationship between financial and non-financial performance (Billondi, 2023).

2. Hypothesis

H1: Climate change performance disclosure reduces financial distress.

H2: Litigation risk moderates the relationship between disclosure of climate change performance and financial distress.

H3: Size of audit firms moderates the relationship between disclosure of climate change performance and financial distress.

H4: Risk committee moderates the relationship between disclosure of climate change performance and financial distress.

H5: Audit fees moderate the relationship between disclosure of climate change performance and financial distress.

3. Methods

This research is correlational in nature. In this study, the independent variable, “climate change performance disclosure,” was quantified based on 11 key components recommended by the Task Force on Climate-related Financial Disclosures (2017). This quantification was achieved through content analysis of the Board of Directors’ Activity Reports and Management

Discussion and Analysis, employing a dual approach (0 or 1). Furthermore, the dependent variable, "financial distress," was calculated using financial distress prediction models (adjusted Altman Z-score, 2014). The study population comprises manufacturing companies listed on the Tehran Stock Exchange, covering a 7-year period from 201۸ to 202۴, with a focus on manufacturing industries that have the most significant impact on the climate.

4. Results

The findings do not support a link between climate change performance disclosure and financial distress. Climate change performance disclosure can be important data for stakeholders and a framework for disclosing climate change-related risks and opportunities needs to be developed to meet the information needs of users in this area.

5. Discussion and conclusion

The intensification of climate change can have harmful consequences on the human dimension, such as reduced food security, increased poverty at the national and global levels, physical and mental health damages, and on the social level, including social disruption and greater harm to disadvantaged groups. Ultimately, it can threaten peace and national and global security through competition over limited resources. Therefore, disclosing climate change performance can enhance the accuracy of operational and financial forecasts and enable planning to mitigate its harmful effects. Disclosing climate-related data is essential for assessing climate risk and planning for the resilience of companies, and it is demanded by stakeholders. When combined with environmental and social performance information, this disclosure can improve the financial and operational sustainability of companies from a legitimacy perspective and delay their financial distress. The results of the study do not confirm the effect of climate change performance disclosure on financial distress, which could be due to methodological issues in the research. For example, the way the climate change performance disclosure variable is measured based on the board of directors' activity report and the management's explanatory report of management and the method of assessing financial distress, considering that many years have passed since the model was last adjusted and that the parameters of the model have changed due to recent economic conditions, could be reasons for methodological error. These issues may have contributed to the failure to establish a confirmed relationship

between climate change performance disclosure and financial distress, and the lack of confirmation of this relationship does not diminish the importance and need for disclosing related climate change performance data. The attention of researchers interested in this field and in measuring variables to alternative methods and reducing methodological errors could address the need for further research on the effects of climate change performance disclosure

Keywords: Climate change, climate change performance disclosure, climate change risk.