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Impact of board characteristics on the adoption of sustainable reporting practices

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ABSTRACT

This study examines the influence of board characteristics on company's sustainability reporting in the GCC region. In contrast to prior research, we investigate the relationship between variables across a span of eleven years, encompassing all nonfinancial firms listed on the GCC stock exchanges. Our study addresses the scarcity of research undertaken in the GCC region on this particular topic. This study empirically investigates the relationship between board characteristics (specifically, board size, board gender diversity, board meetings, and board independence) on the adoption of sustainable reporting while taking into account firm characteristics (including leverage, profitability, liquidity, and firm size) and controlling for macroeconomic variables (such as GDP and inflation). This research utilized Probit regression to examine the influence of the likelihood of various variables on the adoption of sustainable reporting. The findings indicated that larger board sizes, a higher proportion of female board members, the inclusion of more independent directors, and more frequent board meetings all contribute to the improvement of sustainable reporting. Furthermore, the greater the size, the greater is the impact of profitability and liquidity on the sustainability of reporting. The current research offers some insights into the connection between board characteristics and corporate sustainability reporting for corporate boards, regulators, and practitioners who are interested in promoting sustainable reporting. Further investigation should examine the comparison of sustainability reporting methodologies across different regions, as well as between privately held and publicly listed corporations. Finally, as evident by the results reported in the Maximum Likelihood Estimator our results are robust.

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1. Introduction

In light of the current global concerns regarding the attainment of the United Nations 2030 sustainable development agenda, companies across the globe have faced significant demands to actively participate in sustainable practices that encompass environmental, social, and economic aspects (Hussain et al., 2018). Due to the spike in climate-related disasters in the past few years, there has been a dramatic rise in worldwide uncertainty about the sustainability policies of firms (Sun et al., 2020). As consequently, sustainability-related risk has become an important corporate challenge. Nevertheless, the degree of development differs significantly (Sun et al., 2021). Although corporations in developed nations have achieved substantial advancements, the performance of companies in developing countries is somewhat less remarkable (Edziah et al., 2021). This statement is especially true for the economies of the Gulf Cooperation Council (GCC) that heavily rely on oil. Considering the economic, political, and social importance, as well as the collective environmental impact, of the GCC countries (Farooq et al., 2023).

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Given the information provided, numerous businesses in the GCC region, particularly those operating in the energy and industrial sectors, have had to reconsider their investment strategy and gradually implement environmentally friendly and socially concerned procedures. Therefore, shareholders have nowadays requested strengthened corporate governance processes that priorities corporate sustainability reporting (Liu & Zhang, 2017). In other words, in recent years, there has been a notable surge in awareness about sustainability issues, leading organizations to compete by preparing comprehensive sustainability reports. This shift reflects a growing commitment to transparency and responsible business practices. A sustainability report is an institutional report that presents the performance of an organization's social responsibility, economic activities, environmental protection, ethical culture, and governance performance. Organizations must diligently address these considerations to remain competitive on a global scale while meeting the demands of their communities (Almashhadani & Almashhadani, 2023).

Sustainability reporting plays a pivotal role in bridging the gap between organizations and their communities by offering comprehensive information. This drives organizations to meet substantial international and local pressures for top-tier sustainability reports. Consistent and clear sustainability reports significantly reduce information asymmetry amongst stakeholders and, in turn, increase social acceptance. Due to this, organizations are increasingly shifting their focus to sustainability factors in their reports and applying new approaches to reporting. Among these is the United Nations Sustainable Development Goals, which provides organizations with vast opportunities to address challenges, including climatic changes, discrimination, poverty, and environmental degradation, to achieve sustainable development goals (Baah et al., 2021).

ESG measures the extent to which enterprises contribute to sustainable development. The three key components of sustainable development are the economic, environmental, and social aspects (Ortiz-de-Mandojana et al., 2016). The economic aspect focuses on the use of ethical and transparent accounting methods and adherence to regulatory requirements. Environmental sustainability pertains to the efforts made by corporations to decrease their carbon footprints through waste and pollution reduction, as well as the enhancement of air quality. Social sustainability reports focus on the impact of corporations on the social systems in which they operate (Papoutsi & ManMohan, 2020). It encompasses the assurance of fair methods of operation, the provision of satisfactory employment opportunities, the safeguarding of human rights, the protection of vulnerable clients, and the provision of specialized services for the elderly, disabled, and chronically ill individuals (Parsa et al., 2018). Firms' commitment to environmental, economic, and social sustainability reporting demonstrates their dedication to improving societal well-being and cultivating a positive reputation to attract additional equity investments (Raihan et al., 2022). Therefore, experts, policymakers and the governments are increasingly focused on enhancing the practice of sustainable reporting.

Prior studies have recognized board characteristics as a crucial element of corporate governance that has the ability to enhance sustainable reporting. Based on Shahbaz et al. (2020), the board is the top-most level of executive leadership in an organization and has the responsibility of making important decisions, including providing reports on company sustainability to different stakeholder groups. Adopting sustainability reporting allows organizations to address society and stakeholders' expectations and gain the legitimacy needed for success (Parmentola et al., 2022). Thus, Jizi (2017) demonstrates that board governance has a role in promoting sustainability reporting in UK enterprises. Also, Husted and de Sousa-Filho (2019) contended that the presence of an independent board of directors promotes the disclosure of ESG information in Latin America.

The agency theory supports the results reported by proposing that boards with a significant degree of independence may effectively oversee corporate operations and exert pressure to prioritize the preferences and requirements of different stakeholder groups (Jensen & Meckling, 1976). The resource dependence theory suggests that having independent and diverse boards can enhance an organization's entire social performance (Pfeffer & Salancik, 1978). For example, Aliyu (2019) conducted a study on publicly traded corporations in Nigeria and found that organizations with a higher number of independent board members are more likely to encourage corporate environmental reporting. Also, Endrikat et al. (2021) provide empirical evidence that board independence has a positive effect on corporate social disclosures. In a comparable manner, Masud et al. (2018) demonstrate the influence of board features on the reporting of environmental sustainability in organizations

located in South Asian countries. In contrast, several researchers have found that board qualities may not necessarily facilitate corporate social responsibility. For example, Mahmood et al. (2018) examined companies in Pakistan and found that the level of board independence does not necessarily influence whether a firm discloses information about sustainability. Moreover, Husted and de Sousa-Filho (2019) discovered that companies in which the CEO simultaneously serves as the Chairman of the Board have a tendency to exploit their authority and position, thereby diminishing the significance of corporate social responsibility. Also, Aliyu's (2019) study shows that there is no conclusive connection between larger board size and corporate environmental reporting in privately held corporations in Nigeria.

Due to the inconsistent results of the aforementioned empirical investigations, it is now challenging to decide in advance which influence is more significant. Therefore, a comprehensive investigation into the association between corporate governance and sustainability reporting is necessary. The inconsistent conclusions may have arisen due to many factors such as the study environment, data source and measuring methods used for corporate sustainability reporting. Moreover, the vast majority of these research investigations primarily examine companies located in industrialized nations, specifically Europe and the United States (Anyigbah et al., 2023; Endrikat et al., 2021; Naciti, 2019).

A restricted number of researches attempted to establish a connection between board features and corporate social responsibility (CSR) in developing or growing economies such as the Gulf Cooperation Council (GCC). Due to the fact that GCC's energy and industrial sectors have been actively involved in climate change discussions for many years, and considering that GCC represents one of the greatest exporters of oil and gas globally, it is an intriguing topic for our study. We specifically focus on all non-financial industries in the GCC. Regarding sustainable finance initiatives in each GCC country, the degree of achievement varies. Although, Qatar, Saudi Arabia and UAE are at the forefront of sustainable finance initiatives in the region, other GCC countries are also striving to swiftly adapt. For example, Aljanadi and Alazzani (2023) evaluate the effectiveness of the sustainability reporting metrics employed by oil and gas companies in the GCC nations. The findings indicate that the sustainability metrics given by firms are predominantly inadequate in terms of quality. The findings also indicate that corporations neglect to provide comprehensive data on environmental indicators, which is considered the primary category for Oil & Gas corporations.

However, in this empirical paper, we deviate from the previous literature by examining the topic from a broader perspective. Our objective is to examine how the qualities of a board affect the decision to adopt sustainable reporting. Prior research has investigated the influence of board features on ESG factors, as demonstrated by studies conducted by Jain and Jamali (2016) and Lau et al. (2016). The concept of environmental sustainability has been discussed by Masud et al. (2018) and Aliyu (2019). Alternatively, the performance of the company can be influenced by factors such as Buallay et al. (2017) and Riyadh et al. (2019). Essentially, these research efforts have concentrated on specific aspects of ESG, including the reporting of economic or social sustainability (Liu et al., 2020; Lau et al., 2016).

Inspired by the information provided previously, this investigation aims to address the question as follows: How can corporate governance, particularly the board characteristics, enhance the adoption of sustainable reporting in the GCC companies? Our research aims to investigate the impact of board characteristics (Board Size, Board Meetings, Board Independence and Board Gender Diversity) on the adoption of sustainable reporting in the GCC countries. The current study makes several contributions to the existing body of literature. Firstly, the empirical study is relevant and focuses on a subject that truly demands serious consideration. Studies on sustainability reporting by GCC companies are lacking, and consequently, the role that this investigation plays in addressing this gap is the significant field of sustainability reporting. Secondly, this investigation is unique in that it investigates the impact of board characteristics on the adoption of sustainable reporting while it controls for firm characteristics such as profitability, leverage, firm size, and liquidity, as well as macroeconomic variables like GDP growth and inflation. Thirdly, prior research has mainly concentrated on shorter timeframes, typically spanning less than a decade. In contrast, the present work examines these matters through Probit regression over a span of 11 years (2013–2023).

The subsequent sections of this study are structured as follows. The following part provides a background of the study. Section three will highlight the theoretical framework. Section four, critically discuss

the relevant literature and the hypotheses development. In the fifth part, we will outline the research approach. The sixth step entails the presentation and discussion of the findings. The research is concluded in section seven.

2. Background

In recent years, there has been a growing awareness of sustainability concerns among firms, authorities, and global organizations (Kolk, 2004). As a result, companies have started to compete in terms of disclosing information about their sustainable policies (Cardoni et al., 2019; Kolk & Perego, 2010). A sustainability report is a comprehensive document that provides an overview of an organization's economic activity, ethical culture, social responsibility, governance performance, and environmental protection (Heemskerk et al., 2002). Sustainability reporting disseminates evidence to many stakeholders, enabling them to make informed decisions (Barkemeyer et al., 2009). Corporations must prioritize these concerns in order to remain competitive in the global market (Kaspereit & Lopatta, 2016) and meet the demands of the local community (Michelon & Parbonetti, 2012; Ahmad et al., 2015).

The GCC region consists primarily of desert states that are financially advanced (Saif et al., 2014). The nations of the Gulf Cooperation Council face common environmental concerns, including water scarcity, significant carbon emissions, damage of marine habitats, and adverse effects of climate change (Al-Saidi & Saliba, 2019). Policymakers have historically neglected these obstacles by prioritizing economic goals such as expanding revenue streams for government and preserving substantial incomes and numerous advantages for citizens (Zaidan et al., 2019). In the past, the environmental consequences of limited resources and ecological harm have typically been dealt with on a case-by-case basis via methods such as water desalination, trading oil for food, and limited efforts to restore damaged marine habitats (Al-Maamary et al., 2017).

In recent years, Gulf Cooperation Council (GCC) governments, which have experienced significant economic expansion due to abundant fossil fuel income, have started to show increased interest in the global sustainability agenda. Al-Saidi et al. (2019) have provided a comprehensive account of how GCC countries have recently shown a keen interest in the global sustainability agenda by participating in international agreements such as the Paris Agreement, the SDG agenda, and various environmental regimes (Al-Saidi & Saliba, 2019). The GCC countries are currently involved in frameworks that have a complete understanding of sustainability (Abulibdeh et al., 2019). For instance, they have embraced the SDG agenda along with all its reporting and monitoring tools. In addition, they have endeavored to synchronize this strategy with their national objectives and incorporate significant aspects of it into their regional endeavors or international engagements in the realm of state environmental relations (Al-Saidi, 2021). As a result, GCC states recognize the significance of extensive environmental methods that incorporate concepts like ecosystem management, resilience, inter-sectoral coordination, and integrated management (Zaidan et al., 2019).

The sustainability involvement of GCC states has grown for three distinct factors. Primarily and significantly, there are immediate economic repercussions resulting from the escalating local demands caused by population and economic expansion. The rapid expansion of these economies has made it challenging to sustain the equitable economic policies of GCC states, which include low taxation, appealing public employment opportunities, subsidies for essential services like water and energy, and individual subsidies for GCC citizens. This difficulty arises particularly due to the volatility of global energy prices, which directly impacts state revenues (Al-Saidi, 2022). For instance, the growing demands within the local region have made it necessary to implement reforms such as reducing energy subsidies and diversifying energy sources through renewables. Without these measures, the GCC states may soon exhaust all their fossil fuels that were originally intended for export in order to meet local consumption (Gately et al., 2012). Indeed, the primary objective of the development goals of GCC governments is to achieve economic diversification by reducing their dependence on fossil fuel earnings.

Attempts to broaden the range of industries in GCC economies have been ongoing since the early 1970s, but have had limited success in substantially reducing reliance on fossil fuels (Albassam, 2015). Obstacles to diversification in the GCC region include the significant influence of states and the absence

of interregional commerce or specialization among GCC states (Hvidt, 2013). Various GCC states have implemented different strategies to achieve economic diversification, such as the establishment of sovereign wealth funds (El-Kharouf et al., 2010) and the adoption of environmental technologies (Al-Saidi & Elagib, 2018). Participating in the sustainability agenda, such as by implementing sustainable energy, can reduce the significant dependence of GCC economies on the oil and gas industries (Flamos et al., 2013).

The obstacles confronting the process of economic diversification in the Gulf area are comparable to those encountered by several emerging nations, especially those that heavily rely on producing fossil fuels (Mishrif, 2018). For example, In Azerbaijan, the income generated from fossil fuel resources has a substantial economic impact. However, there is the opportunity to allocate these earnings towards diversification or the modernization of the economy (Sadik-Zada, 2020). In the absence of a viable plan to handle these earnings, such as investing in sustainable initiatives, countries that rely on oil exports face the potential of economic decline, which involves the occurrence of the 'Dutch disease' where economic performance worsens despite revenue from fossil fuel exports (Niftiyev, 2021).

Furthermore, there has been a growing global demand for GCC countries to prioritize sustainability due to their high per capita consumption and perceived block of certain aspects of the international climate agenda (Depledge, 2008). Lastly, the technological and economic viability of numerous environmental technologies has been established (Krane, 2018).

There are 'win-win' chances for GCC countries to meet environmental regulations, attract investors, and save expenses (Sadik-Zada et al., 2021).

For instance, countries in the GCC region are currently showing a keen interest in achieving 'ecological modernization' by implementing 'eco-innovations,' especially in the construction sector (Al-Saidi, 2022). This is done to uphold their contemporary reputation and appeal to affluent inhabitants and investors (Al-Saidi & Elagib, 2018). Moreover, participating in the energy transition agenda is beneficial since the money saved from reducing energy subsidies can be used to more productive purposes, such as the advancement of renewable energy (Abdel Gelil et al., 2017). Furthermore, renewable energies, specifically solar energy, have demonstrated remarkable cost-effectiveness in the Gulf region (Bellini, 2021).

3. Theoretical background

Corporate sustainability reporting is an approach with the objective to enhance openness and responsibility to investors and other stakeholders regarding businesses' efforts to support global sustainable development goals (Seele, 2016). Corporate sustainability reporting provides comprehensive information on a corporation's financial, environmental, and societal obligations. Corporate sustainability reporting entails the documentation of a corporation's actions, which are based on three fundamental pillars: social, environmental, and economic sustainability. Firstly, Social sustainability reporting pertains to the disclosure of information concerning human rights, labor practices and decent work. Secondly, environmental sustainability reporting provides information regarding water usage, energy use, emissions, biodiversity preservation, adherence to regulations, waste management, and transportation concerns. Thirdly, Economic sustainability reporting encompasses taxes disbursed, data regarding income, employee remuneration, operational expenditures, philanthropic contributions, and additional investments. Corporate sustainability reporting enables investors and stakeholders to familiarize themselves with the sustainability strategies pertaining to the social, economic, and environmental aspects of organizations in pursuit of sustainable objectives.

3.1. Agency theory

Agency theory is a fundamental theory that clarifies and addresses conflicts between principals and agents (Jensen & Meckling, 1976). A principal-agent issue can occur when there is a conflict of interest, opportunistic behavior, and knowledge mismatch between a principal and an agent (Jizi, 2017). Agency theory promotes the utilization of independent directors to oversee the actions of management and safeguard the interests of shareholders (Chen et al., 2011). The theory proposes diminishing the flexible

decision-making role of management in order to agree with the principal-agent objective (Naciti, 2019). More precisely, board members should oversee business executives to ensure they fulfil the interests of shareholders (Husted, 2007). Consequently, this theory proposes that boards should be structured to promote the dissemination of both the financial as well as the non-financial data of a company (Anyigbah et al., 2023; Traxler et al., 2020).

3.2. Resource dependency theory

Pfeffer and Salancik (1978, 2003) argue that a corporation's advancement and continued existence are contingent on the external environment, establishing an inherent connection between the organization and its external surroundings (Udayasankar, 2008). Organizations are interdependent and rely on the environment for resources (Hillman et al., 2009). Consequently, organizations engage in actions to negotiate their position in the environment in order to acquire access to these resources (Pathak & Tewari, 2017). Resource dependency theory discusses the impact of an organization's external resources on its ability to perform (Ahmed & Pratap, 2022). Thus, according to the theory, if the board possesses the necessary abilities and skills, it may effectively initiate sustainability concerns (Coşkun & Öztürk, 2023). This, in turn, allows managers to develop pro-social behavior and ultimately increase the overall worth of the organization. Hence, the main duty of the board is to enhance the company's economic, environmental, and social performance by wisely distributing resources (Khemakhem et al., 2022).

3.3. Stakeholder theory

This theory has been introduced by Freeman (1984) to specifically address the ethical principles and values involved in organizational management. The stakeholder theory is widely recognized as an explanatory framework for corporate environmental accounting (Gray et al., 1996). It entails acknowledging and sharp the connection between the company's actions and their influence on its stakeholders. Stakeholder theory is a prominent framework in the field of social, environmental, and sustainability management research. Scholars define stakeholders as groups and individuals who have the ability to influence or be influenced by activities related to creating value (Gray et al., 1995). They are also described as individuals and groups who rely on the firm to achieve their own objectives and upon whom the firm relies for its survival (Spence et al., 2003). The stakeholder theory enhances comprehension of the impact stakeholders have on an organization's decisions and the subsequent responses of the organization to these effects. Ortar (2018) argues that sustainability reporting is grounded in stakeholder theory, which posits that a company's performance is contingent upon its capacity to fulfil the demands of its stakeholders. The approach guarantees that companies actively contribute to the betterment of society, particularly in relation to various environmental concerns, such as pollution and noise (Comyns, 2016). According to the theory, it is important for enterprises to take into account the concerns and well-being of other stakeholders, including employees, customers, governments, and suppliers. Consequently, this idea necessitates CEOs and corporate boards to collaborate in order to fulfil the interests of stakeholders (Aljanadi & Alazzani, 2023).

4. Literature review & hypothesis development

4.1. Board size and sustainable reporting

Board size is the collective number of directors who serve on a company board. Boards that are larger tend to have a wider range of experience, knowledge of finances, and problem-solving skills, which enhances the credibility and public perception of the company. The existing literature on large board sizes presents two opposing perspectives. One perspective stands for larger boards, while the other supports the idea of smaller boards (Jensen & Meckling, 1976). One perspective suggests that larger boards encounter challenges in coordinating efforts and are less effective, resulting in reduced control over management and higher agency expenses (Fama, 1980). Another perspective is that having large boards

promotes diversity, represents a wide range of interests, and utilizes human and social capital, resulting in well-rounded and high-quality board decisions (Pfeffer & Salancik, 1978). likewise, Garg (2007) contends that the CEO has greater ability to manage larger boards as opposed to smaller boards. The researcher finds that corporate boards should include a sufficient number of members who possess the necessary skills and knowledge to effectively fulfil the board's responsibilities. However, the board must additionally be sufficiently small to facilitate productive discussions (Hillman & Dalziel, 2003). Similarly, large boards consist of various individuals who possess expertise on environmental and social issues. Their expertise can influence the company to actively participate in corporate social responsibility initiatives and disclose such activities.

Prior research has identified a direct correlation between the size of the board and the extent of sustainability reporting. For example, Masud et al. (2018) analyzed 88 companies from India, Bangladesh, and Pakistan using panel data during the period of (2009–2016). In a study conducted by Mudiyansele (2018) analyzed a sample of 100 listed Sri Lankan companies from 2012 to 2016 and found that companies with a sustainability disclosure policy tend to have larger boards. Also, Correa-Garcia et al. (2020) examined the factors that influence the level of quality in sustainability reporting within non-financial companies in four Latin American countries between (2011–2015). The researchers discovered that larger boards have a positive and significant impact on the quality of sustainability reporting. Khairredine et al. (2020) findings suggest that there is a positive correlation between large boards and all aspects of CSR success. Beji et al. (2021) found comparable outcomes in French listed companies. They examined how board features influence the effectiveness of corporate social responsibility. The sample was collected from the entire Société des Bourses Françaises 120 Index (SBF120) throughout the period from 2003 to 2016. Also, Al-Shaer and Zaman (2016) results suggested the same finding. They examined a sample of firms listed in the UK FTSE350. Haladu and Bin-Nashwan (2021) conducted their study using a sample that included all the companies listed on the Nigerian Stock Exchange, totaling 218. The data collected from the period 2015–2019 indicates a clear and significant correlation between the size of the board and the extent of sustainability reporting. Consequently, based on the previous studies;

H1: There is a positive relation between board size and sustainable reporting.

4.2. Board gender diversity and sustainable reporting

Research indicates that a diverse board with female members is more efficient and possesses a comprehensive comprehension of the complicated nature of contemporary companies (Hillman et al., 2000). Mori (2014) contends that the qualities of directors, such as their age and level of education, play a crucial role in determining the effectiveness of boards and are likely to have an impact on organizational outcomes. Utilizing resource dependency theory (Pfeffer & Salancik, 1978), which posits that an organization's open system depends on resources from the external world, board gender diversity offers resources that assist management, especially in dealing with novel issues (Hillman et al., 2009). Gender diversity is a valuable resource that connects both the internal and external components of an organization, making it an asset of competitiveness and an enabler of productivity (Handschumacher & Ceschinski, 2020). Current research indicates that boards with an equal representation of genders ensure optimal performance in the process of making decisions (Wahid, 2019). Board diversity refers to the presence of female board members who possess a variety of characteristics and qualities that benefit the companies (Birindelli et al., 2020). Similarly, recent research indicates a favorable correlation between board diversity and company performance (Calabrese & Manello, 2021).

Board gender diversity enhances the efficiency of governance by safeguarding the credibility of financial reporting (Mazzotta & Ferraro, 2020). A study conducted by Wahid (2019) shown that companies that have boards with a varied representation of genders are less prone to making errors in financial reporting and are also less probable to be involved in fraudulent activities. Also, Kyaw et al. (2015) indicated that organizations with a greater proportion of female members on their board are less inclined to partake in profits manipulation. Sustainability reporting is a crucial component of financial reporting. Corporations utilize sustainability reporting as a means to include stakeholders and verify a company's ethical practices (Herremans et al., 2016). Ntim and Soobaroyen (2013) argue that a board with diverse

members can enhance a firm's legitimacy by engaging with a broader range of stakeholders and fostering stronger relationships between the firm and its stakeholders. Fernandez and Thams (2019) carried out investigation that supports the idea that having more women on corporate boards might improve stakeholder management. This is because female directors often influence a company's attitude to community engagement and charity (Noguera, 2020). Recent research indicates that when women are more involved, there is a higher likelihood that a company will implement integrated reporting (Vitolla et al., 2020). Despite the growing demand for companies to participate in sustainability reporting and promote gender diversity on corporate boards, only a limited number of research have investigated the relationship between these factors (Sebrina et al., 2023). Based on the previous studies discussed above;

H2: There is a positive relation between board gender diversity and sustainable reporting.

4.3. Board meetings and sustainable reporting

A board meeting is a scheduled and official assembly of a group of individuals known as the Board of Directors. The majority of organizations, whether they are public or private, for-profit or non-profit, are eventually overseen by a governing body generally referred to as the Board of Directors (Abdelqader et al., 2021). The members of this organization convene periodically to deliberate on strategic issues. The Board of Directors holds the highest level of authority within a company and possesses the jurisdiction to make significant decisions and take actions on behalf of the organization (Dincer et al., 2023). Stakeholder theory suggests that board members who possess the necessary expertise and experience may have a strong interest in the operations of enterprises (Kolev et al., 2019). This interest can be utilized and transferred in the board meetings to provide guidance to management on engaging in sustainably and socially responsible activities, as a way to demonstrate accountability to the stakeholders (Jarboui et al., 2020). According to the theory, board members, with their varied educational backgrounds, possess a wide range of cognitive and intellectual abilities (Khan et al., 2023). These abilities enable them to enhance the sustainability performance of the firms in line with the needs of stakeholders. The board is additionally accountable for overseeing the operations of the entire organization (Haque & Ntim, 2018). For a Public Limited Company, the initial board meeting must take place within 30 days after the date of establishment. In addition, it is required to hold a minimum of four board meetings within a one-year period (Anyigbah et al., 2023). Additionally, it is imperative that the time span between two meetings does not exceed 120 days (Ellili, 2022). During these meetings, important topics such as sustainability are being discussed, and decisions regarding disclosures are being made (Amahalu, 2020). Periodically, the board of directors will gather for a formal meeting to deliberate and make significant determinations, such as recruiting new executives, terminating underperforming ones, and determining the most effective way to communicate the company's financials, environmental effects, and social welfare to shareholders and other interested parties. Based on the research conducted by Jizi et al. (2014) and Jizi (2017), the regularity of their meetings indicates the board's consistency and enhances the level of openness in sharing information with stakeholders (Almagtome et al., 2020). Thus, previous research has determined that the frequency of board meetings has an impact on corporate social responsibility, indicating that more frequent board meetings could potentially enhance sustainable reporting.

H3: There is a positive relation between board meetings and sustainable reporting.

4.4. Board independence and sustainable reporting

Independent directors are individuals on the organization's board of directors who take actions without being subject to pressure by any other member of the board. According to agency theory, the presence of independent directors on the board enhances effective oversight by the board (Beske et al., 2020). Furthermore, independent directors are more proficient in fighting for demanding compliance with the law and policy (Girón et al., 2020). Previous research has empirically demonstrated that independent board members, as opposed to inside directors, tend to be more inclined to promote economic,

environmental, and social concerns. Thus, Jizi et al. (2014) found a favorable correlation between board independence and sustainable disclosures in publicly-listed banks in the United States. Furthermore, Husted and de Sousa-Filho (2019) discovered that the presence of an independent board of directors encourages the practice of sustainability reporting in 176 publicly-traded companies in Latin America. Wang (2012) conducted a study using 82 empirical studies to investigate the relationship between board features and corporate reporting. They discovered a connection between board independence and sustainability reporting. Endrikat et al. (2021) conducted a comprehensive analysis of 82 empirical research papers to clarify the connection between board features and corporate social responsibility. Their findings indicated a favorable correlation between these factors. Contrary to common opinion, Mahmood et al. (2018) argue that board independence does not enhance corporate sustainability reporting. In addition, Kesner and Johnson (1990) indicates that an increased proportion of independent directors is likely to have a favorable impact on the levels of accountability, transparency, and sustainability reporting. Companies that have a higher number of independent members on their Board tend to offer more extensive financial transparency, as stated by Lim et al. (2007). Although independent directors play a crucial role in promoting voluntary disclosure, the presence of CEO duality, where one person holds both the positions of chairman and CEO, might impact the independence of the board (El-Deeb et al., 2023). The presence of superior governance power can weaken the efficacy of the Board and hinder its ability to monitor and control functions (Waheed & Zhang, 2022). This poses a risk to the completeness of information transfer and decreases the level of voluntary disclosure (Kagzi & Guha, 2018).

H4: There is a positive relation between independent directors and sustainable reporting.

Based on the previous section and linking each board characteristic to the appropriate theory to explain the expected relation n sustainable practices. Table 1 summarizes all expectations.

5. Research design

This paper investigates the impact of board characteristics on the sustainability reporting in the GCC countries while controlling for firm characteristics such as profitability, leverage, firm size and liquidity and controlling for macroeconomic variables such as GPD and inflation. Table 2 illustrates the companies obtained from LSEG database. This paper collected the data from Refinitiv Eikon platform for the last 11 years (2013–2023). Data for all non-financial companies has been collected and any missing data were found in the annual reports or the relevant stock exchange market. The population included (568) and

Table 1. Expected impact of board characteristics & linked theory.

Variables	Expected impact	Linked theory
Board size	Positive	Agency theory
Board gender diversity	Positive	Resource dependence theory
Board meetings	Positive	Stakeholder theory
Board independence	Positive	Agency theory

Source: Authors analysis.

Table 2. Sampling procedure.

Sampling procedure	Description	Total population	Sample size
1	All listed non-financial companies in MENA region	568	–
2	Data availability consideration	–	304
3	Selection of companies with data	–	304
4	Period covered	–	2013–2023
Country	Population	Final sample	
Bahrain	20	11	
Kuwait	93	59	
Oman	77	47	
Qatar	33	18	
Saudi Arabia	270	126	
UAE	75	43	
Total	568	304	

Source: Author collection and analysis.

the final sample included (304). The decrease in the final sample size compared to the initial count is primarily attributed to the absence of data points in several variables.

5.1. Economic model

The following model has been used to investigate the impact of board characteristics on the adoption of sustainable reporting of nonfinancial firms in the GCC region.

$$ASR_{i,t} = \beta_0 + \beta_1 GenDiv_{i,t} + \beta_2 BIND_{i,t} + \beta_3 BSize_{i,t} + \beta_4 BMeet_{i,t} + \beta_5 FSize_{i,t} + \beta_6 Lev_{i,t} + \beta_7 Prof_{i,t} + \beta_8 Liq_{i,t} + \beta_9 GDP_t + \beta_{10} Inf_t + \varepsilon_{i,t}$$

where

- ASR is adoption of sustainable reporting and measured by a dummy variable (1 if the company reports their sustainability initiative and zero otherwise)
- GenDiv is Gender Diversity which is measured by the number of females on board divided by the total number of board members.
- BIND is board independence which is measured by the percentage of independent directors to the total number of board members.
- BSize is board size and measured by the number of directors on board.
- BMeet is board meetings and measured by the number of meetings per year.
- FSize is firm size and measured by the natural logarithm of Total Assets.
- Lev is leverage which is measured by the debt ratio.
- Prof is profitability and measured by the return on assets.
- GDP is the Growth in the Gross Domestic Product provided by the World Bank
- Inf is inflation as measured by the World Bank
- ε is the error term

5.2. Variables measurement

The following Table 3 provides the measurement of each variable included in our model, the main reference used to adopt the selected measurement and the source of data collected.

6. Empirical findings

The below Table 4 shows the descriptive statistics, while Tables 5 and 6 shows the correlation and Probit regression results respectively.

As evident in Table 4; the minimum value for the adoption of sustainable reporting is zero which implies that there are still companies who have not applied any initiatives for sustainable reporting. In addition, the mean value for board gender diversity (GenDiv) is 12.5 percent which implies that there is still low percentage for female presence on GCC nonfinancial companies' boards of directors. Also, a mean value of 9.502 for board size proposes that on average there are 9 members on the board of directors. The board independence mean value is 15.9 percent which suggests low independence on board. Finally, the mean value for board meetings is 6.280 which implies that on average GCC nonfinancial companies holds on average 6 board meetings per year. In addition, the VIF values, as presented in Table 4, are rather minor and fall below 5. This supports the claim that there was no presence of multicollinearity within the variables studied.

Table 5 shows the correlation matrix between the selected variables in the previous developed model. The correlation matrix indicates that there is no problem of multicollinearity, as the values for all variables are below 0.90 (Marzouk & Elkadi, 2016).

Table 3. Description of variables.

Variable	Measurement	Citation	Sources
Dependent variable			
Adoption of sustainable reporting (ASR)	Dummy variable (1 if the company reported sustainable initiatives and zero otherwise)	Bollas-Araya et al. (2014); Saraswati et al. (2022)	Refinitiv Eikon Platform
Independent variables			
Gender diversity (GenDiv)	The number of female board members to the total number of board members	Galdiero et al. (2024); Berhe (2023)	Refinitiv Eikon Platform
Independent directors (BIND)	The percentage of independent directors to the total board members	Lawal and Yahaya (2024); Wondem and Batra (2019)	Refinitiv Eikon Platform
Board size (BSize)	The number of members on board	Abu Khalaf & Awad, 2024; Jarboui et al. (2020)	Refinitiv Eikon Platform
Board meetings (BMeet)	The number of board meetings each year	Nugraheni and Khasanah (2019); Ikpor et al. (2024)	Refinitiv Eikon Platform
Control variables (firm characteristics)			
Firm size (FSize)	Natural logarithm of total assets (LnTA)	Ayagre et al. (2014); Ayalew and McMillan (2021)	Refinitiv Eikon Platform
Leverage (Lev)	The debt ratio (DR)	Khalaf et al. (2023); Abu Khalaf et al. (2024)	Refinitiv Eikon Platform
Profitability (Prof)	Return on assets (ROA)	Priharta and Gani (2023); Wassie (2020)	Refinitiv Eikon Platform
Liquidity (Liq)	Current ratio (CR)	(Giordani et al. (2014) and (Liu et al., 2020)	Refinitiv Eikon Platform
Control variables (macroeconomic variables)			
Gross domestic product (GDP)	GDP as an annual percentage	Al-Homaidi et al. (2018); Pham et al. (2022)	World Bank Data
Inflation (Inf)	The annual percentage of consumer prices index.	Le and McMillan (2020); Abou Elseoud et al. (2020)	World Bank Data

Table 4. Descriptive statistics.

Statistics	ASR	GenDiv	BIND	BMeet	BSize	FSize	Prof	Lev	Liq	GDP	Inf
Mean	0.650	0.125	0.159	6.280	9.502	22.466	0.085	0.718	1.76	0.021	0.019
Std. Dev.	0.524	3.935	0.268	1.232	2.952	1.836	0.754	0.685	1.43	0.038	0.031
Minimum	0	0	0	4	5.00	16.246	−0.245	0.01	0.272	−0.054	0.011
Maximum	1.00	0.253	0.356	16	25.00	26.925	1.247	5.02	9.736	0.067	0.086
VIF		1.625	1.254	1.352	2.354	1.364	1.845	1.659	1.548	1.428	1.369

Source: Author collection and analysis.

Table 5. Correlation matrix.

Variables	ASR	GenDiv	BIND	BMeet	BSize	FSize	Prof	Lev	Liq	GDP	Inf
ASR	1										
GenDiv	0.343 (0.015)	1									
BIND	0.066 (0.052)	0.024 (0.000)	1								
BMeet	0.294 (0.026)	0.075 (0.020)	0.024 (0.000)	1							
BSize	0.176 (0.000)	0.069 (0.015)	0.059 (0.000)	−0.285 (0.000)	1						
FSize	0.204 (0.010)	0.162 (0.000)	0.036 (0.000)	0.097 (0.000)	0.181 (0.000)	1					
Prof	0.096 (0.032)	0.063 (0.050)	0.071 (0.024)	0.035 (0.052)	0.052 (0.035)	0.125 (0.015)	1				
Lev	−0.057 (0.001)	0.078 (0.025)	0.024 (0.000)	0.085 (0.015)	0.074 (0.015)	0.109 (0.000)	0.058 (0.000)	1			
Liq	0.032 (0.000)	0.015 (0.000)	0.065 (0.010)	0.048 (0.025)	0.121 (0.000)	0.096 (0.000)	0.027 (0.036)	−0.032 (0.000)	1		
GDP	0.015 (0.012)	0.032 (0.102)	0.035 (0.052)	0.028 (0.056)	0.027 (0.026)	0.035 (0.050)	0.041 (0.014)	0.032 (0.082)	0.044 (0.010)	1	
Inf	0.021 (0.215)	0.018 (0.162)	0.048 (0.215)	0.032 (0.185)	0.028 (0.102)	0.018 (0.152)	0.022 (0.241)	0.024 (0.295)	0.031 (0.025)	0.087 (0.052)	1

Source: Author analysis.

The findings of the correlation matrix reported in the previous Table 5 suggest the presence of weak correlations among the variables. All the factors exhibited a weak link with corporate sustainability reporting. Despite a weak association between the variables, the majority of independent variables,

Table 6. Probit regression results.

Variables	Coefficients	Significance
BSize	0.152	0.000
GenDiv	0.025	0.000
BIND	0.067	0.048
BMeet	0.071	0.010
FSize	0.164	0.000
Liq	0.098	0.000
Prof	0.111	0.000
Lev	-0.059	0.000
GDP	0.041	0.215
Inf	0.035	0.185
Intercept	-1.245	0.000
Observations	3,344	
Chi2	629.356	
	(0.000)	
Pseudo R2	0.328	
Log likelihood	-1625.495	

including board size, board gender diversity, board meeting and board independence, reveal statistical significance and a positive link with corporate sustainable reporting.

Table 6 includes the output of the Probit regression. Table 6 displays the findings about the impact of characteristics of boards on the implementation of sustainable reporting, taking into account firm characteristics variables such as company size, leverage, liquidation, profitability and macroeconomic variables such as GDP and inflation. The regression analysis shows that the model has an R-Square of 32.8 percent.

Based on the results of the above Table 6, the first hypothesis has been accepted, thereby validating the original prediction that larger boards promote higher sustainable reporting. Consequently, the use of larger boards resulted in a boost in the disclosure of sustainability information by corporations. Larger boards are anticipated to participate in more extensive decision-making viewpoints, necessitating increased debate and adjustments. As a result, this comes in line with the agency theory as they are more inclined to provide detailed reports on their corporate social responsibility performance to meet the expectations of these stakeholders. Therefore, it is seen that larger boards are more inclined towards prioritizing stakeholders' interests and, as a result, consider corporate sustainability reporting and impacts as integral to the overall company strategy. These data contradict the notion of implementing a smaller board. Nevertheless, these results align with the findings referenced from studies carried out in various locations, particularly in Asia, Europe, Latin America, and other developing economies. For example, Mohamood et al. (2018) found that increasing the size of the board of directors leads to enhanced disclosure of sustainable information. Husted and de Sousa-Filho (2019) validate that larger boards have a positive impact on enhancing ESG disclosure. However, it contradicts the findings of Htay et al. (2012), who indicated that a smaller board size is more effective in terms of disclosing social and environmental information.

In addition, the second hypothesis is also accepted. By applying resource dependency theory, which asserts that the open structure of an organization is reliant on external resources, the presence of diverse genders on the board provides management with advantageous resources, particularly when confronted with new difficulties. Connecting the internal and external components of an organization, gender diversity is a valuable resource that enhances competitiveness and facilitates sustainable reporting. Female directors, employing diverse strategies and communication styles, have the ability to have varying effects in company management. Female members are also regarded as more diligent and focused on assessment compared to their male counterparts. Omojolaibi et al. (2019) and Ezeokafor and Amahalu (2019) affirm the significant role of female directors in their superior understanding of the market compared to male counterparts. They also highlight the female directors' ability to increase company image within society as a whole and enhance the company's understanding of the business environment. In order to provide efficient counselling on specific concerns, board committees are established with members who possess the necessary expertise in that particular area. Previous research indicates that the presence of women on board has a beneficial effect on the company's sustainability reporting (Agyemang-Mintah & Schadewitz, 2019; Buallay et al., 2017; Fernandez-Feijoo et al., 2014; Gulzar et al., 2019; Orazalin, 2019). In contrast, Amran et al. (2014) and Khan (2010) did not discover any significant correlation.

Furthermore, the third hypothesis is accepted and the results confirmed that the more board meetings attended the better is the sustainable reporting. This result comes in line with the stakeholder's theory. In other words, Stakeholders are groups and individuals who possess the capacity to exercise influence over actions associated with value creation, this concept requires collaboration between corporate councils and CEOs to advance the interests of stakeholders (Dmytryiev et al., 2021). Therefore, frequent meetings help in enhancing the alignment to sustainable reporting. The results suggest that the frequency with which the board meets to make these crucial decisions influences its ability to resolve the sustainable reporting concerns of stakeholders. Therefore, increasing the frequency of board meetings enhances the probability that stakeholders will receive sustainable information. This finding validates prior research conducted in the United States, where in Jizi et al. (2014); Caskey & Ozel (2017); Jizi (2017); Abdelqader et al. (2021) and Dincer et al. (2023) noted that sustainable reporting is enhanced through board meetings.

Also, the fourth hypothesis is accepted since the coefficient of independent directors is positive and significant in impacting the sustainable reporting. This result comes in line with the agency theory since the inclusion of independent directors on the board contributes to the board's enhanced mechanism for monitoring. Moreover, independent directors are more effective at pushing for stringent adherence to regulations and policies. More specifically, directors that are independent are better able to keep an eye on management and less probability to let them get away with selfishness when it hurts stakeholders (Kesner & Johnson, 1990). Theoretically, more accountability, openness, and sustainability reporting should result from a board with a larger number of independent directors. According to Lim et al. (2007), companies that have a larger number of independent members on their board tend to disclose their finances more thoroughly. The results align with those of previous research (Masud et al., 2018; Khairiddine et al., 2020; Ong & Djajadikerta, 2018; Vitolla et al., 2020). Nevertheless, several previous investigations have documented a lack of connection (Mahmood & Orazalin, 2017; Shamil et al., 2014).

Concerning the control variables, firm size, liquidity and profitability have provided significant and positive impact on sustainable reporting (Fayad et al., 2022). This implies that larger companies, higher liquid firms and high profitable companies are more likely to follow the initiatives for sustainable reporting in the GCC region. On the contrary the leverage has resulted in a significant negative impact on sustainable reporting suggesting that high leveraged firms are more likely to concentrate on servicing their debt and less likely to consider sustainable reporting within the GCC region (Hordofa, 2023). The macroeconomic variables represented by the GDP and inflation reported insignificant impact on the probability of sustainable reporting.

6.1. Robustness of results

This section assesses the accuracy and dependability of our findings on the relationship between board characteristics and sustainable reporting among GCC countries. Our robustness assessments ensure the reliability, consistency, and impartiality of our results, while minimizing the impact of methodological decisions or unique data characteristics. To evaluate how various model specifications affect the correctness of our findings, we use an alternate econometric model (maximum likelihood estimator (MLE)) to resolve any potential difficulties that is associated with endogeneity. Table 7 presents the MLE results, this model provides reliable evidence to the association between board characteristics and sustainable reporting.

7. Conclusion

Corporations expressing their dedication to sustainable development and disclosing how their actions have impacted social, economic, and environmental performance is the primary objective of sustainability reporting. Consequently, this study examined the determinants influencing the adoption of sustainability reporting as a corporate approach. To achieve this, a Probit regression estimation model was applied to data collected from nonfinancial companies listed in GCC countries over the period 2013–2023. The data has been collected from several sources; mainly Refinitiv Eikon Platform (LSEG), financial

Table 7. Maximum likelihood regression results.

Variables	Coefficients	Significance
BSize	0.096	0.000
GenDiv	0.045	0.000
BIND	0.092	0.000
Bmeet	0.128	0.000
Fsize	0.267	0.000
Liq	0.126	0.000
Prof	0.274	0.000
Lev	-0.096	0.000
GDP	0.021	0.362
Inf	0.018	0.285
Intercept	-2.751	0.000
Observations	3,344	
Wald Chi2	168.856	
	(0.000)	
Log likelihood	-527.759	

reports and reflective stock markets reports. The final sample included 304 nonfinancial companies listed on six countries (Qatar, Kuwait, Oman, Saudi Arabia, United Arab Emirates and Bahrain).

Sustainable reporting is the dependent variable and has been measured using a dummy variable (1 if the company reported sustainable initiative and zero otherwise) while the independent variables of board characteristics included; Board size measured as the number of members on board, Board gender diversity measured as the percentage of females on boards, Board Meetings and measured as the number of meetings held per year and Board independence measured as the percentage of independent members on board. In addition, this empirical evidence controlled for firm characteristics such as firm size, profitability, leverage and liquidity and macroeconomic variables such as GDP and inflation.

The results indicate a strong and statistically significant relationship between board gender diversity, board independence, board meetings, board size, and sustainability reporting. Hence, the investigation suggests that nonfinancial enterprises listed in the GCC should prioritize the expansion of their boards by adding more members, particularly independent directors' men and women. Additionally, increasing the frequency of board meetings is also advised, as these measures are expected to enhance sustainability reporting. These results have significant consequences for policy, management, and theory. The findings provide valuable information to shareholders regarding the factors to consider when choosing directors. The findings emphasize the significance of having a balanced representation of both genders on boards, a substantial number of independent directors, and a high frequency of board meetings, as well as larger board sizes.

Moreover, the results are valuable for informing policy decisions. The policymaker now has a clear understanding of the specific components that make up an optimal board structure, which effectively addresses the concerns and interests of all parties involved. Therefore, the regulator may contemplate imposing obligatory criteria for the quantity of board members, the inclusion of women in company boards, and required procedures ensuring the independence of board members. Furthermore, regulatory authorities could contemplate implementing legislation about the minimum requirement for disclosing sustainability practices among publicly listed companies. This would aid investors and the general public in understanding and valuing sustainability. The findings provide theoretical support for both the agency theory, the resource dependency theory, and the stakeholders' theory. The agency theory posits that large boards are successful in monitoring, a notion supported by the positive correlation observed between board size and sustainability reporting. The results of this study emphasize how a company's internal governance system affects its participation in sustainable initiatives. Conversely, the resource dependency theory recommends for a corporate board that is varied and regulated, as it provides a corporation with social capital. This study demonstrates that an increase in the number of women serving on the board, along with more regular and independent meetings, leads to an enhancement in sustainability reporting.

Although the current study sheds light on the link between board characteristics and company sustainability reporting, further research is necessary to address significant limitations.

Although the study did not include all board characteristics, the variables examined were similar to those in prior studies. Furthermore, the sample size for this study was confined to listed nonfinancial

enterprises in the GCC region. Further research could extend the scope of study by examining additional components of corporate governance, such as the personal qualities of board members (counting for education, marital status, ethnicity and age), board experience and board rewards. Furthermore, it would be beneficial for future studies to explore the impact of ownership structure on sustainability reporting, taking into account firm-specific aspects. Future research could explore the comparison of sustainability reporting methods among various geographies, privately owned and publicly traded companies. This analysis would aim to assess the influence of board characteristics on sustainability reporting in different geographical locations and corporate entities.

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Authors' contribution

Conception and Design: BAK; Collection, Analysis and Interpretation of the data: BAK; Drafting of the paper: BAK; Critical Revision for Intellectual Content: BAK; Final Approval of the Version to be published: BAK. Author meets the criteria for authorship as per the ICMJE guidelines.

Disclosure statement

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Data availability statement

Data available on request due to privacy/ethical restrictions. The data that support the findings of this study are available on request from the corresponding author, BAK. The data are not publicly available due to membership requirement with Refinitiv Eikon platform (LSEG).

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