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Original Research Article

The Moderating Role of Board Financial Expertise on the Nexus Between CSR Reporting and Sustainability Performance

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Abstract

This research reveals the effect of corporate social responsibility (CSR) reporting on sustainability performance (SP). Moreover, the study investigates the moderating role of board financial expertise (BFEX) between CSR reporting and the SP on the Saudi Arabian Exchange. The study used a database of 469 observations from non-financial companies on the Saudi market from 2017 to 2023, using fixed effect models to estimate the study results. The study findings indicate that CSR reporting enhances SP in the long term. The companies that have CSR reporting are associated with higher SP. Furthermore, the results reveal that BFEX moderates the nexus between CSR reporting and SP. The study's originality lies in its exploration of the moderating role of BFEX on the association between CSR reporting and SP by using a sample from Saudi companies. This research offers practical insights for companies, policymakers, and stakeholders to enhance SP. The study provides actionable insights for companies to align CSR reporting with sustainability practices, enhancing their SP.

Keywords: Board Financial Expertise, Sustainability Performance, Corporate Social Responsibility, Environmental Performance, Corporate Governance.

1. INTRODUCTION

Sustainable performance (SP) refers to a company's ability to consistently achieve positive, long-term results without depleting the human, natural, or societal resources it relies on (Büyüközkan & Karabulut, 2018; Tajbakhsh & Shamsi, 2019). It involves operating effectively while balancing economic, environmental, and social goals. SP is a strategic approach aimed at achieving economic success through environmentally and socially responsible practices (Saulick *et al*., 2023).

In recent years, SP has become a key component of successful business strategies. Companies committed to SP strive to balance financial growth with environmental stewardship and societal value creation (Artiach *et al*., 2010; Henao *et al*., 2019). The concept encompasses principles of environmental, social, and economic sustainability.

Organizations that adopt sustainable performance (SP) not only achieve financial benefits but also enhance their market reputation and competitive advantage (Alsayegh *et al*., 2020; Rajesh, 2020). Furthermore, SP enables companies to build long-term relationships with customers, employees, and investors, fostering continuity and growth in an increasingly dynamic business environment (Saulick *et al*., 2023).

Corporate social responsibility (CSR) refers to the obligation companies have toward society, the environment, and their stakeholders (Fatima & Elbanna, 2023). The core idea behind CSR is that businesses should not solely focus on profit generation but also actively contribute to the greater social good (Khan *et al*., 2020). In recent years, stakeholder expectations have grown, with increasing demand for organizations to operate in socially responsible ways. Companies that engage in CSR are often perceived as more ethical and trustworthy, which can positively influence their long-term sustainability (Christensen *et al*., 2021; Haji *et al*., 2022).

CSR initiatives can also help attract and retain socially conscious consumers who prefer to engage with companies that reflect their values (Garcia-Torea *et al*., 2020). Additionally, CSR contributes to improved employee morale and productivity, as staff members tend to take pride in working for organizations that positively impact society (Al-Dah *et al*., 2018). Common CSR activities include environmental sustainability initiatives, charitable contributions, and the adoption of ethical business practices (Christensen *et al*., 2021; Dai *et al*., 2018).

In summary, CSR is a critical concept that companies should prioritize. By actively engaging in CSR efforts, businesses not only contribute to societal well-being but also reinforce their sustainable performance.

CSR has become an increasingly important concept for businesses in recent years. It not only helps build a positive corporate image, but it also contributes to the well-being of society and the environment (Khan *et al*., 2020). CSR is not just a moral obligation, but it also helps in the long-term sustainability of a company. It is a way for companies to give back to the community and contribute to social good. CSR initiatives can help reduce labor costs, and CSR initiatives have a positive impact on society (Haji *et al*., 2022; Wentzel *et al*., 2022). CSR initiatives help ensure the long-term sustainability of a company. By caring for the environment and contributing to the well-being of society, it can help ensure a company's existence for many years to come (Huang *et al*., 2022). CSR is an important concept for companies to embrace. It not only helps build a positive corporate image, but it also contributes to the well-being of society and the environment. The benefits of CSR are numerous, including enhanced reputation, increased customer loyalty, improved employee engagement, cost savings, long-term sustainability, and a positive impact on society (Dhingra, 2023; Fatima & Elbanna, 2023; Garcia-Torea *et al*., 2020). By engaging in CSR initiatives, companies can make a difference for social good while also enhancing their SP.

On the other hand, board financial expertise (BFEX) as one of the corporate governance mechanisms plays a main role in improving SP (Asad *et al*., 2023; Elmashtawy, Che Haat, *et al*., 2024; Homroy & Slechten, 2019; Nugraha, 2023). The impact of BFEX on SP is an important topic in corporate governance. This impact revolves around how board members' financial knowledge and expertise are used to make strategic decisions that lead to achieving long-term sustainability goals (Johl *et al*., 2015; Lee, 2023). In general, the BFEX is considered a contributing factor in enhancing SP by supporting informed financial decisions directed toward achieving a balance between economic growth and social and environmental responsibility.

The research gap identified through the existing literature, which is not cited in studying and analyzing the SP, CSR reporting, and BFEX (Githaiga & Kosgei, 2023; Katmon *et al*., 2019; Lee, 2023; Naheed *et al*., 2021; Nugraha, 2023), still introduces unexplored rules in the Saudi context. This study is important and different from previous studies in many aspects. First, it focuses on non-financial Saudi companies, whereas the previous literature focused on developed countries. Second, this study analyzes the moderating role of BFEX on the nexus between CSR reporting and SP. Third, SP studies remain significant and have become a source of concern for regulators and policymakers (Artiach *et al*., 2010; Büyüközkan & Karabulut, 2018; Rajesh, 2020; Saulick *et al*., 2023). As a result, it is necessary to investigate how CSR reporting affects SP for investor protection. Therefore, this study provides an extension of previous studies in an attempt to deepen the literature and reduce discrepancies. Finally, this research differs from previous literature in that it depends on the financial statements of non-financial Saudi companies. It is contended that in developing countries that have different cultural, regulatory, and institutional contexts, it can be expected to differ from that found in developed countries (Aggarwal & Singh, 2019; Katmon *et al*., 2019; Wentzel *et al*., 2022).

The study's purpose is to identify the effects of CSR reporting on SP and the moderating role of BFEX in Saudi Arabia. The analysis is based on 469 observations spanning the years 2017 to 2023. The findings reveal that CSR reporting has a positive influence on SP. The results also concluded that BFEX moderates the relationship between CSR reporting and SP. The current study aims to contribute to the following aspects: First of all, the study aims to enrich the research on SP, CSR reporting, and BFEX. Thus, advancing the relevant literature in these fields. Second, the research is significant because the important role of BFEX in company monitoring deserves in-depth research on the various factors that relate CSR reporting to SP. Finally, the study provides companies, shareholders, investors, and other stakeholders with practical contributions. The remainder of this study is organized as follows: Section 2 provides a detailed discussion concerning the literature review and hypotheses development. Section 3 presents the study's methodology and data collection. Section 4 discusses the results, and Section 5 presents the conclusion.

2. Literature review and hypotheses development

2.1 Theoretical background

The study develops hypotheses that contribute to comprehending the association between SP, CSR reporting, and BFEX. This study derives its variables and hypotheses from stakeholder theory and legitimacy theory. These theories emphasize the importance of CSR reporting by the corporation's management to enhance SP in the long term (Dai *et al*., 2018; López-Concepción *et al*., 2022; Silva, 2021). Numerous studies have used these theories to understand the effects of CSR reporting and explain the factors affecting SP (Freeman *et al*., 2018; López-Concepción *et al*., 2022; Silva, 2021; Solikhah *et al*., 2020). In addition, many studies have adopted these theories to explain the effects of the BFEX as one of the corporate governance mechanisms (Boshnak *et al*., 2023; Githaiga & Kosgei, 2023; Nguyen & Thanh, 2022).

Stakeholders theory is considered one of the most important theories for studying SP due to the impact of performance on the interests of shareholders. According to the stakeholder theory, CSR initiatives help enhance a business's reputation. When a company is perceived as socially responsible, it creates a positive image for the company in the eyes of stakeholders (Freeman, 2023; López-Concepción *et al*., 2022). This can help attract new customers, investors, and employees. Furthermore, customers are more likely to be loyal to companies that engage in CSR (Wu & Jin, 2022). They feel good about supporting a company that is doing good in the world. This can lead to increased sales and customer retention (Meseguer-Sánchez *et al*., 2021). Employees are also more likely to be committed to their work when they feel they are working for a company that is making a positive impact on society (Madanaguli *et al*., 2022). This can lead to increased productivity and reduced turnover rates.

When it comes to CSR, the role of stakeholders cannot be overemphasized. A stakeholder is any individual or group that can affect or be affected by an organization's actions (Bhargava & Ligade, 2023). These groups can include employees, customers, shareholders, suppliers, the government, and the local community, among others. The role of stakeholders in CSR is to ensure that companies are not only accountable for their actions but also operate in a socially responsible manner (Haji *et al*., 2022; López-Concepción *et al*., 2022). According to stakeholder theory, stakeholders have a stake in the social, environmental, and economic impact of a company's operations (Freeman *et al*., 2018; Khan *et al*., 2020). Therefore, they have a critical role to play in shaping an organization's CSR agenda. The role of stakeholders in CSR is crucial to ensuring that companies operate in a socially responsible manner (Garcia-Torea *et al*., 2020). By engaging with stakeholders, companies can gain valuable insights into their concerns and expectations and adjust their CSR practices accordingly (Fatima & Elbanna, 2023). Furthermore, stakeholders can hold companies accountable for their CSR practices and provide valuable feedback on their performance. Ultimately, stakeholder collaboration is key to achieving effective CSR and making a positive difference for social good (Al-Dah *et al*., 2018; Bhargava & Ligade, 2023).

Through stakeholder collaboration, stakeholders can leverage their strengths and resources to achieve common goals (Freeman, 2023). By engaging with stakeholders, companies can gain insight into their concerns and expectations and adjust their CSR practices accordingly (Huang *et al*., 2022). Shareholders can use their voting power to push for more socially responsible practices, while customers can boycott companies that engage in unethical behavior (Christensen *et al*., 2021; Fatima & Elbanna, 2023). By measuring and reporting on CSR performance, companies can provide stakeholders with the information they need to make informed decisions (Garcia-Torea *et al*., 2020). This can help build trust and credibility with stakeholders and enhance a company's reputation and SP. Accordingly, companies must remain vigilant and engage with stakeholders on an ongoing basis to stay on top of emerging issues and trends.

On the other hand, the legitimacy theory in business institutions is related to the principles and rules that govern the actions and orientations of institutions in the commercial and economic fields (Zyznarska-Dworczak, 2018). When the concepts of legitimacy theory and SP come together, companies can create a system based on achieving economic growth in a way that respects the environment and society (Solikhah *et al*., 2020), investing in sectors that preserve the environment and contribute to social development (Zyznarska-Dworczak, 2018), and achieving economic and social justice in commercial and financial transactions (Silva, 2021). By focusing on social and economic justice and promoting investment, institutions can achieve long-term sustainability (Dai *et al*., 2018; Solikhah *et al*., 2020; Zyznarska-Dworczak, 2018). Legitimacy theory seeks to achieve a balance between economic growth and ethics, leading to the formation of a sustainable business environment.

According to stakeholder theory and legitimacy theory, when board members have strong financial expertise, they can make financial decisions that balance profits with sustainable investments (Amin *et al*., 2021; Naciti, 2019). BFEX helps predict the financial risks associated with sustainability projects and assess their potential impact on the SP (Githaiga & Kosgei, 2023). BFEX can enhance transparency in sustainability reporting, ensuring that financial statements related to sustainable practices are accurate and clear, which increases investor and shareholder confidence (Homroy & Slechten, 2019). BFEX can identify the most financially viable sustainable investment opportunities, which helps integrate sustainability goals with profitability (Alsayegh *et al*., 2020; Lee, 2023). BFEX contributes to better communication with investors regarding the company's sustainable direction, which increases trust and provides greater support for environmental and social initiatives (Githaiga & Kosgei, 2023).

2.2 The impact of CSR reporting on sustainability performance

Recently, CSR and sustainability have become critical elements that companies need to integrate into their operations (Almaiman *et al*., 2024). CSR refers to the voluntary actions a company takes to address the social, economic, and environmental impacts of its operations (De Stefano *et al*., 2018; Haji *et al*., 2022), while sustainability refers to a company's ability to sustain its operations without harming the environment (Christensen *et al*., 2021). These two concepts are closely related, and companies that embrace them are making a difference for the social good. CSR and sustainability are essential elements that companies need to integrate into their operations (Aggarwal & Singh, 2019). By doing so, companies can have a positive impact on society and the environment while enhancing their brand image and increasing customer loyalty.

From a consumer perspective, CSR and sustainability initiatives have become a key consideration in their decision-making process (Cowan & Guzman, 2020). Customers are increasingly aware of the social and environmental impacts of their purchases. As such, they are more likely to associate themselves with brands that demonstrate ethical and sustainable practices (Cowan & Guzman, 2020; Madanaguli *et al*., 2022). By integrating CSR and sustainability into their operations, companies can enhance their brand image, boost customer loyalty, and increase sales (Meseguer-Sánchez *et al*., 2021). From an employee perspective, CSR and sustainability initiatives can have a significant impact on job satisfaction and motivation (Huang *et al*., 2022). Employees are more likely to take pride in their company's ethical practices and feel that their work has a positive impact on society and the environment (Christensen *et al*., 2021; Fatima & Elbanna, 2023). Additionally, companies that embrace CSR and sustainability often offer their employees a better work environment and opportunities for personal and professional development (Khan *et al*., 2020).

According to stakeholder theory, improving CSR reporting has the effect of protecting shareholders' interests and improving the company's long-term sustainability (López-Concepción *et al*., 2022). Therefore, actions taken by a company's management offer investors signals about the management's vision of the company's future (Yu *et al*., 2023). Previous studies argue that efficient CSR reporting enhances the SP, and thus, there is a positive association between CSR reporting and SP (Aggarwal & Singh, 2019; Dhingra, 2023; Meseguer-Sánchez *et al*., 2021; Wentzel *et al*., 2022). Furthermore, managers use CSR reporting to boost profitability and impact future cash flow (Al-Dah *et al*., 2018). The managers make decisions based on their managerial discretion and private information, which might improve SP (Bhargava & Ligade, 2023). Conversely, Khan *et al*. (2020) determined that CSR practices negatively impact the accuracy of forecasts by financial analysts on the stock exchanges. Therefore, there is a negative relationship between CSR reporting and SP because managers only use their discretion to maximize their utility, resulting in the misalignment of incentives between managers and shareholders and SP deterioration (Christensen *et al*., 2021; Khan *et al*., 2020).

Several empirical studies on CSR reporting have been based on developed countries (e.g., Chang *et al*., 2017; Dai *et al*., 2018; Naheed *et al*., 2021). Recently, there has been a growing body of empirical literature on CSR reporting in developing countries. For example, Wentzel *et al*. (2022) provide evidence that companies can improve share value growth by adopting CSR practices. Several studies (Aggarwal & Singh, 2019; Dhingra, 2023; Huang *et al*., 2022; Wu & Jin, 2022; Yu *et al*., 2023) have concluded that CSR practices have a positive influence on SP. The studies (Christensen *et al*., 2021; Khan *et al*., 2020) implicitly indicate the adverse effect of CSR practices on SP. Wentzel *et al*. (2022) investigated the association between CSR reporting through environmental responsibility, social responsibility, and economic responsibility and SP in emerging markets. Their findings indicated that while CSR reporting positively influences SP, this effect is not statistically significant. According to the previous discussions, the next hypothesis was formulated:

H1: CSR reporting has a significant and positive effect on SP.

H1a: Economic responsibility has a significant and positive effect on SP.

H1b: Social responsibility has a significant and positive effect on SP.

H1c: Environmental responsibility has a significant and positive effect on SP.

2.3 The relationship between board financial expertise, CSR reporting, and sustainability performance

The Board of Directors can be a vital element in supporting companies to adopt objective CSR practices and enhance SP (Lee, 2023; Naheed *et al*., 2021; Ben Mohamed *et al*.,2020). The characteristics of the Board of Directors reflect the Board's ability to supervise, monitor, and provide resources in light of the increasing interest in SP (Naciti, 2019). When the board of directors has knowledge and experience in CSR reporting, it can provide advice and guidance on the company's strategies and thus enhance SP (Dienes & Velte, 2016; Homroy & Slechten, 2019). BFEX is one of the governance mechanisms that limit managers' ability to manipulate financial performance assessments by reducing information asymmetry, thereby enhancing the SP (Githaiga & Kosgei, 2023; Velte, 2017). The BFEX can lead to improving the decision-making process and enhancing the firm's SP (Emeka-Okoli *et al*., 2024; Lee, 2023). Companies can consider the BFEX as a necessary factor to improve their performance (Johl *et al*., 2015). By consulting with managers with financial expertise, the board can obtain the information necessary to make effective decisions in improving SP (Henao *et al*., 2019). Therefore, boards must be prepared to support companies in adopting CSR practices and working toward improved SP (Emeka-Okoli *et al*., 2024; Naciti, 2019).

Numerous pieces of literature support the BFEX (Dienes & Velte, 2016; Githaiga & Kosgei, 2023; Naheed *et al*., 2021; Niazi *et al*., 2021; Obeitoh *et al*., 2023). According to Elmashtawy *et al*. (2023), the board's oversight and monitoring functions depend on various aspects, including the BFEX. Previous studies have also explored how BFEX can enhance a company's strategy (Chang *et al*., 2017; Nugraha, 2023). The BFEX can also effectively reduce corporate risks and minimize the impact of crises on companies (Niazi *et al*., 2021). Similarly, Obeitoh *et al*. (2023) indicated that BFEX improves firm performance because directors have more competence than others. According to Kouaib *et al*. (2020), the BFEX enhances the board's ability to effectively monitor. Githaiga and Kosgei (2023) highlighted the substantial positive impact of BFEX on SP. As a result, some indicators show the positive effects of BFEX on enhancing SP, due to its tangible impact in ensuring reasonable assurance about the quality of the financial report, on which different stakeholders rely when making investment decisions associated with the company. Hussain *et al*. (2018) demonstrated that boards that have members with financial expertise exhibit higher levels of conservatism and improved SP.

The board characteristics affect CSR reporting through economic responsibility, social responsibility, and environmental responsibility (Emeka-Okoli *et al*., 2024). Kim *et al*. (2023) concluded that a board of directors that has financial expertise, knowledge, and commitment to society is likely to work to improve the company's SP. Furthermore, Johl *et al*. (2015) indicated that the BFEX is positively associated with improving the firm's SP. Obeitoh *et al*. (2023) revealed that there is a positive relationship between some board characteristics, such as size, meetings, financial expertise, and SP, in addition to the interaction between the BFEX as a moderator and some board characteristics that lead to enhancing the firm's SP. Several previous research findings concluded a positive relationship between BFEX and SP (Büyüközkan & Karabulut, 2018; Homroy & Slechten, 2019; Lee, 2023). Similarly, the studies (Dienes & Velte, 2016; Katmon *et al*., 2019; Naheed *et al*., 2021; Velte, 2017) have indicated that BFEX is favorably associated with CSR reporting. Empirical studies concluded that the association between CSR reporting and the SP is affected by corporate governance mechanisms (Alsayegh *et al*., 2020; Boshnak *et al*., 2023; Hussain *et al*., 2018; Kouaib *et al*., 2020; Meseguer-Sánchez *et al*., 2021). Accordingly, it is supposed that there is an association between CSR reporting and SP, and this association is affected by BFEX, as well as the importance of BFEX because of its tangible impact in ensuring reasonable assurance about the quality of the financial report, on which different stakeholders rely when making investment decisions associated with the company. Based on the above justifications and the purpose of the study, it is suggested that BFEX moderates the relationship between CSR reporting and SP. Drawing from the preceding discussion, the subsequent hypotheses are proposed:

H2: BFEX moderates the nexus between CSR reporting and SP.

H2a: BFEX moderates the nexus between economic responsibility and SP.

H2b: BFEX moderates the nexus between social responsibility and SP.

H2c: BFEX moderates the nexus between environmental responsibility and SP.

3. METHODOLOGY

3.1 Data Collection and Sampling

The study population includes all Saudi companies registered in the stock market between 2017 and 2023. The initial sample consists of 193 companies distributed across 17 economic sectors in the Saudi Stock Market. The final sample was selected according to the following conditions: First, the banking sector, the financial services sector, and insurance companies were excluded because of their nature specific to financial reporting. Secondly, companies whose financial statements were prepared in a foreign currency were excluded other than the Saudi Riyal. Third, companies' financial reports must be available regularly and contain sufficient data to measure the study variables. Fourth, companies' financial reports must have been issued on December 31 to meet consistency in the fiscal year. Finally, companies must have been listed on the Saudi exchange from 2017 to 2023. After applying the previous conditions, the final sample for the study consists of 67 non-financial companies listed on the Saudi Stock Exchange and 369 observations, distributed to 17 sectors over the 2017–2023 period. Table 1 presents a summary of the selection process for the sample.

Table 1: The sample of the study

No.	Sectors	Initial sample	Final sample	Observations	
				No.	%
1	Energy	7	3	21	4.5
2	Basic resources	45	11	77	16.4
3	Capital goods	14	7	49	10.4
4	Business and professional services	6	2	14	3
5	Transport	7	3	21	4.5
6	long term goods	6	1	7	1.5
7	Consumer services	12	5	35	7.5
8	Retailing of luxury goods	8	3	21	4.5
9	Retailing of consumer goods	8	2	14	3
10	Food production	17	7	49	10.4

No.	Sectors	Initial sample	Final sample	Observations	
				No.	%
11	Health care and medicines	13	5	35	7.5
12	Telecommunications	4	1	7	1.5
13	Real estate management and development	13	6	42	8.9
14	Applications and technology services	5	2	14	3
15	Media & Entertainment	4	1	7	1.5
16	Public utilities	6	2	14	3
17	Real estate traded funds	18	6	42	8.9
Total		**193**	**67**	**469**	**100%**

Furthermore, the study utilized secondary data, especially the financial statements, board of directors' reports, and supplementary clarifications of the sample companies. The study also sourced data from the companies' financial reports, which are published on the websites of the Saudi Capital Market Authority, the Tadawul website (http://www.tadawal.com), and the Argaam website (www.argaam.com). This study uses data panel regression by ordinary least squares with fixed effects.

The study employs fixed-effects ordinary least squares panel data regression models to investigate the nexus between CSR reporting, BFEX, and SP in Saudi non-financial companies. There is a set of assumptions related to the panel data analysis according to its type, and the statistical methods that test these assumptions vary. The choice between the pooled and fixed models is made using the F-test. To identify whether the model is pooled or random, the Breusch and Pagan-Lagrange multiplier tests are used. In addition, the Hausman analysis was used to assess the suitability of the panel data for the random effects model or the fixed effects model (Berrington *et al*., 2006; Gujarati & Porter, 2013). This study performed these three tests to determine the appropriate panel data model. Accordingly, the fixed effects model was used. Regression diagnostics were performed before each model was tested in the study to ensure that multiple regression assumptions were met and to avoid erroneous results. Normality, outliers, multicollinearity, heteroscedasticity, linearity, and autocorrelation are the most important regression assumptions in the study.

3.2 Variables of the study

The study dependent variable is the sustainability performance (SP) of the sample companies, gauged through indicators that reflect the plans, policies, and strategies taken by management for the environmental and social sustainability of the company. This study focuses on three independent variables that express CSR reporting, encompassing economic responsibility (ECO), social responsibility (SOC), and environmental responsibility (ENV). Furthermore, the interaction between CSR reporting and SP is moderated by the board's financial expertise (BFEX). In addition, the study includes four control variables, which include board independence (BIND), firm size (FSIZE), leverage (LEV), and return on assets (ROA). Table 2 summarizes the definition and measurement of dependent, moderating, independent, and control variables, along with evidence from prior studies that used the same measures.

Table 2: Operational definition of the variables of the study

Variable	Symbol	Measurement	Source
Dependent Variable			
Sustainability performance	SP	Every year, the equally weighted average of each company's environmental and social scores.	(Alsayegh *et al*., 2020; Artiach *et al*., 2010; Büyüközkan & Karabulut, 2018; Henao *et al*., 2019; Saulick *et al*., 2023)
Independent Variables			
Economic score	ECO	An index of 10 items related to economic issues.	(Christensen *et al*., 2019; Huang *et al*., 2022; Wentzel *et al*., 2022)
Social score	SOC	An index of 25 items related to social issues.	(Bhargava & Ligade, 2023; Dhingra, 2023; Yu *et al*., 2023)
Environmental score	ENV	An index of 15 items related to environmental issues.	(Aggarwal & Singh, 2019; Asad *et al*., 2023; Kim *et al*., 2023)
CSR reporting	CSR	Integrating the index of economic, social, and environmental aspects.	(Cowan & Guzman, 2020; Dai *et al*., 2018; Garcia-Torea *et al*., 2020; Haji *et al*., 2022; Wu & Jin, 2022)
Moderating variable			
Board financial expertise	BFEX	The number of members with financial experience to the total number of the board ratio.	(Dienes & Velte, 2016; Elmashtawy *et al*., 2023; Githaiga & Kosgei, 2023; Homroy & Slechten, 2019)

Variable	Symbol	Measurement	Source
Control Variables			
Board independence	BIND	The proportion of independent directors to total board members.	(Chang *et al*., 2017; Elmashtawy *et al*., 2023; Naciti, 2019)
Firm size	FSIZE	The logarithm of the total assets.	(Aggarwal & Singh, 2019; Bhargava & Ligade, 2023; Dhingra, 2023)
Leverage	LEV	The total liabilities divided by the total assets' ratio.	(Elmashtawy, Ateeq, *et al*., 2024; Homroy & Slechten, 2019; Wu & Jin, 2022)
Return on assets	ROA	The net income to total assets ratio.	(Chang *et al*., 2017; Elmashtawy, Che Haat, *et al*., 2024; Naheed *et al*., 2021)

3.3 Econometric tools

The study developed four models to measure the influence of CSR reporting on SP and the moderating role of BFEX on the association between CSR reporting and SP. The study's models can be formulated as regression models, as follows:

The direct effect models are outlined below:

The direct effect models assess the effect of CSR reporting on SP in Saudi non-financial companies. The study formulated two models, and these models answer hypothesis 1.

$$SP_{it} = \alpha + .\beta_1 ECO_{it} + \beta_2 SOC_{it} + \beta_3 ENV_{it} + \beta_4 BFEX_{it} + \beta_5 BIND_{it} + \beta_6 FSIZE_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \varepsilon_{it} \quad (1)$$

$$SP_{it} = \alpha + .\beta_1 CSR_{it} + \beta_2 BFEX_{it} + \beta_3 BIND_{it} + \beta_4 FSIZE_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \varepsilon_{it} \quad (2)$$

The moderating effect models are as follows:

The moderator effect models are to investigate the moderating effect of the BFEX on the association between CSR reporting and SP in Saudi non-financial companies. The study formulated two models, and these models answer hypothesis 2.

$$SP_{it} = \alpha + .\beta_1 BFEX_{it} + \beta_2 ECO_{it} + \beta_3 ECO * BFEX_{it} + \beta_4 SOC_{it} + \beta_5 SOC * BFEX_{it} + \beta_6 ENV_{it} + \beta_7 ENV * BFEX_{it} + \beta_8 BIND_{it} + \beta_9 FSIZE_{it} + \beta_{10} LEV_{it} + \beta_{11} ROA_{it} + \varepsilon_{it} \quad (3)$$

$$SP_{it} = \alpha + .\beta_1 CSR_{it} + \beta_2 BFEX_{it} + \beta_3 CSR * BFEX_{it} + \beta_4 BIND_{it} + \beta_5 FSIZE_{it} + \beta_6 LEV_{it} + \beta_7 ROA_{it} + \varepsilon_{it} \quad (4)$$

4. RESULTS AND DISCUSSIONS

4.1 Descriptive statistics

Table 3 shows a summary of the descriptive analysis for the independent, dependent, moderating, and control variables used in the study. The research examines the adherence of variables to the normal distribution through the application of the Kolmogorov-Smirnov and Shapiro-Wilk tests. Findings suggest that the variables conform to the normal distribution, as evidenced by significance values exceeding 0.05 (Pallant, 2020). Table 3 reveals that the mean of SP is 1.04 with a standard deviation of 1.48. The mean of ECO is 8.36, and the minimum and maximum levels are 0.00 and 92.51, respectively. The mean SOC was around 13%, with a standard deviation of 17.84. The mean of ENV is 5.30, and the minimum and maximum levels are 0.00 and 88.13, respectively. Moreover, the mean CSR reporting was around 12%, with a standard deviation of 25.23. The average BFEX is 13.47, and the standard deviation is 22.17, indicating that 14% of the sampled board members have financial expertise. Concerning the control variables, the mean BIND is 17.02, and the standard deviation is 31.31. The average FSIZE is 20.97 with a standard deviation of 1.54. The average lEV is 0.71, and the standard deviation is 1.45. The mean ROA is 0.74, and the minimum and maximum levels are -1.65 and 3.20, respectively.

Table 3: Descriptive Statistics

Variables	Observations	Mean	Minimum	Maximum	Standard Deviation
SP	469	1.04	0.03	16.22	1.48
ECO	469	8.36	0.00	92.51	8.76
SOC	469	12.84	0.00	93.20	17.84
ENV	469	5.30	0.00	88.13	7.12
CSR	469	11.57	0.00	91.41	25.23
BFEX	469	13.47	0.00	91.82	22.17
BIND	469	17.02	0.00	84.95	31.31
FSIZE	469	20.97	16.30	22.49	1.54
LEV	469	0.71	0.00	14.16	1.45
ROA	469	0.74	-1.65	3.20	1.02

4.2 Correlation analysis

It is clear from the results of the correlation analysis in Table 4 that all values of the correlation coefficients within the matrix amounted to less than 0.80. This result indicates that the results of the correlation analysis between the study variables are free from multicollinearity (Gujarati & Porter, 2013). Table 4 also concludes that there are significant correlations among independent, dependent, moderating, and control variables. The highest correlation between SP and CSR is 0.52, suggesting that a higher level of CSR reporting is associated with a higher SP. The correlation between FSIZE and SP is also significant (with a correlation coefficient of 0.50), suggesting that larger companies have a higher SP. Furthermore, the variance inflation factor (VIF) test findings reveal a very low VIF for each variable (less than 1.30) and a large tolerance (at least 0.77), which indicates that there are no multicollinearity problems in the research variables in the correlation analysis (O'brien, 2007).

Table 4: Correlation Analysis

Variables	SP	BFEX	ECO	SOC	ENV	CSP	BIND	FSIZE	LEV	ROA
SP	1									
BFEX	0.45**	1								
ECO	0.42***	0.01	1							
SOC	0.10**	0.22*	0.08	1						
ENV	0.21**	0.03	0.26***	-0.07	1					
CSR	0.52***	0.01	-0.06	-0.09**	-0.04	1				
BIND	-0.04	0.15**	-0.12	0.47**	0.21***	0.25***	1			
FSIZE	-0.50**	0.20**	-0.04	0.02	0.03	-0.12	0.33**	1		
LEV	0.14*	-0.01	-0.34*	0.28*	-0.01	-0.17**	-0.35	-0.21	1	
ROA	0.32**	-0.01	0.22**	0.25	0.24*	0.32	0.24**	0.17*	-0.34**	1
VIF	1.11	1.21	1.18	1.21	1.14	1.01	1.22	1.12	1.24	
Tolerance	0.91	0.82	0.78	0.87	0.84	0.90	0.79	0.88	0.83	

Note: **, and * are the significance levels at 0.05 and 0.01, respectively.**

4.3 Direct effect analysis

Table 5 displays the regression findings of the direct influence analysis. The results in models 1 and 2 are allocated to the direct effect regression models of the effect of CSR reporting on SP. The findings in Model 1 concluded a significant positive and negative effect of ECO, SOC, and ENV on SP at a significant level of 5%, 1%, and 1%, respectively. Furthermore, the findings in Model 2 concluded a significant positive effect of CSR on SP at a significant level of 1% (9.89). This finding indicates that companies exhibiting elevated CSR reporting demonstrate a greater degree of SP, and these companies can increase their performance through a high level of CSR practices. This finding is supported by the stakeholder theory and legitimacy theory and is consistent with the findings of the studies (Aggarwal & Singh, 2019; Bhargava & Ligade, 2023; Dhingra, 2023; Huang *et al.*, 2022; Wu & Jin, 2022). Therefore, H1 is supported.

Table 5. Direct effect models

Variables	Model 1	Model 2
_cons	0.01*** (0.00)	-0.09** (0.03)
ECO	-4.57** (0.01)	
SOC	4.64*** (0.00)	
ENV	-0.37*** (0.00)	
CSR		9.89*** (0.00)
BFEX	0.04** (0.01)	1.47*** (0.00)
BIND	0.28** (0.02)	0.29** (0.01)
FSIZE	0.28** (0.02)	0.19*** (0.00)
LEV	-0.03*** (0.00)	-0.02** (0.01)
ROA	-0.07**	-0.13*

Variables	Model 1	Model 2
	(0.03)	(0.05)
R^2	0.48	0.49
Adjusted R^2	0.44	0.47
F-statistic	8.37	11.72
Prob (F-test)	0.00	0.00
Durbin-Watson test	1.09	2.04

Note: *, **, and * are the significance levels at 0.1, 0.05, and 0.01, respectively.**

The results also indicate that the BFEX affects the SP across the conducted models at a significant level of 5% and 1%, respectively. This finding is consistent with the findings of the studies (Githaiga & Kosgei, 2023; Homroy & Slechten, 2019; Lee, 2023). Moreover, BFEX serves as a safeguarding mechanism, mitigating a company's risk exposure while enhancing its overall SP. Furthermore, the results concluded that the FSIZE has a positive effect on SP across the conducted models. These results mean that as the size of the company increases, its level of SP enhances. The findings also concluded that the BIND positively affects the SP according to models 1 and 2 at a 5% significant level. This result means that the presence of independent members on the board is important to enhance the SP. In addition, there is an inverse effect of LEV on the SP, as the values of SP are -0.03 and -0.02, respectively. This result reflects the negative impact of the increase in debt and financial insolvency on the SP. Finally, there is an inverse effect of ROA on the SP across the conducted models at significant levels of 5% and 10%, respectively. Adjusted R^2 values range between 44% and 47%, indicating that the research variables account for approximately 47% of the SP. The models evaluated additionally demonstrated that the D-W result values showed that variables do not have autocorrelation issues.

4.4 Moderating analysis

Models 3 and 4 in Table 6 present the moderating role of BFEX on the relationship between CSR reporting and SP. The results of the moderating effect indicate that BFEX, as a moderating variable, strengthens the association between CSR reporting and SP. These results indicate that companies can enhance their SP by paying attention to the disclosure of CSR reporting to meet the needs of various stakeholders, in addition to paying attention to the financial expertise of the Board of Directors members, as it has a positive impact on enhancing SP. These results are consistent with the results of studies (Naciti, 2019; Naheed *et al*., 2021; Niazi *et al*., 2021). Hence, H2 is supported. Noteworthy is that the BFEX has strengthened the nexus between CSR reporting (ECO, SOC, and ENV) and SP across the conducted models (Model 3 and Model 4), which was obtained when the BFEX was added to the models. This indicates the critical role of the BFEX, as the BFEX has stronger incentives to influence operational decisions through management monitoring, resulting in a higher SP.

Table 6. Moderating effect models

Variables	Model 3	Model 4
_cons	2.01** (0.02)	2.04*** (0.00)
BFEX	1.76** (0.03)	2.69** (0.02)
ECO	-0.54** (0.02)	
ECO*BFEX	-5.76*** (0.00)	
SOC	7.65* (0.05)	
SOC*BFEX	1.58*** (0.00)	
ENV	-0.76** (0.03)	
ENV*BFEX	0.62*** (0.00)	
CSR		7.85*** (0.00)
CSR*BFEX		2.02*** (0.00)
BIND	1.63* (0.06)	2.27** (0.03)

Variables	Model 3	Model 4
FSIZE	2.05*** (0.00)	2.14*** (0.00)
LEV	-0.02*** (0.00)	-0.03*** (0.00)
ROA	-0.45* (0.07)	-0.35* (0.05)
R^2	0.45	0.47
Adjusted R^2	0.41	0.42
F-statistic	24.22	13.43
Prob (F-test)	0.00	0.00
Durbin-Watson test	1.76	1.81

Note: *, **, and * are the significance levels at 0.1, 0.05, and 0.01, respectively.**

It is clear from the results of the regression analysis of the direct effect and the moderating effect that the values of adjusted R^2 reached 0.44 and 0.47 for the direct effect regression models and 0.41 and 0.42 for the moderating effect regression models. This indicates the positive effect of inserting the interaction between CSR reporting (ECO, SOC, and ENV) and BFEX variables in the moderating model. Additionally, it signifies the precision of the models and the autonomy of the factors influencing SP. Moreover, the outcomes demonstrated that the significance levels were 0.00 across the regression analysis models. The results of the moderating effect analysis can be supported by stakeholder theory and legitimacy theory. According to stakeholder theory, having board members with financial expertise leads to working to meet the needs of different stakeholders, which has a long-term impact on enhancing the company's SP. Furthermore, legitimacy theory suggests that CSR reporting increases transparency between the company and internal and external users, which enhances its SP in the long term, in light of the presence of board members with financial expertise.

4.5 Endogeneity analysis

Additional analyses are carried out to evaluate the robustness of the study's findings, and it is revealed that earlier results are robust with alternative measurements of the variables. Table 7 findings provide an estimation of the endogeneity test. The findings indicate consistency in the effect of independent variables and their interactions with BFEX on SP. Overall, the endogeneity test results are consistent, persistent, and robust. Consistent trends in coefficient values across endogenous variables point to a persistent pattern of relationship. The coefficients' standard deviations are relatively steady, indicating that the predicted parameters vary consistently. The overall consistency of the results, together with the absence of substantial shifts in standard errors and p-values, gives strong evidence that the findings are reliable. Although there are variances in the influence of the coefficients and standard errors, the statistical significance continues and is maintained across the estimated models.

The findings reveal that the significance level test yielded a value of 0.0001 for the variable representing the interaction between BFEX and CSR reporting (ECO, SOC, and ENV), which is below the significance level of 0.05. This indicates a substantial influence of the BFEX introduction on the association between CSR reporting and SP. Furthermore, the significance levels of the control variables, namely BIND, FSIZE, LEV, and ROA, are below 0.05, suggesting a significant relationship with SP. The models' explanatory power varies from 31% to 32%, demonstrating that including the BFEX as a moderating variable improves the association between CSR reporting and SP. Moreover, the coefficient of the regression models exhibits positive significance, as the significance levels fall below the significance threshold of 0.05.

Table 7: Endogeneity analysis

Variables	Model 1	Model 2
_cons	9.42*** (22.47)	8.41*** (20.13)
ECO	-0.00 (-0.54)	
ECO*BFEX	-0.00*** (-7.81)	
SOC	0.00 (2.51)	
SOC*BFEX	0.01*** (8.51)	
ENV	-0.00	

Variables	Model 1	Model 2
	(-0.81)	
ENV*BFEX	0.00 (0.57)	
CSR		0.00*** (8.62)
CSR*BFEX		0.01*** (4.15)
BFEX	0.03*** (5.19)	0.01*** (6.57)
BIND	0.01*** (4.61)	0.00*** (5.61)
FSIZE	0.01*** (28.64)	0.01*** (28.89)
LEV	-0.00*** (-8.36)	-0.00*** (-8.12)
ROA	0.00 (0.41)	-0.00** (-0.44)
R^2	0.34	0.34
R^2_adjusted	0.32	0.31
F-test	43.63	32.11
Prob.	0.000	0.000

Note: *, **, and * are the significance levels at 0.1, 0.05, and 0.01, respectively.**

5. CONCLUSION

The study examined the effect of CSR reporting on SP and the moderating role of BFEX on the association between CSR reporting and SP. This research is attributed to a balanced database of 469 firm-year observations of Saudi non-financials spanning from 2017 to 2023. The findings indicated that CSR reporting had a significant and positive effect on SP. It implies that Saudi companies have to concentrate on adopting more CSR practices to improve SP. Moreover, the study found that BFEX moderates the relationship between CSR reporting and SP. The results also concluded that BFEX has a vital role in improving SP. Furthermore, the results confirm the positive influence of introducing the BFEX as a moderator variable in the relationship models. Additional analyses were performed to assess the robustness and endogeneity of the study inferences, and it was discovered that previous inferences are robust with different measurements.

This study makes the following distinct contributions to the existing literature: First, for theoretical contribution, it adds to the current literature on SP, CSR reporting, and BFEX, especially in Saudi Arabia. The study is the first to investigate the moderating role of BFEX in the association between CSR reporting and SP. Second, the study offers various implications for regulators, companies, and stakeholders. The study indicates that BFEX, as one of the corporate governance mechanisms, can bolster SP within non-financial companies listed on the Saudi Stock Exchange. Consequently, regulators have the opportunity to advocate for BFEX as a means to enhance SP and incentivize its adoption among companies. Additionally, regulatory bodies can formulate guidelines and regulations that promote BFEX integration to bolster SP. Finally, stakeholders can focus on the BFEX for more CSR practices to enhance SP.

The study is subject to several limitations. Firstly, the analysis spanned seven years and focused solely on non-financial firms within a single country, thereby restricting the generalizability of the conclusions and limiting control over all variables influencing the outcomes. Second, the quantitative analysis of secondary data may not offer the capacity to interpret and clarify unforeseen relationships among certain variables and SP. Finally, the measures used to measure SP and CSR reporting in the study might not encompass all dimensions of SP, given its multifaceted nature. There remains potential for future investigations to explore the impact of BFEX on the association between CSR reporting and SP using alternative SP metrics. Subsequent research endeavors could also delve into comparing various corporate governance mechanisms and their respective effects on SP. Furthermore, future research could consider extending this analysis to encompass both financial and non-financial companies. In conclusion, forthcoming research could endeavor to replicate the models developed in this study across diverse countries and extend the comparison over an extended timeframe to enable a more comprehensive analysis.

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