

Revisiting the Role of Women on Boards: Corporate Social Responsibility and Firm Performance

Burhan Rasheed,* Zohair Farooq Malik, Rizwan Ali and Umer Farooq

ABSTRACT

Manuscript type: Research paper

Research aims: The concept of CSR is comparatively new in emerging economies. Thus, the present study aims to fill this gap by investigating the association between CSR and firm performance, with the moderating role of gender diversity on the board.

Design/Methodology/Approach: Panel data related to non-financial sector firms, listed at the Pakistan Stock Exchange, covering the period of 2016 to 2023, was collected. CSR was measured with CSR expenditure and CSR disclosure, whereas firm performance was measured through three distinct proxies, namely, net profit margin, ROE and Tobin's Q. For analysis, this study used the novel technique of dynamic panel data.

Research findings: The findings suggest that CSR has a positive and significant impact on firm performance. Moreover, the presence of women on the board significantly strengthens the association between CSR and firm performance.

Research limitations: This study focuses only on the non-financial firms, as financial firms operate under different regulatory frameworks and performance parameters. Future studies may extend this analysis to financial firms as well. Moreover, the present study used board gender diversity as a moderator. Future studies may focus on CEO gender as a moderator.

* Corresponding Author. Burhan Rasheed is an Assistant Professor of Accounting and Finance at the School of Commerce and Accountancy, University of Management and Technology, Lahore, Pakistan. Email: burhan.rasheed@umt.edu.pk

Zohair Farooq Malik is an Assistant Professor of Accounting and Finance at the School of Commerce and Accountancy, University of Management and Technology, Lahore, Pakistan. Email: zohair.malik@umt.edu.pk

Rizwan Ali is an Associate Professor of Finance at the Lahore Business School, The University of Lahore, Pakistan. Email: rizwan.ali@lbs.uol.edu.pk

Umer Farooq is a Senior Lecturer in Accountancy and Finance and the Programme Leader at the Lincoln International Business School, University of Lincoln, England, UK. Email: ufarooq@lincoln.ac.uk

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Practical implications: CSR initiatives benefit the wider community by enhancing a firm's reputation, stakeholders' trust, and long-term risk management. Together, these outcomes have the potential to increase shareholders' wealth. This study presents empirical findings to regulatory bodies to support their efforts in encouraging corporate decision-makers to explore the impact of a more gender-diverse board structure. Additionally, this study also encourages managers to invest in CSR initiatives and disclose these in the annual reports as investments because these initiatives play a significant role in boosting the firm's performance.

Originality/value: This study tries to explore the concept of board gender diversity from a male-dominated society, and further, it also examines its moderating role between CSR-firm performance. This study used distinct proxies for CSR and firm performance. The robustness of the results was analysed using the GLS approach, which efficiently addresses serial correlation and heteroskedasticity in panel data. Alternative approaches, such as fixed or random effects, were not employed for robustness, as they do not correct these issues as effectively.

Keywords: Corporate Social Responsibility, Firm Performance, Board Gender Diversity, Moderation, Dynamic Panel Data Approach.

JEL classification: M40

1. Introduction

At the start of this century, the scandalous WorldCom and Enron scandals raised concerns about the ethical and societal obligations of businesses, and they triggered a widespread debate on corporate governance and accountability. Subsequently, a discussion about CSR gained significant attention to promote sustainable and ethical business practices. Certainly, these scandals exposed accounting and governance failures. After that, stakeholders started to demand more accountability, transparency, and responsible conduct from businesses, which led to the Sarbanes-Oxley Act of 2002, and the scrutiny around businesses has intensified. Hence, firms started CSR activities to restore stakeholder trust.

Conventionally, social responsibility was viewed as a societal issue that needed to be addressed by NGOs and government entities, and CSR was not related to a firm's operations. However, with the ever-growing focus on business ethics, this topic has transformed into a business strategy (Yuan et al., 2020). This transformation is credited to the amalgamation of ethics within the stakeholders theory (Waheed & Zhang, 2022). Following this paradigm shift, numerous authors have examined the link between CSR and firm performance; most have reported a positive relationship (Ikram et al., 2020; Mishra & Suar, 2010; Singh et al., 2023; Yang et al., 2019), while others have found a negative association (Miller et al., 2018; Narula et al.,

2025). Moreover, several studies have also reported inconsistent and contradictory findings (Rehman et al., 2020; Yoon & Chung, 2018).

As businesses grow and expand, corporate governance has transformed into an important discipline in developed and emerging economies (Freeman, 2010). Corporate governance has several control mechanisms; one of the key mechanisms is the board of directors. They monitor and control the organisational performance and also oversee the implementation of business strategic plans and ensure the goal alignment between managers and the organisation. Many corporate governance regulations are designed to strengthen the board of directors' role as an active and committed group of experts responsible for ensuring an effective corporate governance mechanism. As a result, the gender composition of the board also acts as one of the effective governance tools and primary drivers in achieving organisational goals. Despite extensive studies aimed at exploring corporate governance and firm performance, only a handful of studies have investigated the implications of board gender diversity in this relationship.

A review of corporate-governance-practices around the globe reveals that Norway is counted as one of the pioneer nations in mandating a minimum (40 per cent) women representation on the board (Hoel, 2008). Afterwards, other countries also established their quota of the presence of women on the board. France and Spain used the same quota of 40 per cent representation for public companies, while the Netherlands and Italy set the level at 30 per cent (Mateos de Cabo et al., 2012). Across Europe and beyond, such board compositions continue to increase. In Malaysia, the government recognised women's contribution to the country's growth by announcing a 30 per cent minimum level of females as part of the board to ensure board gender diversity (Malaysian-Corporate-Governance-Code, 2017).

Several studies have researched the role of women on boards, particularly in developed economies (Alodat & Hao, 2025; Chang et al., 2024), whereas only a few studies have been conducted on developing countries (Hazaea et al., 2023; Laique et al., 2023). The growing global discussion about recognising women's economic importance and addressing gender-based barriers has increased mandatory women's presence on boards (Usman et al., 2019).

Literature has moved a step forward in exploring the complex CSR-firm performance association by including other variables as mediators and moderators, e.g., competitive intensity (Rasheed & Ahmad, 2022), corporate governance (Chijoke-Mgbame et al., 2020),

firm reputation (Zhu et al., 2014), managerial competencies (Graves & Waddock, 1999), marketing competence and market environment (Bai & Chang, 2015) and intangible resources (Surroca et al., 2010). Although the gender management on boards have a positive effect on financial accessibility and financial stability (Ozili, 2024), the role of board gender diversity remains less explored with CSR and firm performance (Akhtar et al., 2025; Jiang et al., 2021; Marquez-Cardenas et al., 2022).

As Pakistan is a developing economy working on reforming its governance structures, the majority of the business community in Pakistan fails to recognise the significance of having women on the board. To strengthen the governance structure, through the Code of Corporate Governance (2017), regulators and policymakers have made it mandatory for listed firms to include minimum one female director on their boards. This move is aimed at promoting inclusivity and achieving diversity within the board to improve governance mechanisms aimed at ensuring corporations achieve their objective and improve their financial performance. Recently, besides other corporate governance characteristics, the role of women on the board in firm performance has also been rigorously investigated; however, most of the research has taken place in developed markets. The literature reveals that in developing countries like Pakistan, the role of female directors in the CSR-firm performance has either been ignored or given very little attention (Akhtar et al., 2025; Amin et al., 2022; Hameed et al., 2023). Therefore, the present study seeks to examine the moderating effect of board gender diversity between CSR and firm performance.

The effectiveness of corporate governance differs in developing economies, since here firms have closely held ownership; thus, firms lack proper and effective mechanisms to protect stakeholder rights. Like in Pakistan, firms have not only closely held ownership but also predominantly male-dominated boards, which makes it challenging for females to become a part of the board structure (Sarwat, 2023). Although the Pakistan Code of Corporate Governance (2017) provides guidelines for board composition for listed companies in Pakistan, it does not explicitly address the impact of board gender diversity on CSR and firm performance. Therefore, the findings of this research aim to add to the existing knowledge by studying CSR and firm performance with board gender diversity.

Studying CSR (expenditure and disclosures) and firm performance is very important in Pakistan, where CSR is often viewed as a cost rather than a strategic investment, and disclosure

practices remain voluntary and inconsistent. Moreover, incorporating board gender diversity into this relationship highlights the significance of examining the CSR and firm performance. Therefore, it is necessary to study and analyse how the role of women on the board impacts the CSR-firm performance.

The purpose of this research is to investigate the influence of CSR (expenditure and disclosure) on firm performance with the moderating role of board gender diversity in Pakistan. Firm performance was measured using net profit margin for operating efficiency, ROE for accounting-based returns, and Tobin's Q for market valuation, capturing both internal and external aspects of performance. The findings show that CSR (expenditure and disclosure) positively contribute to FP, with the effect becoming more prominent in the presence of gender-diverse boards. Besides, the results of this study also support the claim of stakeholder theory.

The remainder of this research paper is structured as follows: Section 2: review of literature and hypotheses; Section 3: presents the research methodology. Section 4: discuss the empirical results. Section 5: concludes with contributions, implications, limitations, and directions for future research.

2. Review of Literature

As a result of the widening implications and rising importance of corporate governance policies, research on the topic of CSR and corporate governance has significantly increased over the past several years (Helfaya & Moussa, 2017; Shaukat et al., 2016). Prior research has assessed the link between CSR, firm performance, and corporate governance using a single-theory approach (Barako et al., 2006; Gaio & Gonçalves, 2022; Jo & Harjoto, 2011), while this research applies two different theories.

2.1 Stakeholder theory related to CSR

This theory states that businesses have an ethical obligation to create value for all stakeholders besides earning profit (Freeman, 1984). It differed from Friedman's conventional claim; Freeman also stressed that the firm must foster positive relationships with all stakeholders (Jiang et al., 2020). It also demonstrated that firms must consider all stakeholders' claims to satisfy their shareholders' demands, as maximisation of shareholder wealth cannot be achieved by disregarding the interests of other stakeholders (Jamali, 2008).

Proponents of this theory argue that a company should safeguard the interests of all stakeholders by creating value (Al-Shammari et al., 2022; Freeman, 1984). This perspective provides a strong theoretical foundation for CSR, as CSR initiatives are designed to address stakeholder concerns, along with focusing on long-term benefits. Prior studies also support this claim and found that CSR activities improve the firm's performance (Famiyeh, 2017). So, this study underpins this theory to explain CSR-firm performance.

2.2 *Agency Theory related to Board Gender Diversity*

The company management (agents) work on behalf of shareholders (principals), with the primary responsibility of serving the principals' interests. When management fails to fulfil these obligations, agency problems can arise. Board gender diversity has been shown to enhance monitoring functions and often necessitates increased audit efforts. Sometimes, more gender diverse boards lead to excessive monitoring, which results in inconsistent firm performance (Adams & Ferreira, 2009; Hossain & Oon, 2022). Unlike developed countries, Pakistan's corporate governance framework is still at the development stage; therefore, the risk of over-monitoring is relatively low (Arslan & Alqatan, 2020; Hameed et al., 2023). Thus, a gender-balanced board is more beneficial for businesses.

This study first incorporates the stakeholder theory, which suggests that CSR activities can improve firm performance by addressing stakeholder needs. At the same time, agency theory emphasises the importance of board structures, such as gender diversity, in reducing agency conflicts and ensuring managers engage in responsible and transparent CSR practices. Together, these perspectives provide a strong theoretical base to study CSR-firm performance, particularly when moderated by board gender diversity.

2.3 *Hypotheses Development*

The CSR debate got attention at the start of this century, and this debate in the literature revolves around two main perspectives: one is by Friedman, and the other is by Freeman. Friedman's (stockholder) perspective states that managers are agents and have sole responsibility to design policies and make decisions in the interest of shareholders (Friedman, 1970). Freeman's (stakeholder) perspective opposes this argument and shows that companies have to take care of all stakeholders interests (Freeman, 1984, 2010) which

as a result enhances the firm reputation (Peterson, 2018), firm value (Chung et al., 2018), competitive advantage (Rasheed & Ahmad, 2022) and firm performance (Fourati & Dammak, 2021). Based on this discussion, this study emphasises two dimensions of CSR when analysing its relationship with firm performance: CSR expenditure, which reflects the financial commitment of firms to social initiatives (Prakash & Hawaldar, 2024), and CSR disclosure, which captures the extent of CSR-related information communicated to stakeholders (Alam & Tariq, 2022).

2.3.1 CSR Expenditure and Firm Performance

Stakeholder theory suggests that a company's CSR activities positively influence its performance (Li et al., 2025). However, a few studies also have contradictory findings, while some studies reported mixed results (positive, negative and neutral) with firm performance.

Famiyeh (2017) conducted a study in Ghana, and its results showed that CSR activities positively impact the firm's performance, especially in cost, quality, flexibility, and delivery performance. Liu and Lu (2021) studied CSR, firm performance and the risk to U.S. companies. They analysed a total of 15,328 observations ranging from 2004 to 2012. Their findings showed that if a company has a good reputation, it will engage more in CSR activities, which leads to better firm value. Further, they also reported that a firm's reputation negatively affects the company's risk. They also found that a company's reputation plays the role of mediator in the CSR, risk and firm performance relationship.

Yoon and Chung (2018) also found similar results. They showed that external CSR can improve the overall firm's net worth, but it might decrease the firm's operational profits. On the contrary, they also reported that internal CSR can improve their profits, but it does not improve the market value. In addition, prior literature proposes that the amount spent on CSR is positively associated with firms' performance (Akhter & Hassan, 2024; Fourati & Dammak, 2021; Rasheed et al., 2018). As argued by Rasheed and Ahmad (2022), CSR expenditure enhances the financial performance of firms by providing a competitive advantage. They applied the GMM approach to test the moderated effect of competitive intensity between CSR expenditure and competitive advantage. Moreover, it was concluded that competitive intensity strengthens the relationship between CSR and performance of the firms in the Pakistani context. Likewise, Sri Lanka also presented that effective CSR activities led to better firm performance.

Khan et al. (2023) concluded that charitable donations (proxy for CSR) enhance the firms' performance. Another study that used the data of the Global 100 Index, reported that CSR activities are positively associated with firms' performance (Ruggiero & Cupertino, 2018). A recent study (Hamed et al., 2024), which was conducted in the UK, also showed that effective CSR strategies enhance sustainable performance. The findings of many other studies revealed that CSR expenditure leads to better firm performance (Bhagawan & Mukhopadhyay, 2024; Maury, 2022; Miller et al., 2020; Yang & Basile, 2022).

Since the discussions about theories and prior literature suggest that firms that do CSR expenditure show better firm performance, the following is hypothesised:

H₁: CSR expenditure has a positive impact on firm performance.

2.3.2 CSR Disclosure and Firm Performance

The stakeholder theory postulates that the firms involved in CSR initiatives are positively associated with enhanced financial performance (Famiyeh, 2017). In addition to that, the theory further posits that stakeholders are not only interested in the fulfilment of their own needs but also want relevant CSR disclosures from the firm, which can then be used as an accountability mechanism for their claims. According to Rasheed et al. (2023), CSR disclosure may increase the operational, financial, and market performance of the firm; thus, this research also utilises CSR disclosure as another proxy of CSR activities. Yadav et al. (2017) studied how companies disclose information about their environmental practices. They found that when companies have positive environmental practices, it can have a positive effect on their firm performance. In another study (Alahdal et al., 2024), the authors found a significantly positive relationship between strong firm performance and good relationships with stakeholders. They used Tobin's Q and ROA to measure performance while using KLD data to measure stakeholder relationships (Choi & Wang, 2009). Often, CSR involves voluntary disclosures that reflect a company's commitment to ethical practices. This aligns with the broader principle of sound business ethics (Yusoff et al., 2016).

Yang et al. (2019) proposed that firms should address all of the dimensions of CSR, as addressing all of the dimensions of CSR improves overall financial performance and strengthens brand image. In their study, CSR was measured using China's widely recognised Hexun rating criteria, where the results demonstrated

a positive and significant relationship between CSR scores and all financial performance indicators. Similarly, Al-Shammari et al. (2022) concluded that the firms involved in CSR enjoy enhanced financial performance. Moreover, the association between CSR and financial performance of firms is more pronounced where the firms are engaged in research and development activities. Additionally, Orazalin and Baydauletov (2020) reported that firms with more effective CSR strategies tend to achieve superior environmental and social performance. Further, this relationship is also strengthened by the moderated effect of board gender diversity. Similar evidence is also found in Malaysian halal food firms where CSR disclosure boosts profitability and market value (Ahmad et al., 2024).

Considering the above-mentioned discussions about theories and prior literature, it is conjectured that firms that provide disclosures about their CSR activities have better firm performance. Therefore, the following is hypothesised:

H₂: CSR disclosure has a positive impact on firm performance.

2.3.3 Board Gender Diversity

The board of directors are required to establish organization's objectives, set tactical goals and implement sustainable strategies to safeguard stakeholders' interest. The presence of women on the board enhances innovation, creativity, knowledge, and strategic decision-making (Campbell & Mínguez-Vera, 2008), which can lead to an improvement in firm performance (Gupta et al., 2021; Jiang et al., 2021). As the women are more concerned about stakeholders' interests as compared to their male counterparts, therefore, the presence of women on boards is pivotal in ensuring the implementation of sustainable business strategies (Naciti, 2019). Social role and gender socialisation theories suggest that women are considered more empathic and community-minded relative to men (Anglin et al., 2022). Therefore, it is expected that a larger number of women on boards is more likely associated with enhanced monitoring and implementation of CSR programs (Issa & Bensalem, 2023), thus achieving the firm's long-term goals (Ali et al., 2025).

Besides, Jizi (2017) concluded the positive relationship between the implementation of sustainability-related policies and the presence of women on boards. A research study by Li et al. (2022) concluded that CSR performance is positively associated with board gender diversity in the Spanish context. More gender-diverse boards are associated with superior implementation of CSR strategies in the US

market (Glass et al., 2016). Moreover, Post et al. (2015) concluded that since female directors are more concerned with safeguarding the interests of different stakeholder groups, they advocate for sustainability-related strategies for the enhancement of CSR performance.

Since female leaders enhance ESG/CSR disclosure (Xia & Oon, 2024), investigating CSR expenditure and CSR disclosure in relation to firm performance, with board gender diversity as a moderator, is particularly relevant in emerging markets like Pakistan. According to Haque and Ntim (2018), amongst others, board gender diversity is one of the topical areas that has generated a lot of discussion in the literature on corporate governance, particularly about sustainability concerns. It is, therefore, expected that the board's gender diversity should strengthen the link between CSR and firm performance.

Based on the above discussion, having more women on the board may potentially lead to strengthening the association between CSR and firms' performance. Additionally, if investors perceive the presence of women on the board may lead to enhanced firm performance, the investors' assessment of CSR initiatives on firm value may be more pronounced when there is a higher female representation on the board. Thus, in the light of the above discussions, the following hypotheses are established:

H_{3a}: Board gender diversity strengthens the relationship between CSR disclosure and firm performance.

H_{3b}: Board gender diversity strengthens the relationship between CSR expenditure and firm performance.

3. Research Methodology

The goal of this research is to assess the impact of CSR on firm performance with the moderating effect of board gender diversity. To meet the objectives of the study, panel data from different firms were collected.

3.1 Sample and Data Collection

This study focuses on the non-financial sector only because the financial sector operates under different regulatory frameworks and also has distinct key performance indicators. In the year 2023, the Pakistan Stock Exchange (PSX) had 364 listed non-financial firms, out of which 163 firms were excluded because of the unavailability of data in the studied period. The sample consists of 201 non-financial

firms with a total of 1608 firm-year observations (refer to Table I). The authors intended to look into the nexus between CSR and firm performance relationship in the light of board gender diversity, and for that purpose, data from the years 2016 to 2023 were chosen for this research. The period 2016–2023 was selected as it ensures consistent CSR data availability following regulatory reforms and captures recent trends in CSR and governance practices. The study’s data were collected from the State Bank of Pakistan (SBP) and the company’s annual audited financial reports.

Table I: Sample Distribution

Details	No. of firms
Total firms in the non-financial sector	364
Less: excluded firms due to missing information	(163)
Final sample	201

3.2 Empirical Strategy and Econometric Models

The link between CSR and firm performance was investigated by using the Generalised Method of Moments (GMM) method. The GMM estimator was employed because the data potentially suffered from endogeneity and unobserved heterogeneity, which could bias OLS or Fixed/Random effect estimates. The validity of this approach is assessed by using the over-identification test of Sargan (1958) and the autocorrelation test of Arellano and Bond (1991), as endogeneity concerns arise because CSR expenditure and CSR disclosure may be simultaneously influenced by firm performance. This method also helps in controlling the potential endogeneity problem and unobserved heterogeneity in CSR and firm performance (Blundell & Bond, 1998). For GMM, the approach of Arellano and Bond was used in this study. The GMM is the best estimator for data with a shorter period (Zhou, 2014) and has the best correction effect on the coefficient.

However, the technique also has limitations, such as instrument proliferation, finite-sample bias, and sensitivity to weak instruments. It also assumes that there are no second-order autocorrelations and violations that may bias results (Roodman, 2009).

The primary econometric models that were employed for this study are presented below, and the following equations (1) to (6) use the acronyms defined in Section 3.4, which provide the full definitions and measurement details for all variables.

CSR Expenditure and Firm Performance with Board Gender Diversity

1. $FP(NPM) = \alpha_0 + \beta_1 NPM_{it-1} + \beta_2 CSRExp_{it} + \beta_3 BGD_{it} + \beta_4 (CSRExp \times BGD)_{it} + \beta_5 CSIZE_{it} + \beta_6 LEV_{it} + \beta_7 IND_{it} + \beta_8 AGE_{it} + \beta_9 BSIZE_{it} + \varepsilon_1$
2. $FP(ROE) = \alpha_0 + \beta_1 ROE_{it-1} + \beta_2 CSRExp_{it} + \beta_3 BGD_{it} + \beta_4 (CSRExp \times BGD)_{it} + \beta_5 CSIZE_{it} + \beta_6 LEV_{it} + \beta_7 IND_{it} + \beta_8 AGE_{it} + \beta_9 BSIZE_{it} + \varepsilon_1$
3. $FP(TBQ) = \alpha_0 + \beta_1 TBQ_{it-1} + \beta_2 CSRExp_{it} + \beta_3 BGD_{it} + \beta_4 (CSRExp \times BGD)_{it} + \beta_5 CSIZE_{it} + \beta_6 LEV_{it} + \beta_7 IND_{it} + \beta_8 AGE_{it} + \beta_9 BSIZE_{it} + \varepsilon_1$

CSR Disclosure and Firm Performance with Board Gender Diversity

4. $FP(NPM) = \alpha_0 + \beta_1 NPM_{it-1} + \beta_2 CSR_{it} + \beta_3 BGD_{it} + \beta_4 (CSR \times BGD)_{it} + \beta_5 CSIZE_{it} + \beta_6 LEV_{it} + \beta_7 IND_{it} + \beta_8 AGE_{it} + \beta_9 BSIZE_{it} + \varepsilon_1$
5. $FP(ROE) = \alpha_0 + \beta_1 ROE_{it-1} + \beta_2 CSR_{it} + \beta_3 BGD_{it} + \beta_4 (CSR \times BGD)_{it} + \beta_5 CSIZE_{it} + \beta_6 LEV_{it} + \beta_7 IND_{it} + \beta_8 AGE_{it} + \beta_9 BSIZE_{it} + \varepsilon_1$
6. $FP(TBQ) = \alpha_0 + \beta_1 TBQ_{it-1} + \beta_2 CSR_{it} + \beta_3 BGD_{it} + \beta_4 (CSR \times BGD)_{it} + \beta_5 CSIZE_{it} + \beta_6 LEV_{it} + \beta_7 IND_{it} + \beta_8 AGE_{it} + \beta_9 BSIZE_{it} + \varepsilon_1$

3.3 Construct Operationalisation

3.3.1 Firm Performance

The dependent variable, firm performance, was measured using three different types, including operational, efficiency and market performance (Husaini et al., 2023). For operational performance, the net profit margin was used, which is calculated by taking the ratio of profit before tax/total sales (Husaini et al., 2023). For efficiency, Return on Equity (ROE) was used, which is calculated by taking the ratio of profit after tax/shareholders' equity (Aldogan Eklund & Pinheiro, 2024). Finally, the market performance was measured using the Tobin's Q, which is the market measure of a firm's value, determined by taking market value/total assets (Ahmad & Mokhchy, 2023).

3.3.2 CSR Expenditure

CSR expenditure and CSR disclosure were used as two different proxies for CSR, where both were used as predictors in separate models. CSR expenditure covers the sum that the company spends annually on CSR initiatives (Roy et al., 2022). The data about CSR expenditure was gathered from the SBP's annual report.

3.3.3 CSR Disclosure

CSR disclosure was calculated using the content analysis technique, which was then utilised for designing an index for CSR disclosure. For that purpose, a CSR disclosure checklist (Annexure-A) is adapted from the prior literature (Dias et al., 2016; Dias et al., 2019; Furlotti & Mazza, 2024; Haniffa & Cooke, 2005; Jizi et al., 2014; Nekhili et al., 2017; Platonova et al., 2018; Saleh et al., 2010), which contains 30 different statements about CSR disclosure. A company receives a “1” when it discloses an item from the checklist, and a “0” if it doesn't. The total number of items on the checklist was divided by the sum of all scores that a company obtained to create a CSR disclosure index.

3.3.4 Board Gender Diversity

The board's gender diversity shows the representation of female members on the board of directors. It is calculated by taking the ratio of the number of female members/total board members (Kuzey et al., 2022).

3.3.5 Control Variables

In addition to the independent variable and moderator, several control variables are also incorporated in the model. Company size was controlled for, as larger firms generally enjoy economies of scale and better access to resources, which may enhance firm performance (Dias et al., 2019). Leverage was included since higher debt ratios can constrain financial flexibility and reduce profitability (Ahmed et al., 2022). Board independence was controlled because independent directors may strengthen governance and influence the CSR and firm performance relationship (Khoo et al., 2022). Firm age was included as older firms often have more stable operations and reputations that affect performance (Novitasari et al., 2023). Last but not least, board size was considered since board structure may affect monitoring effectiveness and strategic decisions (Tibiletti et al., 2021).

3.4 Variables Measurement

CSR - Independent Variables

CSR Expenditure (CSRExp)	= Total sum of CSR expenditure (rupees in a million) (Roy et al., 2022).
CSR Disclosure (CSRSD)	= Measured as total CSR items disclosed divided by total CSR items (Rasheed & Ahmad, 2022)

<i>Firm Performance - Dependent Variables</i>	
Net Profit Margin (NPM)	= Firm's profit before tax/total sales (Husaini et al., 2023)
Return on Equity (ROE)	= Firm's profit after tax/shareholders' equity (Aldogan Eklund & Pinheiro, 2024)
Tobin's Q (TBQ)	= firm's market value/total assets (Thottoli & Thomas, 2023)
<i>Board Gender Diversity - Moderator Variable</i>	
Board Gender Diversity (BGD)	= No. of women on board/total no. of directors (Li et al., 2022)
<i>Control Variables</i>	
Company Size (CSIZE)	= Natural logarithm of total assets (Dias et al., 2019).
Leverage (LEV)	= Total debts/total assets (Ahmed et al., 2022)
Board Independence (IND)	= Ratio of independent directors/total directors (Khoo et al., 2022)
Firm Age (AGE)	= Years since a company was incorporated (Novitasari et al., 2023)
Board Size (BSIZE)	= Total no. of directors on a board (Tibiletti et al., 2021)

4. Results and Discussion

The descriptive statistics in Table II show the mean, minimum, maximum and standard deviation values of the data. Table III contains pairwise correlations between study variables showing the sign and strength of the relationship. Besides, the correlation values suggest the absence of multicollinearity. This was further verified through the variance inflation factor, which remained below the critical threshold. The same has also been checked for CSR expenditure and CSR disclosure to address the causality concern and confirm that these can be treated as distinct variables in separate models. The main analysis started with the analysis of the direct association of CSR and firm performance. Subsequently, the said association was tested in the presence of board gender diversity as a moderator.

4.1 CSR Expenditure and Firm Performance with Board Gender Diversity

The purpose of the study is to analyse the link between CSR and firm performance. Two distinct proxies were used for CSR, namely,

CSR disclosure and CSR expenditure. Whereas firm performance was measured with net profit margin, ROE, and Tobin's Q. Besides, the moderator board gender diversity was also used in the said relationships. Table IV contains the findings of the regression analysis related to all six models. Models 1 to 3 contain the findings related to the CSR expenditure and firm performance, along with the moderator, board gender diversity. Whereas models 4 to 6 depict findings related to CSR disclosure, firm performance and board gender diversity. Regressions for each model were carried out using a dynamic panel data approach (Arellano & Bond, 1991). Whereas the Sargan test was carried out to check the autocorrelation. The results showed that autocorrelations do not exist in the models; besides, over-identifying restrictions are valid. Additionally, the Sargan test (p-values > 0.05) confirms instrument validity, indicating that independent variables are not endogenous and do not suffer from reverse causality. Further, the AR (1) p-values (0.3102 and 0.3051) in Table IV are not significant because of the presence of two lags of the dependent variable, which absorb first-order correlation. Importantly, AR (2) remains non-significant, confirming model validity and no second-order serial correlation. The findings of the first model, which was based on net profit margin, suggest that CSR expenditure is positively linked with firm performance as the coefficient (CSR expenditure) is positive and statistically significant (coeff. = 0.0210, $p < 0.01$).

Table II: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
NPM	1608	4.784	13.819	-87.515	107.226
ROE	1608	10.722	24.856	-162.544	179.021
TBQ	1608	1.099	5.759	0.010	169.266
CSRExp (rupees in million)	1608	17.757	57.770	0	811.566
CSRExpBGD	1608	1.573	7.969	0	133.674
CSRD	1608	0.470	0.108	0.230	0.730
CSRDBGD	1608	0.437	0.057	0	0.342
BGD	1608	0.091	0.123	0	0.625
CSIZE	1608	15.920	1.500	10.893	20.574
LEV	1608	0.528	0.284	-0.788	4.183
IND	1608	0.177	0.127	0	0.727
AGE	1608	40.754	18.918	0	160
BSIZE	1608	8.065	1.432	7	17

As discussed earlier, the CSR expenditure is the sum that a company has invested in CSR-related initiatives. As several authors have discussed before, the money spent on CSR is an additional expense for the company, resulting in a decrease in profit (Kao et al., 2018; Lin et al., 2015). The results of this research oppose the notion that CSR expenditure merely decreases profitability. Instead, the results show that CSR initiatives contribute positively to the firm's performance, also consistent with prior research grounded in stakeholder theory. This emphasises that protecting and creating value for a broad set of stakeholders can enhance business performance (Kong et al., 2020; Wei et al., 2020). Subsequently, the interaction term was incorporated into the model to investigate the association. The findings suggest that the presence of women on the board strengthens the CSR expenditure and firm performance.

The second model was developed to study how CSR expenditure affects firm performance (ROE). The results reveal that CSR expenditure significantly and positively affects ROE (coeff. = 0.0320, $p < 0.01$). These findings suggest that spending on CSR contributes to improving firm performance because it enhances the firm's reputation, builds customer trust, and strengthens stakeholder relationships. Such investments can also reduce business risks and attract socially conscious investors, thereby generating long-term financial benefits. These findings are consistent with previous studies, which reported the positive association between CSR and firm performance (Liu & Lu, 2021; Maury, 2022). The results from the interaction term (CSRExpBGD) were consistent with the previous model, suggesting that women on the boards strengthen the association between CSR expenditure and firm performance.

The third model was built on Tobin's Q , which is a market-based performance measure. The results of regression revealed that activities related to CSR expenditure significantly and positively affect firm performance (coeff. = 0.00570, $p < 0.01$). As firm performance was calculated using a Tobin's Q , it indicates that investors perceive CSR expenditure positively and are encouraged to invest more in the firm involved in CSR expenditure. These findings are consistent with prior research (Fourati & Dammak, 2021; Long et al., 2020). A moderator board gender diversity was introduced to the model to capture how board gender diversity affects the association between CSR expenditure and firm performance. The interaction term is positive but statistically insignificant, suggesting that although the presence of women on boards strengthens the association, its impact is insignificant.

These results suggest that female directors enhance the effectiveness of CSR expenditure by promoting better oversight, stakeholder alignment, and strategic use of resources. Thus, CSR expenditures yield greater performance benefits when supported by diverse boards, consistent with stakeholder theory (Alhosani & Nobanee, 2023). Thus, board gender diversity strengthens the positive link between CSR expenditure and firm performance.

Overall, CSR expenditure has a positive and significant impact on firm performance. Furthermore, this relationship is strengthened in the presence of women on the board, whereas firm performance is measured through net profit margin and ROE. The results of the regression models suggest that CSR expenditure significantly and positively affects firm performance. Furthermore, the presence of women on boards strengthens the association between CSR expenditure and firm performance, so H1 and H3a were accepted. CSR expenditure enhances firm performance by building goodwill, improving stakeholder trust, and strengthening customer loyalty, which translates into financial gains. Therefore, it may be deduced that CSR expenditure is an important determinant of firm performance in an emerging economy; moreover, board gender diversity strengthens this association.

4.2 CSR Disclosure and Firm Performance with Board Gender Diversity

As discussed earlier, two proxies were used to measure CSR activities, namely, CSR expenditure and CSR disclosure, while models 4 to 6 were developed to investigate the association between CSR disclosure and firm performance. The firm's performance was also computed with the same three ratios: net profit margin, ROE, and Tobin's Q. Net profit margin, the internal measure of firm performance, was used in the fourth model. The findings demonstrated that CSR disclosure has a positive and significant impact on firm performance (coeff. = 8.182, $p < 0.01$). The findings are in line with the literature (Chijoke-Mgbame et al., 2020; Hasan et al., 2022), and they also showed that CSR disclosures improve the firm's performance. Additionally, the interaction term (CSRDBGD) has a positive and significant impact on firm performance (coeff. = 0.285, $p < 0.01$). The findings of the moderation confirmed that board gender diversity improves the CSR disclosure-firm performance relationship.

The ROE, which is another measure of internal performance, served as the foundation for the fifth model. This model also shows the same results (coeff. = 6.839, $p < 0.01$). Continuing with

the previously reported trend, these findings are also in line with the earlier research (Miller et al., 2020; Pham & Tran, 2020). The CSRDBGD variable, despite having a lower coefficient value, is still significant (coeff. = 0.251, $p < 0.01$). Further, the interaction term's impact was lowered, while the results reveal that it is still improving the effect of CSR disclosure on firm performance. If CSR disclosure is measured with net profit margin, it seems to have a greater effect on firm performance as compared to ROE.

The last model is based on Tobin's Q, which is the market-based proxy of firm performance. This model's results show that CSR disclosure activities have a statistically significant impact on firm performance (coeff. = 3.669, $p < 0.01$). It also shows that investors view CSR disclosure as a beneficial tool to boost firms' market capitalisation. The findings of earlier studies (Fourati & Dammak, 2021; Long et al., 2020; Yadav et al., 2017) are also consistent with these findings.

After the testing of the CSR disclosure and firm performance relationship, the interaction term (CSRDBGD) was introduced to the model to capture the impact of board gender diversity on the said association. In line with other results, findings suggest that the presence of board gender diversity strengthens the association between CSR disclosure and firm performance since the coefficient of the interaction term is statistically significant (5per cent level of significance).

This finding suggests that female directors enhance the effectiveness of CSR disclosure in driving firm performance. Gender-diverse boards are often associated with greater transparency, ethical orientation, and stakeholder engagement, which may improve the credibility of CSR information and its value to investors (Widjaja et al., 2024). Moreover, prior studies have shown that women directors bring different perspectives and are more likely to support CSR-related initiatives, thereby reinforcing the link between CSR and firm performance (Alhosani & Nobanee, 2023). These last three models revealed that CSR disclosure and the moderating effect of board gender diversity have a greater impact on net profit margin and ROE than the Tobin's Q. CSR disclosure increases transparency and signals accountability, reducing information asymmetry and enhancing investor confidence, thereby positively affecting firm performance. Since the results of CSR disclosure models are significant, H2 and H3b were accepted.

The result of the control variable, company size, negatively affects net profit margin and ROE but positively influences Tobin's

Q, while leverage consistently weakens firm performance. Board independence shows a negative impact in all models, suggesting ineffective monitoring, whereas firm age supports net profit margin and ROE but not Tobin's Q. The last one, board size, remains largely insignificant. When comparing the two CSR dimensions, CSR expenditure improved firm performance primarily by generating direct stakeholder goodwill and enhancing firm operations, while CSR disclosure influenced firm performance more strongly through transparency, accountability, and signalling effects to investors. Taken together, these findings confirm that both CSR expenditure and CSR disclosure positively affect firm performance, but CSR disclosure, particularly when moderated by board gender diversity, emerges as a key factor of firm performance.

4.3 Robustness Testing

For robustness testing, Generalised Least Squares (GLS) were used by following the same procedures as mentioned above for the DPD method. The Wooldridge test was used for autocorrelation, which showed the problem of autocorrelation (p-value < 0.05). Further, this data also has the problem of heteroskedasticity (p-value < 0.05), which was checked by using the Breusch-Pagan/Cook-Weisberg test. Hence, the GLS approach was employed because it provides efficient and unbiased estimates in the presence of heteroskedasticity and serial correlation in panel data. While fixed effects and random effects models are widely used, they do not adequately correct these specific issues. Therefore, GLS was deemed more appropriate for robustness in the study. Additionally, the results in Table V are very similar to what is reported in Table IV. Therefore, the results of this study are robust.

Table III: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) NPM	1.000												
(2) ROE	0.456***	1.000											
(3) TBQ	0.049*	0.194***	1.000										
(4) CSRExp	0.207***	0.086***	0.020	1.000									
(5) CSRExpBGD	0.134***	0.052**	0.022	0.770***	1.000								
(6) CSRD	0.017	0.029	0.086***	0.110***	0.091***	1.000							
(7) CSRDBGD	-0.051**	-0.100***	0.030	0.013	0.175***	0.229***	1.000						
(8) BGD	-0.052**	-0.100***	0.012	-0.008	0.158***	0.045*	0.956***	1.000					
(9) CSIZE	0.288***	0.189***	0.041*	0.397***	0.239***	0.235***	-0.127***	-0.180***	1.000				
(10) LEV	-0.466***	-0.064**	-0.038	-0.067***	-0.052**	-0.025	-0.043*	-0.029	0.030	1.000			
(11) IND	-0.030	0.027	0.039	0.078***	0.018	0.325***	0.032	-0.031	0.147***	0.104***	1.000		
(12) AGE	0.013	0.029	0.105***	-0.025	-0.074***	0.243***	-0.013	-0.067***	0.105***	-0.091***	0.143***	1.000	
(13) BSIZE	0.129***	0.104***	0.004	0.162***	0.084***	0.093***	-0.087***	-0.107***	0.351***	0.024	0.035	0.077***	1.000

*** p<0.01, ** p<0.05, * p<0.1

Table IV: Dynamic Panel Data Analysis

VARIABLES	CSRExp-FP with BGD			CSR-D-FP with BGD		
	(1) NPM	(2) ROE	(3) TBQ	(4) NPM	(5) ROE	(6) TBQ
L.NPM	-0.0893*** (0.0092)			-0.0807*** (0.0091)		
L2.NPM	-0.0994*** (0.0049)			-0.0996*** (0.0046)		
L.ROE		0.3224 (0.0075)			0.3038*** (0.0082)	
L2.ROE		-0.1528*** (0.0036)			-0.112*** (0.0074)	
L.TBQ			0.3517*** (0.0031)			0.3617*** (0.0031)
CSRExp	0.0365*** (0.0035)	0.0320*** (0.0033)	0.0057*** (0.0017)			
CSRExpBGD	0.0020*** (0.0002)	0.0018*** (0.0002)	0.0001 (0.0001)			
CSR-D				8.182*** (2.286)	6.839*** (1.818)	3.669*** (0.356)
CSRDBGD				0.285*** (0.0333)	0.251*** (0.0296)	0.0121** (0.0052)
BGD	0.0099 (0.0186)	0.0088 (0.0152)	0.0018 (0.0033)	0.3115 (0.8077)	0.4419 (0.7105)	0.2913 (0.8826)
CSIZE	-13.3135*** (0.6749)	-7.0528*** (1.0680)	4.2611*** (0.1352)	-12.142*** (0.7298)	-5.5746*** (1.1508)	2.9211*** (0.1428)
LEV	-13.8858*** (0.9510)	-12.8800*** (1.5730)	-6.6272*** (0.1730)	-12.6135*** (0.905)	-7.3999*** (1.1804)	-6.1367*** (0.1825)
IND	-11.3000*** (1.4964)	-6.8785*** (2.2789)	-6.7121*** (0.3300)	-9.4921*** (1.9373)	-0.4435 (2.6054)	-7.6704*** (0.3451)
AGE	0.9104*** (0.0967)	0.6199*** (0.1485)	-0.1889*** (0.0140)	0.972*** (0.159)	0.9080*** (0.1950)	0.0623** (0.0146)
BSIZE	-0.4827 (0.1480)	1.2110 (0.2732)	-0.1441 (0.0257)	0.1667 (0.0032)	1.0831 (0.3597)	-0.0211 (0.0317)
Constant	193.5000*** (7.9900)	98.1130*** (13.7880)	-53.7575*** (1.6862)	168.8563*** (8.9621)	65.9467** (15.3201)	-42.5951*** (1.8607)
Observations	1,005	1,005	1,206	1,005	1,005	1,206
Number of companies	201	201	201	201	201	201
Arellano-Bond						
AR (1), p-value	0.0075	0.0002	0.3102	0.0055	0.0002	0.3051
AR (2), p-value	0.8310	0.3814	0.2782	0.7292	0.4247	0.2702
Over identification test Sargan, p-value	0.3527	0.3581	0.5603	0.4487	0.3461	0.5009

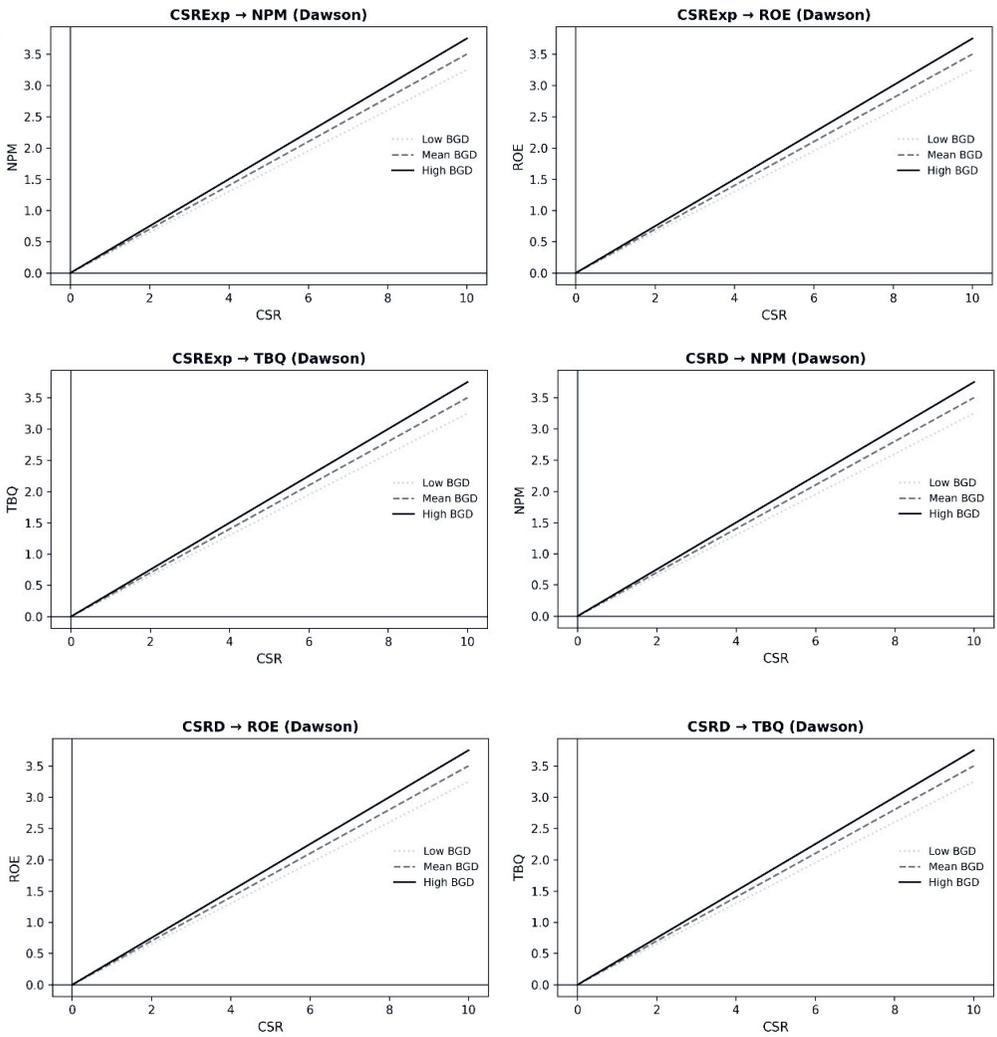
Standard errors in parentheses, *** p < 0.01, ** p < 0.05, * p < 0.1

Table V: Generalised Least Squares Analysis - A Robustness Test

VARIABLES	CSRExp-FP with BGD as a Moderator			CSRDFP with BGD as a Moderator		
	NPM	ROE	TBQ	NPM	ROE	TBQ
CSRIInv	0.0181** (0.0083)	0.0039 (0.0177)	0.0016 (0.0042)			
CSRExpBGD	0.1262** (0.0582)	0.2691** (0.124)	0.0209 (0.0292)			
BGD	1.564 (2.434)	14.70*** (5.164)	0.852 (1.219)	20.26** (10.00)	27.10 (21.21)	1.349 (5.008)
CSIZE	2.486*** (0.224)	2.645*** (0.475)	0.135 (0.112)	2.821*** (0.211)	2.756*** (0.448)	0.102 (0.106)
LEV	-23.07*** (1.019)	-6.292*** (2.162)	-0.647 (0.510)	-23.55*** (1.015)	-6.605*** (2.153)	-0.601 (0.508)
IND	-2.065 (2.315)	1.497 (4.910)	1.147 (1.159)	0.0642 (2.409)	2.431 (5.109)	0.420 (1.206)
AGE	-0.0432*** (0.0155)	-0.0021 (0.0328)	0.0300*** (0.0078)	-0.0378** (0.0157)	0.0011 (0.0333)	0.0263*** (0.0079)
BSIZE	0.368* (0.213)	0.709 (0.452)	-0.0553 (0.107)	0.392* (0.213)	0.702 (0.451)	-0.0583 (0.107)
CSRDFP				2.741 (3.610)	5.145 (7.657)	2.453 (1.808)
CSRDBGD				47.28** (21.82)	91.11** (46.27)	23.694** (10.92)
Constant	-23.59*** (3.472)	-32.63*** (7.365)	-1.772 (1.739)	-27.84*** (3.403)	-36.68*** (7.219)	-2.120 (1.704)
Observations	1,608	1,608	1,608	1,608	1,608	1,608
Number of CompanysID	201	201	201	201	201	201

Standard errors in parentheses, *** p < 0.01, ** p < 0.05, * p < 0.1

Figure I: Moderator Plots



5. Conclusion

By addressing the issue of board gender diversity and its effect on the link between CSR and firm performance, this paper offers fresh perspectives into the body of existing literature on the studied variables. Three different types of proxies are used for firm performance, while CSR was measured with CSR expenditure and CSR disclosure, along with the moderating effect of board gender diversity. This study's goal was to investigate CSR spending and disclosure as a source of firm performance. This research paper also examined the moderating impact of board gender diversity to identify a novel causal relationship between CSR and firm performance. This study demonstrates that CSR expenditure and CSR disclosure both increase the firm performance, whereas board gender diversity also enhances these relationships. The findings of this study agree with those reported by earlier researchers (Gupta et al., 2021; Li et al., 2022). Net profit margin, ROE and Tobin's Q showed that a firm may gain improvement in firm performance through CSR disclosure and CSR expenditure. The fundamental question of whether board gender diversity moderates the relationship between CSR and firm performance is also addressed in this study, and the answer is in the affirmative. Thus, to improve firm performance, managers and companies ought to make prudent investments in CSR initiatives and make socially responsible disclosures.

5.1 Contribution and Implications

This study demonstrated that, in addition to shareholders, investors also view CSR as a beneficial reporting mechanism and a valuable strategy to increase firm performance. Since most studies are carried out in developed economies, the findings of this study make a significant contribution to the existing body of knowledge, where the focus is on developing economies. The study was carried out in Pakistan, a developing economy characterised by a predominantly male-dominated society where women's participation remains limited. Furthermore, by using board gender diversity as a moderator, the research also attempts to provide empirical evidence in support of women on boards.

5.1.1 Theoretical Implications

This study contributes to the CSR-firm performance literature by jointly examining the role of CSR expenditure and CSR disclosure, thereby providing a more nuanced understanding of CSR strategies.

The results of the study demonstrated that both CSR expenditure and CSR disclosure are important factors for improving firm performance and that this relationship becomes more prominent in gender-diverse environments.

The results indicate that board gender diversity increases the intensity between CSR and firm performance; hence, CSR disclosure and CSR expenditure are both vital, especially in a gender-diverse environment. These findings enrich stakeholder theory by showing that board gender diversity enhances the value of CSR for firm performance. At the same time, the findings contribute to agency theory by suggesting that board gender diversity improves monitoring quality, reduces managerial opportunism, and ensures that CSR initiatives are strategically aligned with long-term firm value.

5.1.2 Practical Implications

The researchers' conclusions offer policy guidance to business managers regarding their strategic choices, especially in developing nations with limited opportunities for women. As a result, the significance of strategic decisions increases in such environments, so managers must participate in more CSR activities to stand out in these environments to not only increase firm performance but also improve business goodwill and brand loyalty. For managers, this underscores the need to integrate more women into decision-making roles, as gender-diverse boards can improve the credibility and impact of both CSR expenditure and CSR disclosure. In developing economies, where women's participation remains limited, firms that actively promote board gender diversity and CSR are more likely to gain a competitive advantage, strengthen their reputation, and foster stakeholder trust.

Because CSR initiatives benefit the wider community and have the potential to increase shareholders' wealth, this study presents empirical findings to regulatory bodies to support their efforts in encouraging corporate decision-makers to explore the impact of a more gender-diverse board structure. As CSR initiatives bring about positive changes to health care, education, community empowerment, rural development, infrastructure development, legal perception, and entrepreneurship opportunities, the study also provides insights to address the concerns of regulators and standard-setters. This study also encourages managers to invest in CSR initiatives and disclose these in the annual reports as investments because these initiatives boost the firm's performance.

5.2 *Limitations and Future Research Directions*

As this research is focused only on non-financial firms engaged in CSR actions, future studies could explore financial firms in other developing economies. Additionally, to further build a rounded understanding of CSR impacts, future studies may be conducted by including more CSR-related variables such as family ownership, pattern of shareholding and research and development.

Annexure-A - CSR disclosure checklist

1. Company's policies or concerns for the environment
2. Information about compliance with the environmental laws
3. Conservation of natural resources, e.g. recycling material
4. Support for the Environmental Protection Program
5. Designing facilities or systems that are harmonious with the environment
6. Prevention, reduction, and fixing of air/water/soil emissions
7. Award in environmental program
8. Providing donations to support community activities
9. Information about sponsoring health projects
10. Funding scholarship programs or activities
11. Sponsoring arts and culture
12. Development of community volunteer programs, events/sports activities
13. Compliance with safety standards
14. Information on the safety of the firm's product
15. Providing information on the company's product developments
16. Research & development in terms of quality and safety
17. Awards in product quality
18. Complying with labour rights/health and safety standards and regulations
19. Providing information about the training/education to employees
20. Receiving a health and safety award
21. Information on the provision of health services/benefits to employees
22. Providing financial assistance to employees for training/education enhancement
23. Providing information about competitive compensation and benefits
24. Information on share option for employees

25. Reporting on the company's relationship with trade unions/workers
26. Equal opportunities employer
27. Providing information about the company's energy policies
28. Disclosing, conservation of energy/energy saving resulted from business operations
29. Measures to improve energy efficiency
30. Use of renewable energy

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