# IMPACT OF CORPORATE BOARD GENDER DIVERSITY ON FIRM FINANCIAL PERFORMANCE AND RISK: NEW INSIGHT FROM PAKISTAN STOCK EXCHANGE

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**Abstract**

*This study has intended to investigate the relationship between women on corporate boards and the financial performance of Pakistan's firms. Also, the study will examine the relationship between women in corporate boards and firm risk in Pakistan. The study will be quantitative in nature, and a positivist research philosophy will be used. This research study will be based on all 37 sectors of Pakistan's Stock Exchange, having 546 firms that constitute the population of the study. The collected data will be analyzed using EViews software for panel data analysis including descriptive analysis of all variables, and unit root tests for stationary of the data. The result showed that gender diversity, female directors, blau index and board independence has a negatively significant effect on firm risk. The finding showed that CEO duality has a positively significant effect on firm risk. The results also showed that firm leverage has a positively significant effect on solid risk, while firm size has a negative significant effect on solid risk. The research also illustrates the complex impacts of gender diversity on many risk factors. The study has recommended that government must immediately implement clear reporting* standards requiring companies to reveal the gender breakdown of their board of directors.

**Keywords:** Corporate Governance, Gender Diversity, Financial Performance, Firm Risk, Pakistan Stock Exchange (PSX).

## INTRODUCTION

In recent decades, women have been taking on more significant roles in the workforce, including serving on corporate boards. The representation of women in high-level management positions has been on the rise. This shift in boardroom demographics has led to a growing body of research on the impact of board gender diversity on various aspects, such as corporate governance and firm performance (Pandey et al., 2023).

According to Almarayeh (2023), increasing the number of females achieves the goal regardless of the firm's return. New research has focused on this phenomenon, as women exhibit different ethical and social behaviors than men. Intensifying gender diversity in the boardroom can help boards to perform their control and design tasks better. By contributing to fraud prevention, female representation on boards could strengthen corporate governance systems such as openness and accountability. According to Ahrens and Scheele (2022), female executives increase transparency and exposure while reducing asymmetric information, especially in family businesses. Furthermore, informed women executives could minimize anomalous CEO

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remuneration and the likelihood of a financial restatement. As a result, the backing of female directors can help agencies and firms innovate by ensuring appropriate monitoring. On the other hand, firms with compromised women managers have more actual earnings management and higher audit fees (Almarayeh, 2023).

Additionally, corporate boards can play an essential role in risk management and control. Female directors thus play a crucial role in strengthening board oversight and influencing board decision-making. According to psychology and economic studies, female directors are more conservative, cautious, and risk-averse than male directors when seeking, analyzing, and acting on the facts. They are also less inclined to go to extremes and exhibit overconfidence (Salazar & Moline, 2023). As a result, if we believe that women are risk averse and less inclined to make tough decisions, we can expect a negative link between board gender diversity and firm risk. Ingersoll et al. (2023) revealed that women's risk attitudes will change after integrating into a male-dominated culture. Furthermore, board gender diversity may cause disagreement, causing board decision-making to be disrupted. If the board takes longer to decide, the risk increases, resulting in a positive relationship between board gender diversity and firm risk. Thus, the study intends to investigate the relationship between women on corporate boards and the financial performance of Pakistan's firms. Also, the study will examine the relationship between women in corporate boards and firm risk in Pakistan.

In the wake of the 2008 financial crisis, this was caused by poor corporate governance and excessive risk-taking mainly by men-dominated corporate boards. Although women's representation in the labor force is steadily increasing, global statistics reveal that women are still under-represented in senior managerial positions (Nguyen et al., 2022). Making gender a pertinent subject has become an essential debate for academicians, researchers, regulators, and practitioners. Most studies on board gender diversity have been conducted in developed countries but fewer in developing countries like Pakistan, where gender diversity in board or top management teams is not well recognized (Salazar & Moline, 2023).

In Pakistan, 48.4 % of the total population comprises women (Economic Survey 2021-22). Women are participating in top policy-making bodies in either public or private sectors. The increase in female representation on top management boards motivates researchers to examine whether the existence of females on board influences the firm's financial performance and financial risk in Pakistan. The proposed study will contribute to the literature through an empirical endeavor to add value to the existing body of knowledge (Post et al., 2022).

Previous research has provided mixed results, showing positive, negative, or no correlation between board gender diversity and firm performance and risk (Lee & Thong, 2023). This study introduces a novel independent variable by creating an interaction term between gender diversity and substantial risk in the context of Pakistan. Additionally, the research conducts a sector-specific analysis of the impact of board gender diversity on financial performance in Pakistan, a dimension that has not been explored in prior studies.

This research aims to make a valuable contribution to existing literature by addressing concerns related to tokenism. By demonstrating that board gender diversity substantively

influences firm performance through the reduction of risk exposure, our study seeks to provide clarity in an area where empirical evidence has been inconclusive. The existing body of research presents varying findings on the association between board gender diversity, firm performance, and risk, with some studies indicating a positive relationship, others showing a negative correlation, and some finding no discernible link (Lee & Thong, 2023). Our contribution lies in moving beyond a straightforward examination of the direct relationship between board gender diversity and firm risk. Instead, we introduce interactive terms involving board gender diversity and risk to assess their combined impact on financial performance. This proposed study will contribute to the literature by looking at female representation on boards at different levels: one female, two females, and three or more female members, which implies the effectiveness and extent to which it could influence a firm's financial performance and risk. As a result, policymakers should keep in mind to determine the minimum level of women on boards required to achieve the desired outcome. It will also help policymakers, says SECP, in making strategies to develop policies that encourage board gender diversity to generate better judgments based on a deeper grasp of challenges and the uniqueness of ideas. Furthermore, legislators should establish criteria to ensure that listed firms disclose information on board members' characteristics in their annual reports so that investors and other stakeholders can better understand the board's diversity (Pandey et al., 2023)**.**

The current study is divided into five sections covering every study step. The first section, referred to as the introduction, includes a thorough understanding of the variables, articulates the problem statement, identifies any research gaps, outlines the research objectives, and emphasizes the significance of the study. The second section examines the literature and then goes into the theoretical foundations that lay the groundwork for developing hypotheses. The third section, research methodology, describes the data analysis procedures and the research methodologies used. The fourth section will then cover the data analysis and present the study's conclusions. The fifth section will include the conclusion and suggestions, including final findings and policy recommendations.

## LITERATURE REVIEW

According to the resource dependency theory (Pfeffer & Salancik, 2015), companies should look for various board members to add fresh perspectives and improve connections between the internal and external domains. Diversity supports the upkeep and direction of resources (Khan et al., 2022). Gary Becker and Theodore Schultz in 1950s and early 1960s popularize the human capital theory emphasizes directors' training and experience in increasing organizational production. Having more women on boards—most of whom are graduates—improves corporate performance and human capital (Blaug, 1976; Choudhury & Choudhury, 2022).

According to agency theory, diversity enhances board supervision. Also, better female director oversight is responsible for the beneficial relationship they uncover between gender diversity and business performance (Eisenhardt, 1989). U.S. boards prefer "branded women," according to social psychology theory. While gender diversity affects decision timing and

strategic actions, the minority group effect is modest (Moscovici, 1972). According to critical mass theory, two or more women on a board counteracts tokenism (Oliver & Marwell, 2001).

***Gender Diversity and Firm Performance***

Corporate board gender diversity has various effects on the company's success. According to Guizani and Abdalkrim (2023), different points of view improve the quality of decision-making. They highlight women's knowledge in particular market sectors and design for their demography. Reserve causation presents a hurdle, implying that high-performing businesses may be more inclined to diversify their boards and that there may not be a direct correlation between board diversity and firm performance (Ferrary & Déo, 2023).

There is a significant positive correlation between board gender diversity and corporate value in the United States. Using instrumental variable analysis, Smith and Verner show a 59.7% increase in performance with a unit increase in gender diversity, demonstrating a causal link between gender diversity and business performance. Diverse research employing panel data produces conflicting results about the influence of gender diversity (Li et al., 2022).

The company's performance is also influenced by board independence, size, and CEO duality. Outstanding female directors have a favorable 5–6% effect on production in Italy. By relating these results to theoretical viewpoints, it can be seen that the theories of human capital and resource dependency support the beneficial effects of many perspectives on decision-making (Afzali et al., 2022). The emphasis on board monitoring improving business performance is consistent with agency theory. Biases are discussed in social psychology theory, which may affect decision-making and board diversity. The excellent impact seen when three or more women are on boards lends credence to the Critical Mass Theory. The approaches, which include panel data studies and instrumental variable analysis, aid in addressing issues with omitted variable bias and causation (Ferrary & Déo, 2023).

Furthermore, these frameworks may be used to comprehend the effects of CEO duality, board size, and independence. CEO duality, for example, may be consistent with Agency Theory, indicating possible conflicts of interest. The Resource Dependency lens may be used to see a more giant board, providing a more comprehensive range of viewpoints. Board independence refers to Agency Theory and is consistent with efficient oversight (Amin et al., 2022).

There are complex and related relationships between the effects of board gender, CEO duality, board size, and independence on firm performance. The theoretical stances offer a framework for comprehending these processes and highlight the value of varied viewpoints, efficient supervision, and strategic decision-making in raising athletic performance (Guizani & Abdalkrim, 2023). Hence, the study hypothesized that:

***$H_1$:*** Board gender diversity has a significant impact on firm's performance.

***$H_2$:*** CEO duality has a significant impact on firm's performance.

***$H_3$:*** Board size has a significant impact on firm's performance.

***$H_4$:*** Board independence has a significant impact on firm's performance.

***$H_5$:*** Firm age has a significant impact on firm's performance.
***$H_6$:*** Firm size has a significant impact on firm's performance.
***$H_7$:*** Firm leverage has a significant impact on firm performance.

### *Firm Risk and Performance*

Firm risk has a negative impact on firm performance, indicating that higher risk is bad for the success of the organization as a whole. This is consistent with theories like resource dependency and human capital, which emphasize how important it is to have a variety of viewpoints when making decisions to reduce operational risks. Agency theory highlights the need for efficient board supervision in controlling and reducing risks, which improves company performance (Muhammad et al., 2023). The company's performance positively correlates with the relationship between board gender diversity and firm risk. This is consistent with the critical mass theory, which suggests that inclusive and diverse boards, especially regarding gender diversity, may positively affect risk management techniques (García-Meca et al., 2022). Applying social psychology theory acknowledges that various boards could display more cautious risk-taking tendencies. The notion that diverse perspectives improve the quality of decision-making is further supported by the positive correlation that has been shown between gender diversity, risk, and performance (Rahman et al., 2023). Hence, the study hypothesized:
***$H_1$:*** Firm risk has a significant impact on firm's performance.
***$H_2$:*** Firm risk moderates the effect of board gender diversity on firm performance.

## METHODOLOGY

The study intended to seek an understanding of the causal relationship between dependent and independent variables; hence, the study is causal in design and type. The data is analyzed quantitatively; therefore, the study is quantitative. Since the study is quantitative, a positivist research philosophy has been used (Tacq, 2011).

### *Population and Sample*

This research study is based on all 37 sectors of Pakistan's Stock Exchange, having 546 firms that constitute the population of the study. This research has focused on the economic results followed by the sector-wise impact of independent variables over dependent variables (Bagh et al., 2017). The targeted population frame has been scrutinized, and it is expected that data on some of the firms present in the population frame may not always be available. The analysis has focused on a span of 10 years (2012 to 2021). Data has been collected through different sources such as annual reports, the stock exchange, and the State Bank of Pakistan.

### *Statistical Technique*

The collected data has been analyzed using EViews software for panel data analysis including descriptive analysis of all variables, and unit root tests for stationary of the data. Further, the study sought a suitable estimation approach that effectively handles endogeneity issues. The

presented hypotheses have been investigated using OLS Regression Analysis with fixed effects, as it can deal with heterogeneity, endogeneity, and reverse causality. Other studies have also justified this (Vuko & Čular, 2014).

## RESULTS

Table 1 provides the summary statistics of all series in the model.

Table 1
*Summary Statistics*

| Variable Names | N | Mean | S. D. | Median | 25% | 75% |
|---|---|---|---|---|---|---|
| Firm Risk | 294 | 0.797 | 1.076 | 0.538 | 0.410 | 0.814 |
| Performance (Tobin's Q) | 294 | 1.506 | 5.015 | 0.957 | 0.752 | 1.392 |
| Gender Diversity | 294 | 0.110 | 0.143 | 0.077 | 0.000 | 0.143 |
| Board Independence | 294 | 1.504 | 1.373 | 1.000 | 1.000 | 2.000 |
| CEO Duality | 294 | 0.137 | 0.344 | 0.000 | 0.000 | 0.000 |
| Firm Leverage | 294 | 0.622 | 0.544 | 0.562 | 0.391 | 0.715 |
| Firm Size | 294 | 14.340 | 2.398 | 14.178 | 12.716 | 16.071 |
| Firm Age | 294 | 39.030 | 18.740 | 34.000 | 26.000 | 51.000 |
| Number of Directions | 294 | 7.948 | 1.572 | 7.000 | 7.000 | 8.000 |

Table 2 provides the results of hypothesis testing for the relationship between board gender diversity and firm risk.

Table 2
*OLS Analysis for Gender Diversity and Firm Risk*

| Variables | Model | Model | Model | Model |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Gender Diversity | -0.175*** | | | |
| | (0.043) | | | |
| | | -0.073** | | |
| Female Directors | | (0.031) | | |
| | | | -0.182** | |
| Blau Index | | | (0.195) | |
| | | | | -0.058** |
| Women All | | | | (0.037) |
| Board Independence | -0.019* | -0.052* | -0.039* | -0.019 |
| | (0.015) | (0.020) | (0.018) | (0.018) |
| CEO Duality | 0.110* | 0.106 | 0.109 | 0.105 |
| | (0.067) | (0.067) | (0.067) | (0.066) |
| Firm Leverage | 0.203** | 0.203** | 0.204** | 0.203** |
| | (0.095) | (0.095) | (0.095) | (0.095) |

| | | | | |
|---|---|---|---|---|
| Firm Size | -0.056* | -0.065* | -0.046* | -0.055* |
| | (0.029) | (0.021) | (0.033) | (0.020) |
| Firm Age | 0.062 | 0.062 | 0.066 | 0.062 |
| | (0.274) | (0.272) | (0.274) | (0.272) |
| Constant | -0.712** | -0.678** | 0.695* | -0.681** |
| | (0.047) | (0.040) | (0.046) | (0.041) |
| Observations | 2,971 | 2,978 | 2,971 | 2,978 |
| R-squared | 0.224 | 0.224 | 0.224 | 0.224 |
| Number of ID | 294 | 294 | 294 | 294 |

*Note: Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 3 provides the results of hypothesis testing for the relationship between board gender diversity, firm risk, and performance.

**Table 3**

*OLS Analysis for Board Diversity and Performance*

| **Variables** | **Model (1)** | **Model (2)** | **Model (3)** | **Model (4)** |
|---|---|---|---|---|
| Gender Diversity | 0.764* | | | |
| | (0.442) | | | |
| Firm Risk | -0.607** | -0.571** | -0.417** | -0.218* |
| | (0.103) | (0.103) | (0.104) | (0.105) |
| Risk x Gender Diversity | 0.588* | | | |
| | (0.293) | | | |
| Female Director | | 0.325* | | |
| | | (0.185) | | |
| Risk x Female Director | | 0.075* | | |
| | | (0.030) | | |
| Blau Index | | | 0.618* | |
| | | | (0.155) | |
| Risk x Blau Index | | | 0.239* | |
| | | | (0.129) | |
| Women All | | | | 0.408** |
| | | | | (0.237) |
| Risk x Women All | | | | 0.093* |
| | | | | (0.010) |
| Board Independence | 0.061* | 0.050* | 0.066* | 0.058* |
| | (0.013) | (0.023) | (0.023) | (0.023) |
| CEO Duality | -0.259 | -0.252 | -0.268 | -0.286 |
| | (0.359) | (0.359) | (0.359) | (0.358) |
| Firm Leverage | 0.331 | 0.328 | 0.345 | 0.336 |
| | (0.555) | (0.554) | (0.555) | (0.554) |
| Firm Size | 0.667*** | 0.663*** | 0.669*** | 0.662*** |
| | (0.136) | (0.135) | (0.136) | (0.135) |

| | | | | |
|---|---|---|---|---|
| Firm Age | -0.420 | -0.408 | -0.318 | -0.373 |
| | (0.986) | (0.982) | (0.995) | (0.997) |
| Constant | -0.998* | -0.753* | -0.902* | -0.889* |
| | (0.558) | (0.147) | (0.387) | (0.292) |
| Observations | 2,762 | 2,769 | 2,762 | 2,769 |
| R-squared | 0.330 | 0.320 | 0.330 | 0.370 |
| Number of ID | 294 | 294 | 294 | 294 |

Note: Standard errors are in parentheses: board diversity and firm risk on performance. *** p<0.01, ** p<0.0j5, * p<0.1

## DISCUSSION

The result showed that gender diversity has a negatively significant effect on firm risk. This result is supported by Lee and Thong (2023), who explained that there may be more haphazard decision-making if gender diversity exists in the workplace. Potentially hindering the ability to react quickly to market changes or unexpected risks, diverse perspectives might lead to divergent ideas and a slowed speed of consensus creation. Similarly, Muhammad et al. (2023) supported this result and stated that discrepancies in how men and women express themselves verbally can lead to misconceptions and knowledge gaps. Misunderstandings and ineffective risk management strategies could result from a lack of clear and consistent communication due to different preferred modes of expression. Additionally, Liu and Wu (2023) also supported this result and indicated that A lack of gender diversity can foster a board environment that is more amicable and cohesive. Although cohesiveness is generally a good thing, an excessively homogeneous organization might display a group culture that can stifle opposing viewpoints and ignore possible hazards that could be essential for efficient risk management.

The finding showed that female directors have a negatively significant effect on firm risk. This outcome is consistent with Muhammad et al. (2023), who explained that unfounded presumptions concerning the industry expertise of female directors could potentially exclude them from strategic dialogues, thereby nullifying critical perspectives that could otherwise contribute to optimal risk management choices. Likewise, Liu and Wu (2023) supported this result. They indicated that the firm risks overlooking crucial information and opportunities, if there is a lack of female directors in influential circles or access to vital networks, is restricted. This may render the company more susceptible to unanticipated risks. Moreover, Lee and Thong (2023) also supported this result. They stated that gender stereotypes ascribe a lower risk tolerance to women, suggesting that an increase in female directors could result in a more cautious approach to decision-making, potentially resulting in the firm forgoing profitable prospects.

The finding showed that the Blau index has a negatively significant effect on firm risk. This outcome is supported by Lee and Thong (2023), who explained that a notably elevated Blau index has been associated with integration difficulties, impeding the ability of diverse teams to cooperate and respond to evolving risk circumstances effectively. Likewise, Adetula and Oyedeko (2023) supported this result. They concluded that cultural differences caused by

excessive diversity may exacerbate internal strife within the firm, impede collaboration, and diminish the capacity to confront and mitigate risks collectively. Additionally, Guizani and Abdalkrim (2023) supported this result. They demonstrated that communication challenges that hinder the effective exchange of risk-related information and potentially lead to misinterpretations may be associated with exceptionally high levels of diversity, reflected by the Blau index.

The result showed that the presence of women on board has a negatively significant effect on firm risk. This outcome is consistent with Muhammad et al. (2023), who explained that there are unsubstantiated apprehensions that the inclusion of women on corporate boards will impede the speed of decision-making due to purported variations in approach to decision-making. This could hinder the firm's ability to respond promptly to new risks. Additionally, Chatterjee and Nag (2023) supported this result. They stated that one could posit that risk management decisions in complex firm situations are compromised when erroneous assumptions regarding the absence of industry experience among women directors are adopted. Moreover, Lee and Thong (2023) supported this result and indicated that the idea that women tend to be less daring and, hence, more cautious could be why the firm fails to take enough risks if there are more of them on the board.

The result showed that board independence has a negatively significant effect on firm risk. This result is supported by Hu et al. (2023), who concluded that an independent board that is unduly impartial may lack sector-specific expertise and experience, making it more challenging for the board to identify and mitigate specific firm risks. A board that is excessively detached from the intricacies of operations may render decisions that fail to adequately consider industry-specific concerns, thereby increasing the firm's exposure to risk.

The finding showed that CEO duality has a positively significant effect on firm risk. This result is consistent with Lin et al. (2023), who concluded that better communication and strategic decision-making can result from a CEO's dual role as board chair. Synchronizing responsibilities might lead to swift and determined actions to deal with unexpected dangers. A more united leadership group might enhance the company's adaptability and potential for expansion.
The result showed that firm leverage has a positively significant effect on solid risk. This outcome is consistent with Kalash (2023), who explained that leverage can increase returns and attract risk-averse investors seeking more outstanding payments to a business. However, this increases the firm's financial risk because it must repay debt, which could place it in a precarious financial position. The augmented firm-wide risk may counterbalance the positive impact on returns.

The result showed that firm size has a negative significant effect on solid risk. This result is supported by Bhat et al. (2023), who stated that more prominent firms are often less vulnerable to certain risks because they have access to more resources, can take advantage of economies of scale, and are more diversified. Compared to smaller, less diverse businesses, more prominent firms' operational scope and financial soundness help maintain stability by reducing certain risks.
The finding showed that firm age has a positively insignificant effect on solid risk. This outcome

is supported by Humairo and Abidin (2024), who concluded that because of the processes of learning and adaptation that take place over time, firm age may positively insignificantly affect substantial risk. Established businesses may reduce age-related risk by developing robust business models, industry knowledge, and efficient risk management techniques. Various variables may influence the association between firm age and risk, and individual situations may differ.

The research found that gender diversity is positively significant on firm performance. This outcome is supported by Gharbi and Othmani (2023), who concluded gender diversity contributes many viewpoints, life experiences, and problem-solving methodologies to the decision-making process. Diversity fosters innovation, enabling the firms to effectively respond to evolving market dynamics and discover novel prospects that enhance overall performance. Similarly, Ferrary and Déo (2023) supported this result and stated that firms that actively promote gender diversity tend to attract a more diverse pool of talented individuals. A high-performing employee is essential to a firm's success, and inclusion programs assist firms in recruiting and keeping top talent. Almarayeh (2023) also supported this result and concluded that boards that include members of different genders tend to have better corporate governance practices. Firm performance is enhanced by diverse boards in risk management, strategic decision-making, and oversight.

The finding showed that firm risk has a negatively significant effect on athletic performance. This outcome is supported by Ricardianto et al. (2023), who explained that high levels of solid risk sometimes need large sums of money to be invested in risk-reduction plans, which takes money away from essential firm activities and negatively affects performance. Similarly, Lee and Thong (2023) supported this result. They stated that elevated levels of risk may make it more difficult for a firm to draw in investors and get funding at affordable rates, which can reduce its financial flexibility and obstruct its capacity to expand. Also, Almustafa et al. (2023) supported this result and stated that an overabundance of risk exposure might undermine shareholder trust and damage the firm's brand. Long-term detrimental effects on overall performance decreased market share, and customer churn is possible outcomes of this. Maintaining performance over time becomes dependent on effective risk management.

The finding showed that firm risk positively moderates the effects of gender diversity on athletic performance. This outcome is consistent with Muhammad et al. (2023), who explained that incorporating a reasonable level of risk into a project can encourage various groups to think beyond the norm, boosting firms' performance with fresh, creative concepts. Similarly, Gharbi and Othmani (2023) supported this result. They indicated that overall performance can be enhanced by fostering an inclusive environment that appreciates and incorporates diverse opinions into strategic decision-making. This can be achieved with moderate risk levels. In addition, Harakeh et al. (2023) also supported this result and stated that by embracing an average level of risk, firms may foster resilience and adaptation. This, in turn, helps with ambiguity management and tapping into varied talent pools, all of which contribute to improved overall performance.

The finding showed that female directors have a positively significant effect on firm performance. This outcome is supported by Sattar et al. (2023), who concluded that female directors' varied perspectives help reduce the risks of groupthink and boost the quality of strategic decisions. In the long run, firms benefit from this diversity because it fosters innovative thinking and enhances problem-solving abilities. Likewise, Chatterjee and Nag (2023) supported this result and stated that firms with female directors frequently promote inclusive cultures that draw the best employees. The workforce's outstanding performance is a result of this broad talent pool, which raises overall productivity and improves the performance of the firms. Moreover, Gharbi and Othmani (2023) supported this result and stated that stakeholder confidence is increased when female directors are linked to more robust corporate governance and moral behavior. Long-term success is facilitated by this favorable reputation, which also enhances firm performance.

The result showed that firm risk positively moderates the effect of female directors on firm performance. This outcome is consistent with Sattar et al. (2023), who explained that by ensuring that additional factors are considered alongside the perspectives of female directors, moderate risk levels promote a balanced approach to decision-making. Firm performance is enhanced by this harmony, which supports an inclusive and all-encompassing approach. Likewise, Saggar et al. (2023) supported this result. They indicated that when implementing ideas from diverse leadership, including female directors, it is possible to be innovative and experiment by taking moderate risks. Because of this adaptability, the business can solve problems with a fresh approach, which boosts performance across the board. Moreover, Ferdous et al. (2023) supported this result. They concluded that by taking a negligible risk, firms could better prepare themselves to handle uncertainties and benefit from female directors' unique skills and viewpoints, leading to improved performance.

The research showed that the Blau index has a positively significant effect on firm performance. This outcome is consistent with Ferrary and Déo (2023), who concluded that greater diversity, as shown by a higher Blau score, encourages a range of viewpoints that stimulate creativity and innovation and improve a firm's performance. Additionally, Chatterjee and Nag (2023) supported this result. They stated that enhanced diversity, as quantified by the Blau index, facilitates the convergence of personnel possessing varied expertise and life experiences, thereby forming a multifaceted team capable of more efficiently confronting obstacles and augmenting the overall performance of the firms. Moreover, Khan et al. (2023) supported this result. They stated that a higher Blau index indicates a diverse team's superior problem-solving skills, leading to more effective and adaptive approaches and boosting firm performance.

The finding showed that firm risk positively moderates the effect of the Blau index on athletic performance. This outcome is consistent with Fayyaz et al. (2023), who concluded that moderate risk can help diverse teams make more well-rounded decisions by considering each of the different perspectives reflected in the Blau index. Similarly, Pandey et al. (2023) supported this result and stated that the Blau index suggests that organizations might benefit from

reasonable risk-taking because it allows them to experiment without new ideas and methodologies. Consequently, it helps them adapt and be resilient, influencing their performance. In addition, Aksoy et al. (2023) supported this outcome. They concluded that an appropriate level of risk cultivates an environment that encourages innovation and collaboration, thereby enhancing the problem-solving capabilities of diverse teams and, as the Blau index demonstrates, the firm's overall performance.

The finding showed that the presence of women on the board positively affects firm performance. This outcome is consistent with Chatterjee and Nag (2023), who concluded that the presence of women on boards contributes a variety of viewpoints that enhance strategic conversations and result in well-rounded decision-making, improving firm performance. Similarly, Gharbi and Othmani (2023) supported this result, and gender-inclusive boards help companies draw and keep top talent, creating high-performing employees that boost overall firm performance and efficiency. Additionally, Almarayeh (2023) supported this result and indicated that the presence of women on boards is linked to improved corporate governance and moral behavior, which boosts shareholder confidence and trust and enhances the firm's long-term performance.

The research showed that firm risk positively moderates the effect of the presence of women on the board on firm performance. This outcome is consistent with Muhammad et al. (2023), who indicated that in boards, moderate risk levels encourage a balanced decision-making atmosphere where different viewpoints, including those of women, are carefully considered for initiatives that will favor the performance of the firms. Likewise, Ferdous et al. (2023) supported this result and stated that taking calculated risks promotes creativity and experimentation while utilizing the distinct perspectives of women on boards. This flexibility helps the firms overcome obstacles novelty, improving overall performance. Furthermore, Lee and Thong (2023) also supported this result and stated that firms that take on a reasonable amount of risk are better equipped to deal with uncertainty; boards that include women, with their unique experiences and viewpoints, are better able to devise strategies that can withstand setbacks and ultimately improve firms performance.

The finding showed that board independence has a positively significant effect on firm performance. This outcome is supported by Hu et al. (2023), who explained that Improved corporate governance, impartial decision-making, and strong oversight are ways a genuinely independent board can boost a company's bottom line. To improve the board's overall performance and benefit the firm's financial and operational outcomes, independent directors should offer impartial insights, hold executives accountable, and participate in strategic decision-making.

The result showed that CEO duality has a negatively insignificant effect on firm performance. This result is supported by Nasir et al. (2023), who explained that one person serving as the CEO and the board chair is known as CEO duality, which may promote efficient decision-making and communication. Under some circumstances, this cohesive leadership might help to minimize any detrimental effects on a firm's performance, making the effect statistically

negligible.

The finding showed that firm leverage has a positively insignificant effect on athletic performance. The result is supported by Demiraj et al. (2023), who concluded that since increased debt levels might improve financial flexibility and tax advantages, there are situations in which firm leverage may not have a significant influence on performance. Good risk management techniques may counteract such drawbacks, creating a balanced equation where firm leverage's beneficial and negative impacts on performance are neutralized.

The research showed that firm size has a positively significant effect on athletic performance. This result is supported by Yang and Wang (2023), who explained that more diverse activities, economies of scale, and better resources are frequently favorably correlated with larger firm sizes. This scale makes it possible to invest in innovation, increase efficiency, and have more negotiating power—all of which enhance total firm performance.

The finding showed that firm age has a negatively insignificant effect on athletic performance. This outcome is supported by Akorede (2023), who concluded that occasionally, an older firm's expertise and well-established procedures may stifle creativity and agility, making it more difficult to react quickly to changes in the market. As a result of this inability to adapt, performance may suffer, indicating that firm age may not significantly influence the performance of the firm as a whole.

## CONCLUSION

To sum up, this research explores the complex interplay of gender diversity on corporate boards, firm risk, and firm performance within the framework of Pakistan. This research focuses on how women's roles in the workforce are changing and how their participation on boards affects aspects in emerging nations. By adding new factors to the literature, such as an interaction term between firm risk and gender diversity, it advances the field. The results indicate that while gender diversity is adversely correlated with firm risk, board independence, firm size, and gender diversity all favorably impact athletic performance. The research also illustrates the complex impacts of gender diversity on many risk factors. Advanced statistical approaches are part of the methodology used, which gives the empirical analysis a strong foundation. Considering all factors, this research adds insightful information to the current discussion on gender diversity in corporate governance, particularly Pakistan.

### *Policy Recommendations*

The findings offer a variety of policy recommendations. As a result, promoting gender diversity on corporate boards via policy recommendations may be critical for the Pakistan Stock Exchange (PSX) to foster inclusive governance and improve overall business performance. Firstly, to ensure gender diversity among company boards, governments need to establish minimum standards. Establish a minimum number of female directors necessary for companies listed on the Securities and Exchange Commission (PSX). Companies are compelled to quickly address the issue of gender inequality on their boards of directors according to the plan, which has been

successfully implemented in several countries.
Similarly, the government must immediately implement clear reporting standards requiring companies to reveal the gender breakdown of their board of directors. Doing so allows the public, stakeholders, and investors to keep tabs on development and hold those in power more accountable. Companies are expected to justify their judgments if they do not satisfy the gender diversity requirements.

The government should also offer financial incentives, tax exemptions, and other perks to businesses that are concerted efforts to achieve gender parity on their boards of directors. Organizations may be incentivized to promote diversity initiatives, and activities that create healthy competition may be encouraged through recognition systems that recognize businesses that demonstrate an excellent dedication to gender inclusivity. Also, by advocating and enabling programs that specifically aim to provide women with the training they require to become more qualified board members, you can assist women in obtaining the required training. Collaboration with academic institutions, professional groups, and trade associations to develop and implement leadership development programs for women is one way to expand the number of qualified female candidates. This can be accomplished by working together.

Moreover, women need more chances to network with powerful men and women in business, and the government should help make that happen. Assisting women in overcoming obstacles to board participation and creating a more inclusive workplace can be achieved through the establishment of an alliance network. Likewise, it is essential to raise awareness about the benefits of gender diversity on corporate boards through educational activities. Involve the corporate world, government agencies, and the media to raise awareness and support for diversity and inclusion programs. In addition, the government should incentivize businesses to implement flexible work arrangements to create a more equal workplace where women can take leadership roles and have a better work-life balance. Adopting more accommodating policies can lead to a more inclusive and friendly work environment.

Furthermore, the government should prompt institutional investors to make investment decisions that take gender diversity into account. By aligning their investment strategies with diversity-focused organizations, investors can influence business behavior and support the more significant social movement for gender-inclusive governance. By implementing the policy above recommendations, Pakistan can foster a more inclusive and equitable corporate environment, thereby promoting sustainable economic growth and long-term success for companies listed on the PSX.

### *Limitations and Future Research*

The research on the impact of gender diversity on corporate boards on firm risk and financial performance in the PXS is subject to certain limitations. These include the potential for confounding factors to affect the results and the challenge of establishing a definitive causal relationship. Pakistan's unique economic and regulatory climate could potentially restrict the applicability of the findings. Additionally, the reliability of the data and variations in reporting

practices across different enterprises could present obstacles. However, future research should examine leadership philosophies, decision-making processes, and the precise mechanisms by which gender diversity affects financial metrics. A more thorough worldwide viewpoint can be obtained through longitudinal research and comparative evaluations between stock exchanges and geographical areas. A more sophisticated understanding of the connection between gender diversity and corporate outcomes in the PSX would be possible with the help of qualitative research that captures board members' experiences. This research would provide insightful information about the nuances of gender dynamics within Pakistani firms.

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