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# Female presence in corporate governance, firm performance, and the moderating role of family ownership

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**ABSTRACT**
Assessing the role of diversity in corporate governance has attracted growing interest. In addition, significant relationships are expected between diversity dimensions and firm performance. This research aims to analyze the relationships between female presence in corporate board-firm financial performance and the extent to which such influence is moderated by family ownership. The study's sample, based on the listed firms on the Pakistan Stock Exchange (PSX), represents the nonfinancial sector from 2008 to 2019 with 2087 firm-year observations. Fixed-effect regression analysis was applied to examine the proposed hypothesis. The study's findings indicate that the presence of women in corporate governance is positively associated with firm financial performance. Simultaneously, the mentioned relationship is less pronounced when family ownership is a moderator. The empirical findings of the study support the argument that the presence of women in corporate boards is positively associated with financial performance and supports the reforms made by codes of corporate governance (CCG) that make the presence of female directors' mandatory on the corporate boards. Additionally, the study findings partially confirm that a higher proportion of women on the board increases firm performance. This study offers insights for policymakers to implement legislation for a diverse gender placement in the board of directors and exploit the potential benefits of the gender-balanced board, which generally improves firm performance.

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## 1. Introduction

The composition of the corporate board has gained significant importance in corporate governance, and a large amount of interest focuses on the composition of corporate boards and its various attributes as qualities of corporate governance. One of the

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board qualities that has attracted enormous interest is the diversity of the board of directors. For instance, the boardroom female representation significantly increased from 16.9% to 25% in Fortune 100 firms (Deloitte, 2019). The growing trend over the years toward diversity in the boardroom has led to a certain question: *Why do companies strive to diversify the boardroom representation*? Extant literature may have several answers to this question, such as the corporate board being the most important firm's internal entity for controlling and monitoring management to deter them from opportunistic (or unethical) behavior (Fama & Jensen, 1983; Hermalin & Weisbach, 2001). The recent corporate scandals, such as that involving Lehman Brothers, have led to closer scrutiny of boards of directors' composition and decisions (Terjesen et al., 2016). Despite the growing interest of academicians and practitioners exploring the mentioned relationship in their research and practices, less attention has been given in discussing the presence and control of family ownership in the firm's structure.

Governance is an essential managerial attribute for firms (Yeh & Trejos, 2015) and is directly associated with control and monitoring (Blanco et al., 2009). The efficiency and functioning of corporate governance can be affected by the corporate board, diversity (gender) on board, and its subcommittees (Nielsen & Huse, 2010), which are the most relevant issues currently faced by the stakeholders, shareholders, and managers of the firms (Pucheta-Martínez et al., 2016). The empirical evidence reflects that woman may lead differently than men (Kirsch, 2018). For instance, women are known to be more collaborative, enhance participative decision-making, and be more ethically responsible (Bart & McQueen, 2013), and this could reduce board conflicts (Nielsen & Huse, 2010). Moreover, they are known to be more security-oriented, (Martín-Ugedo et al., 2018), more concerned but less power-oriented (Adams & Funk, 2012), more independently, responsible, and diligent in supervising and controlling the firm's audit function (Li & Li, 2020), ensuring the financial statements' quality (Compernolle, 2018). These practices make firms less associated with fraudulent practices (Gao et al., 2017). From an investor's viewpoint, the presence of female directors and their board independence is one of the factors of a firm's future performance. Investors react positively to the inclusion of female directors on board and believe they will gain positive returns as a result (Adams et al., 2015). These attributes of female directors promote the quality of board discussions; therefore, the National Association of Corporate Directors Blue Ribbon Commission in the US has recommended placement of female directors on the board (Carter et al., 2003).

Diversity of the corporate board, female presence on the corporate board, and female participation in corporate subcommittees are widely reported in developed markets and has found a positive association with few exceptions. However, empirically, these findings are less reported in emerging markets, which need to discuss and explore the importance of female presence in firms' corporate governance structure to reduce agency conflicts. Therefore, this study's aims to examine the role of female directors' presence in corporate governance in the shape of diversity (gender) on board and its subcommittees, namely, audit committees (ACs) in emerging markets. Therefore, we investigate the relationship between female directors on boards and female directors' presence in the audit committees with the firm's financial

performance in Pakistan settings. Additionally, this study extends the existing literature on the mentioned relationship by examining the moderating role of family ownership, which confirms that family ownership hampers the firm performance (Faccio & Lang, 2002). Despite the other international regulatory bodies to ensure the female presence in the governance structure, the Security and Exchange Commission of Pakistan (SECP) formulated the Code of Corporate Governance (CCG) regulations in 2002 and revised in 2012, 2017, and, recently, in 2019. The revised CCG under the companies Act 2017 introduced the mandatory provision of the placement of at least one female director on board all public interest companies. As a result, the proportion of female directors in listed firms, which are a subset of public interest firms, is expected to rise from 6.4% to 14.3%. This study offers empirical evidence of the relationship between the female presence in corporate governance (CG) and firm performance in nonfinancial sector firms listed on the Pakistan Stock Exchange. To test the proposed hypothesis, we employed a panel regression (fixed effect) analysis on sampled firms from 2008 to 2019, consisting 2087 firm-year observations. The presence of a female in CG is measured as: a) female presence in the corporate board, which reflects the gender diversity on board, and b) female presence in the audit committee, which is part of the corporate subcommittees board consistent with studies by Adhikari et al. (2019) and Bennouri et al. (2018). Firms' financial performance is measured based on accounting measures of return on assets, basic earnings power ratio, and market measures, namely Tobin's Q and market to book ratio of equity (Papangkorn et al., 2019). Further, this study extends the literature on governance and firm performance by examining family ownership's moderating effect (FO). The moderating effect of family ownership is measured by the percentage of total shares owned by family members (Ghaleb et al., 2020).

The contributions of the study are as follows: first, the study findings confirm and extend the current research on the mentioned relationship in the emerging economies that the female presence in the corporate board, a higher proportion of women on board, and their presence in the audit committee positively (significant) affect the firm performance, which validates the critical mass viewpoint and the implementation of CCG. Second, this study empirically adds novel insights into the research on the nexus of women on board and financial performance by examining the moderating role of family-ownership and in line with the argument that the family-owned firm's structure hampers the firm's returns and affects the holdings of minority shareholders. Third, this research supports the reforms introduced by the code of corporate governance within the framework of SECP, which advises the placement of female directors' mandatory on the corporate board. The formulation of a gender-diverse board has improved firm decision-making and, eventually, financial performance. Thus, our findings confirm the positive impact of female presence on boards in the nonfinancial sector of Pakistan through the moderating role of family ownership, which is an oversight of earlier studies.

The remainder of this paper is organized as follows. Section 2 reviews the literature on female presence on board and in an audit committee with a firm's financial performance, leading to hypothesis development. Section 3 explains the dataset and the empirical model. Section 4 describes the empirical findings, and Section 5 concludes the study's implications, limitations, and suggestions.

## 2. Literature review and hypothesis development

Globally, firms are redesigning the corporate board of directors' structure to enhance diversity and construct a more heterogeneous group of decision-makers (Kumar & Zattoni, 2016). The increasing trend of diverse boards tends to serve better firm performance (Farrell & Hersch, 2005). Diversity in the decision process explains the likelihood of finding women in firms' top leadership (Cook & Glass, 2014). Different authors argue that greater gender diversity should improve directors' monitoring and advising roles, and the quality of boards' decisions (e.g. Hillman, 2015). Other studies (Carter et al., 2010; Rose, 2007) found no relationship between gender diversity and financial performance. Furthermore, Triana et al. (2014) reported that when a board faces no threat of low firm performance, gender diversity contributes positively to strategic change. Few international cross-country evidences support a positive relationship between a higher proportion of female directors on board for effect on firm financial performance and firm value (Gordini & Rancati, 2017; Terjesen et al., 2016; Vafaei et al., 2015). Bajra and Čadež (2019) reported the relationship between internal audit quality–earnings management and board of directors–earnings management, respectively, in a unique setting of European firms cross-listed in the United States. Results revealed that both internal audit quality and board directors negatively affect the incidence of earnings management, while their interactive impact is positive.

The literature found that the relationship between corporate board gender diversity and financial performance is often reported in developed economies; employed a sample of large public firms (Wagana & Nzulwa, 2016), and few studies measure this relationship in emerging economies (Kılıç & Kuzey, 2016; Liu et al., 2014). Another view discussed in the literature by (Bianco et al., 2015), which examined the difference between family-affiliated and non-family-affiliated female directors, concluded that the family-affiliated women are more common in smaller firms with concentrated ownership. Conversely, non-affiliated women are more likely to serve in listed and bigger firms that have a greater fraction of independent directors. The above discussion and diverse empirical evidence between the association of diverse corporate boards and firms' financial performance are not conclusive. Therefore, this study examines two attributes of a corporate board: female presence (proportion) on board and female presence in the audit committee in Pakistan settings as an emerging economy. There are several theoretical frameworks to develop the hypothesis, while we theorize considering both agency theory and critical mass view.

### *2.1. Female presence on board and firm performance*

The separation of control and ownership in firms leads to agency problems (Fama & Jensen, 1983; Jensen & Meckling, 1976). Corporate boards overcome conflicts and protect shareholders' interests (Weisbach, 1988) by aligning the interests of managers and shareholders (Bennouri et al., 2018). Diversity on board by gender delivers new perspectives and valuable advice to top managers (Anderson et al., 2011), resulting in a better decision related to resolving problems (Daily et al., 2003) and improves firm performance (García-Meca et al., 2015). Several arguments contest the potential benefits of female directorship (Terjesen et al., 2016), while few believe that female

presence on board is more valuable when balanced with their counterparts (Li et al., 2017). Vafaei et al. (2015) find positive associations between a higher proportion of female directors with better financial performance in the developed market (Australian) list firms. Gordini and Rancati (2017) found that a higher proportion of women on boards increased the firm market value (Tobin's Q). Contrarily, some studies highlight no significant difference among them in board monitoring effectiveness, for instance; (Fan et al., 2019). Bajra and Čadež (2020) examined the effects of regulatory policies on European firms' corporate governance quality cross-listed in the United States. They revealed that the compliance levels increase over time, but they vary considerably across constituent provisions. Additionally, higher compliance is positively related to corporate governance quality. Consequently, to advance the understanding of the impact of female presence on a firm's financial performance, considering their presence and their (number) proportion is essential. The above arguments underpin the following hypothesis:

**Hypothesis 1**: The proportion of female directors' presence on board is positively related to financial performance.

### 2.2. Female presence in audit committee and firm performance

Globally, financial scandals are enforced to lawmakers and regulatory bodies to ensure the audit committee's presence in true spirits and its transparency in listed firms. Primarily, the audit committee is entrusted with the task of overseeing the financial reporting quality (Chan & Li, 2008) to ensure the transparency of financial statements and prevent financial irregularities through an effective system and controls (Pucheta-Martínez et al., 2016) and hold regular meetings with internal management and statutory auditors to review financial statements (Klein, 2002). The literature suggests that the attributes of an audit committee can affect the audit committee's effectiveness. These attributes include size, independence, meetings, and diversity (gender) (Nekhili et al., 2020). Bajra and Čadež (2018) examined the increasing trend of corporate governance quality considering the European company law directive that announced a mandatory audit committee in listed firms along with their roles and responsibilities. They conclude that audit committee monitoring effectiveness and competence are positively associated with financial reporting quality. Gender-diverse committees can facilitate effective communication among auditors and management because of their superior communication and better monitoring skills, which are more effective than their counterparts (Adams & Ferreira, 2009). Female presence encourages information sharing among the committee (Gul et al., 2011) and prevents audit report issues (Tian & Peterson, 2016). Based on the above discussion, this study states that the gender diversity in the audit committee increases its effectiveness, promotes openness and the sharing of information among committee members, overcomes social identity problems, increases involvement in decision-making leading to better decisions, and demonstrates better performance in comparison with a board that is not diverse. Therefore, we hypothesize the following:

**Hypothesis 2:** The presence of female directors in the audit committee is positively related to financial performance.

### 2.3. Moderating effect of family ownership

The contingency factors among the female presence and firm performance may prevail. In this connection, the role of family ownership has been explored in earlier studies, which highlighted that family-ownership might hamper the independent decision of directors', resultantly less effectiveness of the board (Mustakallio et al., 2002; Ararat et al., 2015). Extensive shareholder monitoring reduces the need for outside monitoring, making the board less independent (Monem, 2013). Nadeem (2020) also highlighted that a woman's presence on the board adversely affects board decisions or firm performance in family businesses. In family businesses, the maintenance of socioeconomic wealth supersedes all the financial advantages obtained by women's participation in corporate positions in a non-family business (Gomez-Mejia et al., 2011). Similarly, Morck and Yeung (2009) mentioned that audit committees face resistance from directors in family-controlled businesses, which results in negative firm performance. Thus, the interaction of family ownership negatively impacts the cash–performance relationship, which confirms that a high level of family ownership disrupts the firm performance as family shareholders tend to accumulate excess cash to increase resources under their control (Yun et al., 2020). Considering the contingency theory of leadership, leadership styles and how women in corporate positions make decisions differ between family and non-family businesses. The gains or losses in preserving the family's socioemotional wealth constitute the fundamental frame of reference for women making strategic and political decisions in the family but not a non-family business (Moreno-Gómez & Calleja-Blanco, 2018). Therefore, we argue that although board diversity is considered a mechanism to enhance corporate governance effectiveness, in the family-controlled business, female directors' role is limited and more diverted toward the family owners. Furthermore, nominated female directors are from within families. Consequently, family control adversely moderates the linkage between female directors and performance. Similarly, their presence in the audit committee is also symbolic and hence negatively moderated by family ownership. Consequently, we hypothesize the following:

> **Hypothesis 3a:** The relationship between female directors' presence on board and financial performance is weaker in firms with family ownership.

> **Hypothesis 3b:** The relationship between female directors' presence in the audit committee and financial performance is weaker in firms with family ownership.

## 3. Material and methods

### 3.1. Data and sample description

This study employed the nonfinancial firms listed on the Pakistan Stock Exchange (PSX) (see Table 1, panel B). The relevant data were gathered from the firms' annual reports. Annual reports are key to in an organization's image to its stakeholders (Gray et al., 1995). The selected data collection period (2008–2019) covers the code of corporate governance reforms. The initial sample consists of 5952 firm-year observations. After excluding financial firms' adherence due to their different settings and removing missing values, the final sample comprises 2087 panel settings. Table 1

**Table 1.** Sample description.

| Panel A: Selection procedure | | |
|---|---|---|
| Initial observations of all listed firms of the study period | | 5952 |
| Less: Financial firm observations | | 1344 |
| Less: Number of firm-year missing observations | | 2521 |
| Final sample | | 2087 |
| **Panel B: Industry-wise Composition** | **Number** | **Percentage** |
| Automobile assembler | 125 | 5.99 |
| Automobile parts & Accessories | 67 | 3.21 |
| Cable & Electrical goods | 57 | 2.73 |
| Cement | 184 | 8.82 |
| Chemical | 208 | 9.97 |
| Engineering | 100 | 4.79 |
| Fertilizer | 64 | 3.07 |
| Food & Personal care products | 173 | 8.29 |
| Glass & Ceramics | 36 | 1.72 |
| Leather & Tanneries | 20 | 0.96 |
| Miscellaneous | 98 | 4.70 |
| Oil & Gas exploration companies | 44 | 2.11 |
| Oil & Gas marketing companies | 80 | 3.83 |
| Paper & Board | 67 | 3.21 |
| Pharmaceuticals | 95 | 4.55 |
| Power Generation & Distribution | 116 | 5.56 |
| Real Estate investment trust | 4 | 0.19 |
| Refinery | 48 | 2.30 |
| Sugar & Allied industries | 147 | 7.04 |
| Synthetic & Rayon | 32 | 1.53 |
| Technology & Communication | 114 | 5.46 |
| Textile Composite | 91 | 4.36 |
| Textile Spinning | 28 | 1.34 |
| Textile Weaving | 8 | 0.38 |
| Tobacco | 23 | 1.10 |
| Transport | 41 | 1.96 |
| Vanaspati & Allied industries | 10 | 0.48 |
| Woollen | 7 | 0.34 |
| Total | 2087 | 100 |
| **Year-wise composition** | **Number** | **Percentage** |
| 2008 | 117 | 5.61 |
| 2009 | 162 | 7.76 |
| 2010 | 157 | 7.52 |
| 2011 | 166 | 7.95 |
| 2012 | 177 | 8.48 |
| 2013 | 180 | 8.62 |
| 2014 | 180 | 8.62 |
| 2015 | 184 | 8.82 |
| 2016 | 200 | 9.58 |
| 2017 | 209 | 10.01 |
| 2018 | 207 | 9.92 |
| 2019 | 148 | 7.09 |
| Total | 2087 | 100 |

Source: Author's calculation.

presents a summary of data curation, and sample selection includes industry and year-wise composition.

### 3.2. Measures

Performance measures refer to the essential measurement of a firm's efficiency and effectiveness (Neely et al., 1995) in managing its resources (Al-Matari et al., 2014). The higher performance measures are, the more effectively and efficiently the firms'

resources have been utilized to achieve their objectives includes; profit maximization, reduce business costs, and maximizing shareholders' wealth (Ibrahim and Samad, 2011). Therefore, this study employs the performance measures of a firm (return on assets and earning power ratio) to validate the study findings. The dependent variables used to measure firm performance are return on assets (ROA) (Brahma et al., 2020); basic earning power ratio (BEPR), which reflects the expected future firm performance based on past or current period performance, and firm profitability (Papangkorn et al., 2019).

Following the literature (Bennouri et al., 2018; Yang et al., 2019), the proxies for an explanatory variable, the proportion of female directors on board (PFD_BD), measured as the number of female directors on board by total board size, and the presence of female directors in the audit committee (PFD_AC), measured as the number of female directors in the audit committee by total members in the audit committee. βi is the coefficient of female presence variables, where i = 1. Family ownership (FO) is measured by a percentage of total shares owned by family members and considered as dummy variable "1" if family owned at least 20% shares, "0" if otherwise (Ghaleb et al., 2020; Zhou, 2019). Furthermore, PFD_BD*FO indicates the interaction of family ownership with the presence (proportion) of a female director on the board and audit committee PFD_AC*FO as moderator. Simultaneously, βm and βn are the coefficients of family ownership and their interaction effect, respectively.

Following the extant literature (Deb & Siddique, 2017; García-Meca et al., 2015; La Rocca & Cambrea, 2019; Nguyen et al., 2015; Sardo & Serrasqueiro, 2018; Sila et al., 2016), this study divides the control variables into two categories. The first categories of control variables pertain to board characteristics, which include board size (BS) and the proportion of independent directors (PID_BD). The second category of control variables pertains to firm-specific characteristics, which include firm size (FS), leverage (LEV), investment (Inv), and firms' fixed assets (FA). βj is the coefficient of the control variables, where j = 1,… …,6. Year and industry dummy variables are also added to the model to study the year and industry effect where, k = 1,2,3 … .27 and βy is the coefficient of year, where y = 1,2,3 … 11 (Table 2).

**Table 2.** Variable description and measurement.

| Nature | Variable | Symbol | Measure |
|---|---|---|---|
| Dependent variable | Return on assets | ROA | Net income/Total assets |
| | Basic earning power ratio | BEPR | EBIT/Total assets |
| Independent variable | Proportion of female director on board | PFD_BD | Number of female directors on board /Total board size |
| | Presence of female director in audit committee | PFD_AC | Number of female directors in audit committee/Total members in audit committee |
| Moderator | Family ownership | FO | Family owners having 20% or more equity ownership in the firm |
| Controls | Board size | BS | Total number of directors on board |
| | Proportion of independent directors on board | PID_BD | Independent director on board divided/Total directors on board |
| | Firm size | FS | Log of total assets |
| | Leverage | Lev | Total debt/Total assets |
| | Investment | Inv | Investment |
| | Fixed asset | FA | Fixed assets of the firm |

Source: Author's calculation.

### 3.3. Empirical model

This study examines the direct effect of female presence on board-firm financial performance and female presence in the audit committee-firm financial performance, and the moderating effect of family ownership on the mentioned relationship is estimated through a fixed-effect regression analysis. The estimates of ordinary least squares can be misleading. Thus, a fixed-effect model is applied to control unobserved factors (Yun et al., 2020). The choice of fixed-effect regression analysis is based on the Hausman test. To measure the moderation effects, the model has an interaction variable. The firm-specific control variables in both models include the year and industry dummies to account for time and industry trends.

In accordance with the hypothesis, we proposed following model:

$$ROAi = a1 + \beta_i PFD_{BD} i + \beta_m FO + \beta_n PFD_{BD} * FO_i + \sum_{j=1}^{6} \beta_j Controls_j + \sum_{k=1}^{27} \beta_k Industrydumies_k + \sum_{l=1}^{11} \beta_y Yeardummies \quad (1)$$

$$BEPRi = a1 + \beta_i PFD_{BD} i + \beta_m FO + \beta_n PFD_{BD} * FO_i + \sum_{j=1}^{6} \beta_j Controls_j + \sum_{k=1}^{27} \beta_k Industrydumies_k + \sum_{l=1}^{11} \beta_y Yeardummies \quad (2)$$

$$ROAi = a1 + \beta_i PFD_{AC} i + \beta_m FO + \beta_n PFD_{AC} * FO_i + \sum_{j=1}^{6} \beta_j Controls_j + \sum_{k=1}^{27} \beta_k Industrydumies_k + \sum_{l=1}^{11} \beta_y Yeardummies \quad (3)$$

$$BEPRi = a1 + \beta_i PFD_{AC} i + \beta_m FO + \beta_n PFD_{AC} * FO_i + \sum_{j=1}^{6} \beta_j Controls_j + \sum_{k=1}^{27} \beta_k Industrydumies_k + \sum_{l=1}^{11} \beta_y Yeardummies \quad (4)$$

## 4. Results and discussion

### 4.1. Descriptive statistics

Table 3a presents the descriptive results of the study. Table 3a shows that the firms having up to three female directors on the board, whereas only few firms do not have

**Table 3a.** Descriptive statistics.

| Variable | N | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| ROA | 2087 | 6.125 | 5.600 | 1.147 | −2.510 | 6.140 |
| BEPR | 2087 | 0.112 | 0.101 | 0.121 | −0.217 | 0.507 |
| PFD_BD | 2087 | 0.082 | 0.000 | 0.099 | 0.000 | 3.000 |
| PFD_AC | 2087 | 0.090 | 0.000 | 0.161 | 0.000 | 1.000 |
| FO | 2087 | 0.468 | 0.000 | 0.499 | 0.000 | 1.000 |
| BS | 2087 | 8.008 | 8.000 | 1.297 | 7.000 | 13.000 |
| PID_BD | 2087 | 0.115 | 0.000 | 0.147 | 0.000 | 1.000 |
| FS | 2087 | 22.856 | 22.832 | 1.538 | 19.032 | 26.556 |
| LEV | 2087 | 0.527 | 0.518 | 0.292 | 0.024 | 1.884 |
| INV | 2087 | 15.481 | 19.119 | 8.633 | 0.000 | 24.745 |
| FA | 2087 | 21.556 | 21.700 | 2.305 | 0.000 | 25.515 |

Source: Author's calculation.

**Table 3b.** Descriptive statistics – proportion of female directors on board (PFD_BD).

| | PFD_BD ≤1 | | | | | | 1 < PFD_BD ≤ 3 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variables | Obs | Mean | Median | SD | Min | Max | Obs | Mean | Median | SD | Min | Max |
| ROA | 1822 | 5.68 | 5.38 | 10.28 | −2.41 | 6.56 | 265 | 6.28 | 6.84 | 8.57 | −1.63 | 7.14 |
| BEPR | 1822 | 0.10 | 0.09 | 0.12 | −0.21 | 0.50 | 265 | 0.14 | 0.11 | 0.11 | −0.07 | 0.50 |
| PFD_BD | 1822 | 0.05 | 0.00 | 0.06 | 0.00 | 1.00 | 265 | 0.27 | 0.25 | 0.07 | 0.00 | 3.00 |
| PFD_AC | 1822 | 0.06 | 0.00 | 0.12 | 0.00 | 1.00 | 265 | 0.28 | 0.33 | 0.22 | 0.00 | 1.00 |
| FO | 1822 | 0.48 | 0.00 | 0.50 | 0.00 | 1.00 | 265 | 0.38 | 0.00 | 0.48 | 0.00 | 1.00 |
| BS | 1822 | 7.82 | 8.00 | 1.12 | 7.00 | 13.00 | 265 | 9.24 | 9.00 | 1.68 | 7.00 | 13.00 |
| PID_BD | 1822 | 0.11 | 0.00 | 0.14 | 0.00 | 1.00 | 265 | 0.14 | 0.00 | 0.15 | 0.00 | 1.00 |
| FS | 1822 | 22.7 | 22.70 | 1.54 | 19.03 | 26.55 | 265 | 23.3 | 23.58 | 1.42 | 20.0 | 26.55 |
| LEV | 1822 | 0.53 | 0.52 | 0.30 | 0.02 | 1.88 | 265 | 0.49 | 0.50 | 0.23 | 0.02 | 0.98 |
| INV | 1822 | 15.42 | 19.05 | 8.52 | 0.00 | 24.74 | 265 | 15.8 | 20.70 | 9.35 | 0.00 | 24.74 |
| FA | 1822 | 21.50 | 21.57 | 2.29 | 0.00 | 25.51 | 265 | 21.9 | 22.19 | 2.35 | 0.00 | 25.51 |

Source: Author's calculation.

any women on their boards. This shortcoming violates the CCG and may cause insufficient diverse opinions in the boardroom conversation. The presence of female directors in the audit committee varies between 0 and 1. While no law compels the inclusion female directors in the audit committee, companies have still included female directors to the committee to improve audit quality, transpiercing, conflict mitigation. The board size ranges between 7 and 13, with a median of 8. The return on an asset is between −2.510 and 6.140, which shows loss-making firms that may recover in the coming years. The average BEPR is −0.217 and 0.507, along with a standard deviation of 0.121.

Considering CCG regulations, the minimum number of female directors on board (one) reflects the diversity (gender) and eventually improves its financial performance. However, the extent of a female director's presence prevailed in the literature, and it is noted in the developed markets that a higher proportion of female presence on corporate boards more positively affects financial performance. For this instance, we classify our study sample descriptively into the following: a) firms that have less than one female on board and b) firms that have more than one while less than three women on board to strengthen the study hypothesis. Table 3b presents the descriptive results of the split-sample, which confirms the critical mass viewpoint. Firms that have more than one female on board, but less than equal to three have better average measures than their counterparts (Gul et al., 2011; Papangkorn et al., 2019).

### 4.2. Correlation matrix

Table 4 presents the correlation matrix among the relevant variables. Table 4 depicts various degrees of correlation among different variables. The results show that the presence of a female directors on board and audit committee is positively associated with firms' performance measures, with few exceptions of control variables. This indicates that firms with a gender-balanced board present higher financial performance. Conversely, the mentioned relationship is negatively correlated with family ownership, confirming the argument that family ownership and performance nexus may affect minority shareholders (Gedajlovic et al., 2012).

### 4.3. Empirical results

Table 5 reports the regression results of the proposed hypothesis *H1*, which states that *PFD_BD* positively affects firm performance. The coefficients are positive and statistically significant at the 1% significance level with the performance measures. The results are in line and support the argument that presence of female directors on the board increases firm performance, which states that better monitoring skills of female directors lead to better performance (Papangkorn et al., 2019; Rose, 2007). Further, Table 5 presents the findings of *H3a*, the moderation effect of family ownership. The coefficient of the interaction term *(PFD_BD*FO)* is negative and significant, indicating that family ownership adversely affects the relationship between the presence of women on board and firm financial performance. These results depict that family businesses override corporate governance practices that weaken gender diversity on boards (Ararat et al., 2015). The effects of the control variables are in line with the literature, with few exceptions, as expected. The findings reveal that the return on assets and before earning power ratio is positively associated with the independent director, which shows a negative association with board size. The positive association of independence on board and performance measures confirms that independent directors mitigate the conflicts between shareholders and top management, which is expected to be more likely to represent shareholder interest and adopt positions in favor of shareholders. Board size shows an insignificant negative association with performance measures, which confirms the importance of an appropriate and optimal board size in the firms, which leads to better performance. The firm's specific control variables are consistent in magnitude and statically partially significant in both models, which leaves us confident that the model is well-specified (Bennouri et al., 2018; Pucheta-Martínez et al., 2016; Terjesen et al., 2016).

Table 6 reports the regression results of the proposed hypothesis *H2*, which states that *PFD_AC* positively affects firm performance. The coefficients are positive in both cases. The results support that the presence of female directors in the audit committee sends a positive signal to shareholders, positively impacts audit quality, and has a negative impact on errors, noncompliances, or the omission of information (Pucheta-Martínez et al., 2016). Additionally, Table 6 reports the findings of *H3b*, the moderation effect of family ownership. The coefficient of the interaction term *(PFD_AC*FO)* is negative, which indicates that family ownership adversely affects the relationship between female presence in the audit committee and firm financial

**Table 4.** Correlation matrix.

| Variables | ROA | BEPR | PFD_BD | PFD_AC | FO | BS | PID_BD | FS | LEV | INV | FA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ROA | 1 | | | | | | | | | | |
| BEPR | 0.520*** | 1 | | | | | | | | | |
| PFD_BD | 0.236*** | 0.228*** | 1 | | | | | | | | |
| PFD_AC | 0.052* | 0.048* | 0.410*** | 1 | | | | | | | |
| FO | −0.13*** | −0.14*** | −0.123*** | −0.013 | 1 | | | | | | |
| BS | 0.023 | 0.019 | 0.125*** | 0.258*** | −0.069** | 1 | | | | | |
| PID_BD | 0.038 | 0.04 | 0.277*** | 0.078*** | −0.023 | 0.144*** | 1 | | | | |
| FS | 0.089*** | 0.084*** | 0.135*** | −0.006 | −0.23*** | −0.072** | 0.035 | 1 | | | |
| LEV | −0.24*** | −0.40*** | −0.139*** | −0.055* | 0.055* | −0.001 | −0.004 | 0.114*** | 1 | | |
| INV | 0.151*** | 0.124*** | 0.101*** | 0.028 | −0.08*** | −0.012 | 0.031 | 0.311*** | −0.17*** | 1 | |
| FA | 0.026 | 0.031 | 0.042 | −0.024 | −0.18*** | −0.028 | 0.043 | 0.603*** | 0.201*** | 0.052* | 1 |

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.
Source: Author's calculation.

**Table 5.** Regression results: presence of female director on board and firm performance.

| Independent Variable | ROA | | BEPR | |
|---|---|---|---|---|
| | Coefficients | Std. Errors | Coefficients | Std. Errors |
| PFD_BD | 16.461*** | 3.267 | 0.181*** | 0.040 |
| FO | −0.105 | 0.831 | −0.010 | 0.011 |
| PFD_BD*FO | −15.468** | 4.989 | −0.168*** | 0.061 |
| Board-Level Controls | | | | |
| BS | −0.189 | 0.226 | −0.004 | 0.003 |
| PID_BD | 1.778 | 2.033 | 0.024 | 0.025 |
| Firm-Level Controls | | | | |
| FS | 0.357 | 0.268 | 0.012** | 0.003 |
| LEV | −16.157*** | 0.896 | −0.151*** | 0.011 |
| INV | 0.035 | 0.025 | 0.010* | 0.001 |
| FA | 0.254** | 0.103 | 0.020* | 0.002 |
| Constant | 10.967** | 5.747 | 0.194*** | 0.071 |
| Year Effect | Yes | | Yes | |
| Industry Effect | Yes | | Yes | |
| Firm-Year Observation | 2087 | | 2087 | |
| Adjusted $R^2$ | 0.32 | | 0.12 | |
| F- Statistics | 30.10*** | | 19.63*** | |
| Hausman $Chi^2$ | 12.01*** | | 23.06*** | |

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.
Source: Author's calculation.

**Table 6.** Regression results: presence of female director in audit committee and firm performance.

| Independent Variable | ROA | | BEPR | |
|---|---|---|---|---|
| | Coefficients | Std. Errors | Coefficients | Std. Errors |
| PFD_AC | 0.416 | 2.703 | 0.012 | 0.033 |
| FO | −1.197 | 0.832 | −0.021** | 0.010 |
| PFD_AC*FO | −1.623 | 3.390 | −0.023 | 0.041 |
| Board-Level Controls | | | | |
| BS | −0.035 | 0.240 | −0.001 | 0.003 |
| PID_BD | 0.077 | 2.006 | 0.050 | 0.025 |
| Firm-Level Controls | | | | |
| FS | 0.383 | 0.272 | 0.004** | 0.003 |
| LEV | −16.484*** | 0.906 | −0.152*** | 0.011 |
| INV | 0.006* | 0.001 | 0.001* | 0.002 |
| FA | 0.254** | 0.104 | 0.030** | 0.001 |
| Constant | 1.045* | 5.867 | 0.236*** | 0.070 |
| Year Effect | Yes | | Yes | |
| Industry Effect | Yes | | Yes | |
| Firm-Year Observation | 2087 | | 2087 | |
| Adjusted $R^2$ | 0.29 | | 0.19 | |
| F- Statistics | 28.24*** | | 18.26*** | |
| Hausman $Chi^2$ | 21.30*** | | 24.29*** | |

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.
Source: Author's calculation.

performance. A female director in the audit committee in a family business is symbolic and, hence, negatively moderated (Morck & Yeung, 2009). The findings reveal that the return on assets and before earning power ratio is positively associated with the independent director, which shows a negative association with board size. The positive association of independence on board and performance measures confirms that independent directors mitigate conflicts between shareholders and top management and are expected to represent shareholder interest and adopt positions in favor of shareholders. Board size shows an insignificant negative association with performance measures, confirming the importance of an appropriate and optimal board size

Table 7. Regression results: female presence on board and firm performance.

| | PFD_BD ≤1 | | | | 1 < PFD_BD ≤ 3 | | | |
|---|---|---|---|---|---|---|---|---|
| | ROA | | BEPR | | ROA | | BEPR | |
| Variables | Coeff. | Std. Errors | Coeff. | Std. Errors | Coeff. | Std. Errors | Coeff. | Std. Errors |
| FD_BD | 3.093*** | 0.62 | 0.029*** | 0.01 | 2.255* | 3.43 | 0.426** | 0.19 |
| FO | −0.381 | 0.88 | −0.011 | 0.01 | −4.792 | 2.60 | −0.152 | 0.10 |
| FD_BD*FO | −2.026 | 1.10 | −0.158* | 0.10 | −5.047 | 5.11 | −0.776** | 0.33 |
| Controls | Yes | | Yes | | Yes | | Yes | |
| Constant | Yes | | Yes | | Yes | | Yes | |
| Year Effect | Yes | | Yes | | Yes | | Yes | |
| Industry Effect | Yes | | Yes | | Yes | | Yes | |
| Firm-Year Observations | 1822 | | 1822 | | 265 | | 265 | |
| Adjusted $R^2$ | 0.34 | | 0.11 | | 0.13 | | 0.10 | |
| F-Statistics | 35.07*** | | 27.21*** | | 5.74*** | | 4.97*** | |
| Hausman $Chi^2$ | 18.51*** | | 22.35*** | | 15.91*** | | 15.24*** | |

Note: The sample firms are divided into two subgroups, firms with female presence (a female director) less than or equal to and above 1. Probability values are based on t-statistics for a two tailed test of significance. All control variables are included in the models; however, regression coefficients are not shown in the table to save space. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.
Source: Author's calculation.

in the firms, leading to better performance. The firm's specific control variables are consistent in magnitude and statically partially significant in both models, which leaves us confident that the model is well-specified (Bennouri et al., 2018; Pucheta-Martínez & Bel-Oms, 2015; Terjesen et al., 2016).

### 4.4. Additional analysis

To make the primary findings of the study robust, the sample was split into two subgroups based on the presence of women on board. Table 7 shows the split sample's regression results of the female presence on board ≤1 and 1 < PFD_BD ≤ 3. The split sample results confirm that a higher proportion of women on board has higher positive impact on firm financial performance. Moreover, the interaction term's coefficient also demonstrates that the nexus of female presence and firm financial performance is weakened in family-owned firms. However, a higher proportion of women on board can facilitate communication and reduce the adverse impact of family-owned concentration and, hence, improve performance. The split sample results also confirm the critical mass viewpoint that a higher proportion of diversity (gender) on board can be significant. However, access to diversity could also cause negative or diminishing returns. The study results offer gender-balanced board practices in an emerging economy and summarize that if the women hold a critical mass on the board, their opinion will be resolutely considered. Conversely, the presence of a small number of women reflects "symbolism." Our results are partially consistent with recent empirical evidence (Yang et al., 2019) that a higher number of female directors on board matters.

## 5. Conclusion

Corporate governance literature focuses on how female presence on a corporate board and corporate committees affect firm performance. However, empirical evidence is mixed. Therefore, this study examines the relationship between a female presence in

corporate governance and firm performance in an emerging economy "Pakistan" using a sample of nonfinancial firms in the Pakistan Stock Exchange over the period 2008–2019. Further, this study examined the moderating effect of family ownership on the relationship between female presence in corporate governance and firm performance. Female presence in corporate governance is measured as the proportion of women on board and the presence of a female in the audit committee. The results of the fixed-effect regression estimations provide new insights on the nexus, which confirms that a higher proportion of female presence in corporate governance is positively associated, controlling the factors known to affect performance. The study findings are consistent with a large stream of the literature on board diversity studies that reported the positive impact of female presence on performance (Arun et al., 2015; Kim & Starks, 2016; Ozdemir, 2020; Sabatier, 2015).

Given this outcome, the study argues that a higher proportion of women on board and corporate committees, such as the audit committee, impose superior monitoring and encourage management to pursue value-and performance-increasing strategies, which are in the shareholders' best interests. Our findings confirm the agency theory explanations (Fama & Jensen, 1983), which suggest that owners and managers have conflicting interests aligned via proper monitoring and enhanced performance. The presence of female directors in our sample firms also supports the reforms made by CCG 2017, which announced that female directors' placement was mandatory on the board. Our results are consistent and partially significant with recent empirical evidence (Yang et al., 2019) that a higher number of female directors on board matters. Further, our results support the study by Morck and Yeung (2009), which argued that the avoidance of internal controls results in low effectiveness of board and audit committee characteristics in a family business.

Practically, our results have important practical implications for managers, investors, legislators, and regulators. Although most of the previous studies were conducted in developed markets and the positive association between a female presence in corporate governance to firm performance, few literature has reported the relationship in emerging markets more precisely, in the context of the moderating role of family ownership. Pakistan is a developing country and has faced various challenges in the recent past. To protect investor trust, attract foreign institutional investments, ensure market efficiency, better monitoring, and transparency, firms appoint women in the corporate board to attain gender-balanced board benefits. The study provides implications for policymakers and regulators to focus on increased CCG practices in true spirit. While this study presented meaningful findings, certain limitations remained. The study only focuses on the gender diversity of corporate boards and audit committees. Other aspects of board diversity, such as the qualifications of directors and ethnic and cultural diversity, need to be investigated. The culture and experience of board members are also significant attributes that might influence firm performance. Future studies may focus on the individual-level board attributes, which affect firm decision and, hence, performance.

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## Author contributions

Conceptualization, R.A. and A.A; methodology, R.A and A.A; software, A.A and R.A.; validation, R.U.R.; M.A.N.; and M.I.A.; formal analysis, A.A. and R.A; investigation, A.A. and R.A; resources, M.A.N and M.I.A; data curation, A.A.; writing—original draft preparation, A.A.; writing—review, revised and editing R.A.; supervision, R.U.R. All authors have read and agreed to the published version of the manuscript.

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