THE MODERATING ROLE OF BOARD GENDER DIVERSITY IN ASSOCIATION OF BOARD CHARACTERISTICS AND FIRM VALUE

Mohd. Anas [*], Mohd Tariq Jamal [**], Md. Moneef Ahmad [**], Shujaat Naeem Azmi [***], Md. Firoz Alam [**]

* *Corresponding author*, Department of Commerce, Aligarh Muslim University, Aligarh, India
Contact details: Department of Commerce, Aligarh Muslim University, Aligarh, Uttar Pradesh 202002, India
** Women's College, Faculty of Commerce, Aligarh Muslim University, Aligarh, India
*** School of Business, Galgotias University, Greater Noida, India

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Abstract

The present study investigates the relationship between board characteristics and a firm value. The study offers new insight into the association between board characteristics and a firm value by examining whether board gender diversity alters the impact of board characteristics on a firm value. The study uses panel data approach on a sample of 39 non-financial firms listed in the S&P BSE SENSEX 50 over 6 years (2014–2015 to 2019–2020). An appropriate model between fixed effect and the random effect was selected using the Hausman test first and two separate regressions were run later, showing the direct effect of board characteristics on firm value, and change in the effect of board characteristics on firm value when board gender diversity was put as a moderator. Consistent with the previous findings (Field, Lowry, & Mkrtchyan, 2013; Vo & Bui, 2017; Gulzar, Haque, & Khan, 2020), the study reveals that board busyness has a significant and positive effect on Tobin's Q only, whereas, board meetings and board gender diversity are the factors that leave a significant negative effect on both return on assets (ROA) and Tobin's Q. In contrast to existing literature (Chin, Ganesan, Pitchay, Haron, & Hendayani, 2019), we found that the board gender diversity positively moderates the association of board size and board meetings with Tobin's Q and ROA, respectively.

Keywords: Corporate Governance, Companies Act, Financial Performance, Board Gender Diversity, Moderating Effect, Tobin's Q

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1. INTRODUCTION

Corporate governance (CG) is defined as "a complex mechanism that helps to ensure the various investors that they will earn a fair return on their invested funds" (Shleifer & Vishny, 1997, p. 737). Improved corporate performance, easy access to external finance, and sustainable economic growth are some of the key advantages of good corporate governance. Good governance develops a sturdy relationship between the board, administration, stakeholders, and shareholders (controlling and minority). It makes a bridge to realize multiple organizational objectives like mitigating the consequences of the financial crisis, lessening the cost of business, leading the market towards

development, strengthening the right over property, etc. Board structure and characteristics are the basic facets of CG and their causal relationship with the firm value has become the topic of debate among researchers nowadays (Akbar, 2015; Goel, 2018). However, the linkage between board characteristics and firm value is still not defined properly and remains unclear, especially in many emerging economies (Jackling & Johl, 2009). Also, the corporate segment in emerging countries like India is dominated by family-controlled businesses. An agency conflict arises because of concentrated family ownership which may result in the exploitation of marginalised shareholders (Faccio, Lang, & Young, 2001).

Gender diversity on the board is another important facet of CG. The performance of a firm is considered to be positively linked with gender diversity or it can be said that female presence on the corporate board leads to many financial gains without harming shareholders' wealth. Board gender diversity primarily has an influence on the level of supervision done by the board of directors and ultimately the firm's financial performance (Limbasiya & Shukla, 2019). The topic of board gender diversity has caught the attention of corporate governance researchers lately. Campbell and Mínguez-Vera (2008) stress that greater gender diversity leads to impressive outcomes in terms of economic gains. However, the under-representation of female directors on the corporate board has become the general practice at the worldwide level (Singh & Vinnicombe, 2003). The inappropriate ratio of male and female directors in the corporate board is a sign of partial and unequal treatment emerging out of the old-fashioned thinking of male-dominated corporate boards. Females are still unable to get equal opportunity in the big corporates because of the orthodox nature of male-dominated society, fear of getting stronger competitors, and the meritocracy as a parameter to decide the progress of females, which is not at all practical (Singh, 2020). Thus, it has become more important for the regulating body to intervene and authorise female representation on the corporate boards to remove the existing social stigma and shatter the glass ceiling.

Although most nations are fixing and mandating the proportion of female directors to be included on the corporate boards, a survey revealed that the old boys' network is the reason behind the vulnerable position of women on the board (Singh & Vinnicombe, 2003). The forty (40) percent gender quota in the board was mandated by Norway first, following which other countries like France and Iceland also made a reservation of 40% females in the listed corporate boards (de Cabo, Terjesen, Escot, & Gimeno, 2019). During 2006 and 2007, the government of Israel and Canada mandated all state-owned enterprises (SOEs) to reserve 50% strength of board for the females (Terjesen & Singh, 2008) and during 2010 and 2011, Italy, Belgium, and Kenya made a reservation of at least 33% females in the board of SOEs (Terjesen, Aguilera, & Lorenz, 2015). In 2007, to increase women's participation in the corporate board, Spain recommended a gender quota law for the first time in European Union. The recommendation aimed to achieve 40% gender diversity by the end of 2015, yet corporates in Spain failed to attain this target due to its non-mandatory nature. Similarly, between 2008 and 2012, countries like Australia, Germany, Malaysia, Denmark, Nigeria Netherlands, South Africa, and Poland recommended their respective CG codes to fix a gender quota on the corporates' board (Terjesen et al., 2015). Compared to these countries, India is far from bringing transparent gender diversity to the board. In this regard, a positive move was taken by the Ministry of Corporate Affairs in 2013 by introducing the provision of appointing a minimum of one female director on the board (Companies Act of 2013). However, just to comply with the law, family-controlled businesses have started to appoint a female family member as the director on the board. Hence, this provision has just become a check box activity and the role of the female director has been limited to a dummy director. Recently, Securities and Exchange Board of India (SEBI) went a step further and has mandated to appoint at least one independent women director on the board of top 500 listed companies (based on market capitalization) and top 1000 listed entities on or before April 1, 2019 and April 1, 2020, respectively.

There has been a lot of discourse among the researchers about CG and its impact on the financial outcomes (Arosa, Iturralde, & Maseda, 2013; Farhan, Obaid, & Azlan, 2017; Datta, 2018) as well as the status of female directors on the board (Chin et al., 2019; Singh, 2020). Since the appointment of at least one women director in the Indian companies has been mandated by the law, researchers are debating the female directors' role in Indian companies and their influence on financial outcomes (Sanan, 2016; Jyoti & Mangalagiri, 2019; Duppati, Rao, Matlani, Scrimgeour, & Patnaik, 2019). These studies have been limited in their approach and the moderating effect of a female board member on the association between board characteristics and firm performance has not been evaluated in the Indian context.

The authors endeavour to fill the research gap and analyse the impact of female directors on the firm value along with other board aspects like size, independence, meetings, and busyness, the board gender diversity's moderating role in the relationship between corporate board structure and firm value, and the growth rate of female directors in the board after the New Companies Act of 2013.

The rest of the paper is structured as follows. Section 2 discusses existing literature, hypotheses development, and conceptual framework. Section 3 presents the research methodology. Section 4 provides analysis and interpretation of the findings. Section 5 discusses the results of the study. Lastly, the concluding remarks are provided in Section 6.

2. LITERATURE REVIEW, HYPOTHESES DEVELOPMENT, AND CONCEPTUAL FRAMEWORK

The present study has identified board size (BS), board independence (BI), board meetings (BM), board busyness (BB), and board gender diversity (BGD) as the key factors of board structure and characteristics. The Indian corporate governance system is regulated by the Companies Act of 2013 thus the board structure of the Indian corporate is influenced by the provision of this act. Khuntia

(2014) has discussed in his article the corporate governance norms as per the new act. As per the law, the minimum board size is 2 and 3 for the private and public listed companies respectively, whereas the maximum board size is 15 members which can be further increased by passing a special resolution. At least 33.33% of the total board size must be comprised of independent directors and at least one woman must be appointed as the director of the board. For the effective functioning of the company at least 4 meetings must be held in a year and the gap between two consecutive meetings should not be more than 120 days. A director will be considered a busy director when he/she is engaged in more than one company however, as per the Section 165 of the Act, "a person cannot hold office as a director, including any alternate directorship, in more than 20 companies at the same time".

2.1. Board size and firm performance

Extant literature shows that a direct relationship exists between board size and several measures of financial performance (Arosa et al., 2013; Meah & Chaudhory, 2019; Gulzar et al., 2020). These findings are supported by the argument that a larger board pool with diverse expertise helps in strategic decision-making (Van den Berghe & Levrau, 2004). Hambrick, Werder, and Zajac (2008) stressed that large boards are more capable of making strategic changes because of their competency and efficiency in assessing multiple available alternatives for the firm's growth. Similarly, Rubino, Tenuta, and Cambrea (2017) observed in their research that a direct relationship exists between ROA (proxy of firm performance) and board size in non-family Italian companies. However, other researchers have reported on the existence of an obverse relationship between the size of the board and the value of the firm (Kota & Tomar, 2010; Dharmadasa, Gamage, & Herath, 2014). It has been observed that a vast board size may lead to a situation of conflict and waste of time in the decision-making process and keep the board's skills and knowledge under-utilized (Bansal & Sharma, 2016). The majority of analytical research in the United States of America has documented an obverse relationship between board size and a firm performance (Mohan & Chandramohan, 2018). Along similar lines, Dalton, Daily, Ellstrand, and Johnson (1998) used the meta-analysis approach and found in their research that firms with smaller board sizes are more effective than the ones with larger board sizes and it indicates a systematic and positive relationship. Previous literature has given mixed findings on the board strength-performance relationship. Following these, we propose our hypothesis:

H1: There is a significant impact of board size on the financial performance of the firm.

2.2. Board independence and firm performance

An optimum mix of external and internal directors in the board is required by the various CG codes developed at the international level (Organization for Economic Cooperation and Development code, SOX Act in the USA, Conthe Code in Spain, and Combined code in the United Kingdom). Board independence is related to the portion of those outside directors on the board who do not associate with the company in terms of any pecuniary or materiality. In conformity with agency theory, an appropriate portion of independent directors is a must for the better performance of the board. Studying the impact of board independence on firm value/performance has always been the centre point of corporate governance research. Denis and Sarin (1997) proposed in their research that board independence boosts the stock prices of the firm. Some researchers have made an attempt to identify a better option between having more independent directors and having more internal directors on the board by estimating the impact of various board compositions on the different measures of corporate performance (Judge, Naoumova, & Koutzevol, 2003; Dharmadasa et al., 2014; Vishwakarma & Kumar, 2015).

Existing literature has reported that having more independent directors lead to better firm performance (O'Connell & Cramer, 2010). The possible rationale behind these results may be that an independent director gives his best efforts in ensuring that a project is profitable since his eminence is on the line (Eisenberg, Sundgren, & Wells, 1998). According to Baysinger and Butler (1985), firms with a small portion of outside directors are unable to identify the opportunities that may reduce financial costs and improve the market value of equity. On the contrary, Nepal and Deb (2021) found that more independent directors lessen the value of the firm. Bansal and Sharma (2016) have used a sample of 235 non-financial companies listed on the NSE 500 to establish an obverse relationship between board independence and the performance of the firm measured by Tobin's Q, ROA, and market capitalization. Similar findings were revealed by Datta (2018) using a sample of Dhaka Stock Exchange (DSE) listed insurance corporations. Board quality is considered more important than board independence, to achieve better financial performance (Lange & Sahu, 2008; Balasubramanian, Black, & Khanna, 2010). In a recent Indian study, Potharla and Amirishetty (2021) found that board independence and firm performance have an inverse U-shape association which establishes a non-linear relationship. Thus, the next hypothesis is proposed as follows:

H2: There is a significant impact of board independence on the financial performance of the firm.

2.3. Board meetings and firm performance

The number of board meetings conducted in an accounting year is crucial to assess the board's effectiveness (Javaid, 2015). It has been established in previous research that a firm arranging more board and committee meetings faces fewer earning management problems (Xie, Davidson, & DaDalt, 2003). Brick and Chidambaran (2010) reported that increased board meeting frequency usually results in improved performance. Datta (2018) found a direct relationship between board meetings and the performance of insurance companies in Bangladesh, the study concurred that the frequency of the board meetings itself ensures its

effectiveness. When the board fails to hold meetings at regular intervals, the important issues of great organizational significance remain undiscussed, and there is no independence and accountability to the insurer. However, another body of literature has reported an adverse association between the performance measure and board meeting frequency (Ahmed Haji, 2014). Adams, Almeida, and Ferreira (2005) stressed that board meetings are reactive in nature rather than proactive. Vafeas (1999) stated that frequent board meetings are conducted when a firm deals with poor financial performance and is undervalued in the equity market. The findings of other researchers like Amran (2011), Malik and Makhdoom (2016), and Hanh, Ting, Kweh, and Hoanh (2018) are also in line and reported an inverse relationship. Thus, it is proposed that:

H3: There is a significant impact of the number of meetings conducted on the financial performance of the firm.

2.4. Board busyness and firm performance

Board busyness refers to the engagement of directors on the boards of more than one company. There are conflicting views of researchers regarding multiple directorships. According to the first view, engagement in multiple boards gives an add-on to the experience, knowledge, and expertise of the director (Field et al., 2013). Multiple directorships are deemed propitious as it provides multiple opportunities to boost networks. These opportunities might be favourable for the company while examining both micro and macro environments to get the required resources and capabilities. The study conducted by Ferris Jagannathan, and Pritchard (2003) reported an absolute positive link between board busyness and firm performance. On the contrary, the second view purports that attending board of more than one company makes a director busier which leads to ineffective governance (Sarkar, Sarkar, & Sen, 2012). A firm with a high number of directors in multiple engagements is often regarded as poor for shareholders' benefits, shows low profitability, and is also valued less by the market (Fich & Shivdasani, 2006). Falato, Kadyrzhanova, and Lel (2014) stated in their research that a director with multiple engagements is negatively valued by the markets. It was concluded by Falato et al. (2014) that more busyness of directors is detrimental to the wealth of the shareholders and enfeebles the monitoring abilities of directors. Thus the authors propose the following hypothesis:

H4: There is a significant impact of board busyness on the financial performance of the firm.

2.5. Board gender diversity and firm performance

In the last few decades, the focus of the researchers in the field of CG has witnessed a shift towards board diversity, with special emphasis on the role of gender diversity in boards. The underlying reasons behind this shift are the fundamentally different core values and ideologies of female directors (Adams & Funk, 2012), society's need to come out of the old boys club phenomena (Carter, Simkins, & Simpson, 2003), and women bringing in a diverse perspective in the decision making (Hillman, Shropshire, & Cannella, 2007). Bin Khidmat, Ayub Khan, and Ullah (2020) have examined the role of board diversity (gender, education, age, nationality, and independence) on the performance of Chinese A-listed companies by applying the fixed-effect model and generalized moment method (GMM). Board gender diversity along with age diversity and foreign national diversity was found to have a substantial impact on both accounting and market-based measures of a firm performance. Campbell and Minguez-Vera (2008) found a direct association between board gender diversity and firms' performance using Tobin's Q as the explained variable with a sample of 68 non-financial Spanish firms. On the contrary, Vo and Bui (2017) found an obverse influence of board gender diversity on the performance of sampled firms from 10 developed countries. Similarly, Mínguez-Vera and Martin (2011) stated that the participation of women directors generates a negative impact on the performance of Spanish firms. Adams and Ferreira (2009) also found that ROA is negatively affected by the gender diversity on the board of the US firms.

In the context of India, Jyothi and Mangalagiri (2019) stated that a woman needs at least two years to influence and get settled in a company and hence used two years lag to check their impact on ROA and Tobin's Q, which was found to be positively significant. Dupatti et al. (2019) conducted a comparative analysis that investigated the impact of gender diversity on companies' performance in India and Singapore and reported a positively significant impact for both countries. Saini and Singhania (2018) also argue that board gender is an important determinant of firm performance. Further, Sanan (2016) found a substantial direct impact of independent women directors' proportion on the financial performance when the static model was used; however, the results become insignificant after applying the dynamic model in the panel dataset of 148 companies. Investigating the causal relationship between financial performance and board gender diversity using a dynamic model, Arora (2021) shows that financial performance can be boosted with the incorporation of more female directors on the board. However, Kagzi and Guha (2018) did not find evidence of a significant impact of gender diversity on the performance of Indian knowledge-intensive firms while other board diversity parameters were significant. Thus, the next hypothesis is proposed as follows:

H5: There is a significant impact of board gender diversity on the financial performance of the firm.

2.6. Moderating role of board gender diversity

Past research suggests that the firm performance is positively impacted by the gender diversity on the board, resulting in financial gains without harming shareholders' wealth (Gordini & Rancati, 2017). Therefore, a firm shall maintain a proper mix of female and male directors on the board, rather than just appointing one female director to comply with the legal norm (Gordini & Rancati, 2017). Chin et al. (2019) applied a cross-sectional design to the sample of 120 listed Malaysian companies to assess the role of CG variables on firm value by taking the board gender diversity as the moderator in the study. Although a positive and significant impact of board

size and board independence on Tobin's Q was found, board gender diversity did not moderate any relationship. Considering the key role of board gender diversity in corporate governance and the strong and positive relation reported in the literature as well, board gender diversity is introduced as the moderating variable between all other explanatory variables of the present study and firm value (Tobin's Q). Thus, the following hypotheses are proposed to test the board gender diversity's moderating effect:

H6a: The relationship between board size and financial performance is moderated by board gender diversity.

H6b: The relationship between board independence and financial performance is moderated by board gender diversity.

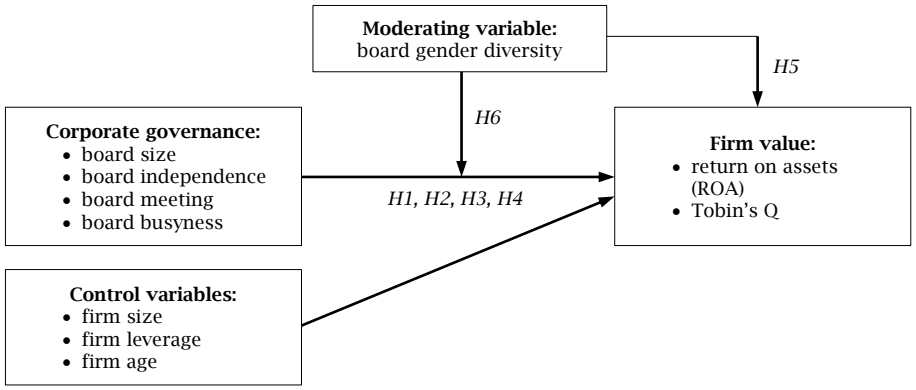
H6c: The relationship between board meetings and financial performance is moderated by board gender diversity.

H6d: The relationship between board busyness and financial performance is moderated by board gender diversity.

2.7. Conceptual framework

The conceptual framework's objective is to elucidate the criticality and association between the explanatory and explained variables. The present study proposes a conceptual framework in Figure 1 below:

Figure 1. Conceptual framework



3. RESEARCH METHODOLOGY

3.1. Population and sample size

The "S&P BSE SENSEX 50", which is a transparent and rules-based index of India's oldest stock exchange (BSE), has been identified as the population for this study. The "S&P BSE SENSEX 50 is devised to compute the performance of the top 50 largest and liquid stocks in the S&P BSE LargeMidCap through the float-adjusted market capitalization method". Following the existing literature, 11 financial/ banking companies have been left out of the sample (see, for instance, Farhan et al., 2017; Goel, 2018). The different business practices and regulations of the financial companies necessitate their exclusion from the sample to ensure unbiased inferences. Thus, 39 companies representing 27 different industry groups were left in the final sample.

3.2. Data collection and exploration period

The secondary data has been gathered from multiple sources for 6 years (2014–2015 to 2019–2020). The financial year 2014–2015 has been chosen as the base year because the new companies act which mandated to appoint of at least one women director on the board came into force in the mid of the financial year 2013–2014. The data for corporate governance and financial performance has been extracted from the prowess database which is managed and controlled by the Centre for Monitoring Indian Economy (CMIE). CMIE is an independent private organization that maintains a database on the Indian economy and companies registered in India. Some values which were found to be missing or not available in the prowess database, have been collected by analysing the annual report of the respective company.

3.3. Variables under the study: Explanatory and explained

Corporate governance is used as the explanatory variable whereas a firm performance is used as the explained variable. Although the Ministry of Corporate Affairs and SEBI mutually define the rules, laws, policies, and governance practices for the Indian companies, majorly it is the board of directors that is responsible to ensure good governance practices in the organization for smooth and transparent functioning. Thus, characteristics of the corporate board like *board size* (*BS*), *board independence* (*BI*), *board meetings* (*BM*), *board busyness* (*BB*), and *board gender diversity* (*BGD*) represent an independent variable, that is, corporate governance. Further, examining the board gender diversity's moderating effect on the relationship between CG and a firm performance is one of the objectives of this study, and hence board gender diversity has also been taken as the moderation variable.

The performance of a company can be evaluated by accounting as well as market-based measures. Researchers have previously used net return on equity, profit margin, return on total assets, and other accounting ratios to measure firm performance in corporate governance research. However, distortion exists in the accounting

measures of performance since they fall through in considering variability in accounting conventions related to research and development (R&D) and tax laws, temporary disequilibrium effects, systematic risk, advertising, and inventory valuation. At the same time, accounting-based measures create estimation bias toward industry effects since they are likely to differ more from one industry to another industry as compared one firm to another (Wernerfelt & Montgomery, 1988). Thus, a market-based measure of companies' performance has always been given preference by most researchers and considered a true indicator of a firm performance. Q ratio (Tobin's Q) is the most widely adopted parameter of market performance. The assessment of Tobin's Q is done by dividing the total market value of the firm by total assets. In order to address the issues associated with both the parameters of firm performance, the present study clubs accounting-based (ROA) (Arosa et al., 2013) and market-based (Tobin's Q) performance measures (Farhan et al., 2017).

3.4. Control variables

It is evident that each firm is somehow different from the other based on the operations, production level, experience in the market, etc. Due to the heterogeneity among firms, putting all the firms in one basket would not be a fair decision. Available literature suggests that the effect of corporate governance on a firm performance is dependent on multiple characteristics like firm size (Meah & Chaudhory, 2019), firm age (Field et al., 2013), assets turnover (Mohan & Chandramohan, 2018), firm leverage (Arosa et al., 2013), sales growth (Gulzar et al., 2020), industry type (Das & Dey, 2016), etc. Based on the existing literature and the relevance to firm performance, the authors have controlled for some firm-specific variables that are, *firm size*, *firm age*, and *firm leverage*, to reduce the chance of results being explained by unmeasured variables. The list of all the variables under study is given in Table 1 below.

Table 1. Variables and proxy measures under study

Variables	*Definition and measurement*	*Acronym*	*Reference*
Panel A: Explained variables (dependent variables)			
Return on assets	Percentage of net income over the average total assets	*ROA*	Akbar (2015), Gulzar et al. (2020)
Q ratio	The ratio between the firm market value and total assets	*Tobin's Q*	Gulzar et al. (2020)
Panel B: Explanatory (independent variables) and moderating variables			
Board size	The total number of directors serving the company's board during the financial year.	*BS*	Akbar (2015), Datta (2018)
Board independence	(Number of independent directors in the board/ board size) * 100	*BI*	Datta (2018), Goel (2018)
Board meeting	The total number of meetings held during the financial year	*BM*	Vishwakarma and Kumar (2015), Datta (2018)
Board busyness	(Number of busy directors[1]/board size) * 100	*BB*	Sarkar et al. (2012)
Board gender diversity (Moderating variable)	(Number of female directors in the board/board size) * 100	*BGD*	Vo and Bui (2017), Vishwakarma and Kumar (2015), Goel (2018)
Panel C: Control variables (firm-specific variables)			
Firm size	Natural log of total assets during the financial year	*Fsize*	Meah and Chaudhory (2019)
Firm age	The number of years since the firm was incorporated/ registered	*Fage*	Field et al. (2013)
Firm leverage	The ratio of long term debt with the total assets	*Flev*	Arosa et al. (2013)

Note: [1] A director who is the member of other companies' board also, is considered to be a busy director.

3.5. Econometric model

Based on the extant literature, the authors employed a panel data approach for the analysis. In panel data, the characteristics of both cross-section and time-series data are found and researchers often use two types of models, namely, fixed effect model and random effect model to estimate a panel dataset. The time-invariant heterogeneity across the cross-sections is properly accounted for by the fixed-effect model thus it is considered to be the superior model over the random effect model (Hausman & Taylor, 1981). However, the fixed-effect model is ideal when the emphasis is on a certain set of entities and the random effect model is considered to be more suitable if the inferences are based on the entities randomly drawn from a large sample. We select an appropriate model between fixed effect and random effect using the Hausman specification test and propose the following hypothesis:

H0: Random effect model is more appropriate over the fixed effect model.

Ha: Fixed effect model is more appropriate over the random effect model.

Two regression equations have been formed to estimate the panel data. The first equation is formed to test the direct effect of CG variables (*CGV*) on the firm performance (*FP*) along with the control variables (*CV*), while the second equation estimates the influence of CG variables on the firms' performance in the presence of *BGD* as the moderating variable. To check the moderating role of *BGD*, five interaction variables (*ITV*) have been calculated (by multiplying board gender diversity with the other independent variables) and included in the second equation:

$$FP_{it} = \alpha_i + \beta_1 CGV_{it} + \beta_2 CV_{it} + \varepsilon_{it} \quad (1)$$

$$FP_{it} = \alpha_i + \beta_1 CGV_{it} + \beta_2 ITV_{it} + \beta_3 CV_{it} + \varepsilon_{it} \quad (2)$$

where, i denote the different cross-sections, i.e., firms; t denotes the time period, i.e., 2014–2015 to 2019-2020; α, β and ε are the intercepts, slope, and error terms respectively. *FP* denotes the financial performance (dependent variable). *CGV* denotes the corporate governance variables (independent variable). *CV* denotes the control variables and *ITV* denotes the interaction variables (multiplication of moderating variable and other independent variables).

On the basis of proxies chosen for the different variables under study, the above equations have been further expanded as follows:

$$ROA_{it} = \alpha_i + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BM_{it} + \beta_4 BB_{it} + \beta_5 BGD_{it} + \beta_6 Fsize_{it} + \beta_7 Flev_{it} + \beta_8 Fage_{it} + \varepsilon_{it} \quad (3)$$

$$Tobin's\ Q_{it} = \alpha_i + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BM_{it} + \beta_4 BB_{it} + \beta_5 BGD_{it} + \beta_6 Fsize_{it} + \beta_7 Flev_{it} + \beta_8 Fage_{it} + \varepsilon_{it} \quad (4)$$

$$ROA_{it} = \alpha_i + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BM_{it} + \beta_4 BB_{it} + \beta_5 BGD_{it} + \beta_6 (BS * BGD)_{it} + \beta_7 (BI * BGD)_{it} + + \beta_8 (BM * BGD)_{it} + \beta_9 (BB * BGD)_{it} + \beta_{10} Fsize_{it} + \beta_{11} Flev_{it} + \beta_{12} Fage_{it} + \varepsilon_{it} \quad (5)$$

$$Tobin's\ Q_{it} = \alpha_i + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BM_{it} + \beta_4 BB_{it} + \beta_5 BGD_{it} + \beta_6 (BS * BGD)_{it} + \beta_7 (BI * BGD)_{it} + + \beta_8 (BM * BGD)_{it} + \beta_9 (BB * BGD)_{it} + \beta_{10} Fsize_{it} + \beta_{11} Flev_{it} + \beta_{12} Fage_{it} + \varepsilon_{it} \quad (6)$$

4. ANALYSIS AND INTERPRETATION

4.1. Descriptive statistics

Table 2 consists of the descriptive analysis of 234 observations of the variables under study calculated using Stata version 15.0 software. The firm accounting performance is represented by ROA, the lowest, highest and average value of which is -10.22%, 73.79%, and 12.97%, respectively. The market performance is computed by *Tobin's Q*, the lowest, the highest, and the average value of which is 0.21%, 24.96%, and 4.11%, respectively. The smallest board size constituted 6 directors, the highest number of directors in a board was 23, and the sample had an average of 13 directors. The lowest proportion of independent directors on the board was 12.50%, a firm with the highest independence had 83.33% of board size as independent directors, and the average board independence was 53.01%. When it comes to the board meetings, a board on average has 7 meetings in a year, with a minimum of 4 meetings and a maximum of 22 meetings. As for board busyness, the maximum board busyness is 100% and the average is 74.00%, representing that most of the directors often engage in multiple directorships. In terms of *BGD*, an average value of 12.67% explains that the women's participation on the board of many companies is very less and they are just complying with the legal requirement. However, a maximum of 36.36% gender diversity is found in some companies, whereas some companies do not comply with the legal requirement at all. The descriptive analysis of the control variables shows that the youngest company in the sample has experience of 8 years, whereas the oldest company has been working for 137 years in the market. Further, there are firms that do not have the leverage and there are also the ones with a high debt-equity ratio of 2.49, while the average is 0.33. The average firm size is 5.55 with a minimum-maximum range of 4.35 to 6.99 (logged value of total assets).

Table 2. Descriptive statistics

Variables	*Observation*	*Mean*	*Standard deviation*	*Minimum*	*Maximum*
ROA	234	12.97	11.84	-10.22	73.79
Tobin's Q	234	4.11	4.23	0.21	24.96
BS	234	13.06	3.28	6	23
BI	234	53.01	12.40	12.50	83.33
BM	234	7.14	3.00	4	22
BB	234	74.00	20.21	11.76	100
BGD	234	12.67	7.65	0	36.36
Fsize	234	5.55	0.55	4.35	6.99
Flev	234	0.33	0.52	0	2.49
Fage	234	50.06	29.66	8	137

Source: Authors' computation using Stata version 15.0.

4.2. Correlation and test of multicollinearity

Table 3 provides information on the pairwise correlations, variable inflation factor (VIF), and tolerance value (TV) among the predictors. A high degree of positive correlation is a sign of multicollinearity among predictors. The correlation matrix does not show a high degree of correlation among the predictors in the present study. The authors further calculated VIF and TV for all the variables in the model to ensure that the data does not have the multicollinearity issue. The existing general rule of thumb regarding multicollinearity stresses that the VIF value should not be more than five (Gujarati & Porter, 2009). VIF for all the predictors incorporated in the present study was found to be much lesser than the mentioned thumb rule. Lastly, all the tolerance values are more than 0.20, which validates the earlier findings that the data does not suffer from the issue of multicollinearity.

Table 3. Correlation and VIF

Variables	*BS*	*BI*	*BM*	*BB*	*BGD*	*Fsize*	*Flev*	*Fage*
BS	1.00							
BI	-0.42*	1.00						
BM	0.40*	-0.42*	1.00					
BB	-0.16**	0.17*	-0.33*	1.00				
BGD	-0.26*	0.25*	-0.23*	0.11***	1.00			
Fsize	0.38*	-0.29*	0.36*	-0.06	-0.16**	1.00		
Flev	0.11	-0.29*	0.33*	-0.05	0.01	0.51*	1.00	
Fage	0.07	-0.01	-0.02	-0.07	-0.24*	-0.15**	-0.16**	1.00
VIF	1.50	1.42	1.57	1.14	1.20	1.67	1.53	1.12
TV	0.66	0.70	0.64	0.88	0.83	0.59	0.65	0.89

*Source: Authors' computation using Stata version 15.0; * p < 0.01, ** p < 0.05, *** p < 0.10.*

4.3. Regression results

Table 4 presents panel data regression estimates on the firm performance (*ROA* and *Tobin's Q*) using Stata software version 15.0. For each dependent variable, the authors ran two separate models (Model 1 and Model 2), one without any interaction term while all the interaction terms are included in the other model. Of the two models, the fixed effect model has been selected over the random effect based on its appropriateness using the Hausman test. The robust technique has been used in the final regression model to avoid the problem of autocorrelation and heteroscedasticity. The authors rely on the final Model 2 for determining whether respective hypotheses are supported or not. A significant relationship between board size and the performance of the firm was suggested in *H1*. The proposed relationship is disputed by our estimates since insignificant coefficients are found in all the models except Model 1 of *Tobin's Q* showing a positive and significant coefficient ($\beta = 0.231$, $p < 0.01$). *H2*, proposing a significant relationship between board independence and firm value, is also rejected since the p-value is insignificant with both accounting-based and market-based performance. The result regarding *H3* which predicted a significant relationship between the yearly board meetings and the firm performance was found to be strongly negative in both the models of accounting-based performance (*ROA*). Relying upon the Model 2 for final discretion ($\beta = -0.794$, $p < 0.01$, *ROA*), *H3* is supported. *H4*, predicting a significant impact of board busyness on the performance measures is also supported as a positive and significant relationship was found between board busyness and *Tobin's Q* ($\beta = 0.035$, $p < 0.01$, Model 1; $\beta = 0.037$, $p < 0.10$, Model 2). *H5*, predicting a significant impact of board gender diversity on a firm performance is strongly supported by dependent variable — *ROA* ($\beta = -0.804$, $p < 0.05$, Model 2). It is found that board gender diversity has a negative and significant impact on accounting performance, thus supporting *H5*.

The hypotheses from *H6a* to *H6d* predicted the board gender diversity significant moderating effect on the relationship between respective board characteristics and the performance of the firm (*ROA* and *Tobin's Q*). Model 2 (full model) shows that *BGD* positively moderates the relationship between board meeting and *ROA* ($\beta = 0.036$, $p < 0.05$, Model 2) and board size and *Tobin's Q* ($\beta = 0.014$, $p < 0.10$, Model 2). The results show that board gender diversity has a positive and significant moderating effect on the number of board meetings and *ROA* relationship and board size and *Tobin's Q* relationship. Thus, *H6a* and *H6c* are supported and the rest are rejected.

The results regarding control variables show that the relationship of firm size is significantly obverse with *ROA* as well as *Tobin's Q*, which means that when the firm size reaches its optimal level the diminishing returns to scale apply, resulting in a decrease in the firm performance. The firm leverage is significantly inverse only with *ROA*, which means that the fixed financial charges against profit increase with higher leverage, leaving a negative impact on the firm accounting performance. Lastly, the age of the firm does not matter in determining the performance and the more important thing is the goodwill of the firm in the market which helps in generating more profit and market recognition.

Table 4. Variables identified

Variables	*ROA*		*Tobin's Q*	
	Model 1	*Model 2*	*Model 1*	*Model 2*
BS	-0.024(0.164)	-0.414 (0.274)	0.231 (0.079)*	0.036 (0.134)
BI	0.030 (0.037)	0.040 (0.060)	0.028 (0.018)	0.033 (0.029)
BM	-0.494 (0.159)*	-0.794 (0.233)*	-0.106 (0.077)	-0.149 (0.113)
BB	0.007 (0.021)	-0.055 (0.039)	0.035 (0.010)*	0.037 (0.019)***
BGD	0.010 (0.059)	-0.804 (0.441)**	-0.041 (0.028)	-0.269 (0.215)
*BS * BGD*	-	0.024 (0.165)	-	0.014 (0.008)***
*BI * BGD*	-	0.096 (0.349)	-	0.048 (0.170)
*BM * BGD*	-	0.033 (0.017)**	-	0.007 (0.008)
*BB * BGD*	-	0.342 (0.230)	-	-0.041 (0.112)
Fsize	-8.187 (3.551)**	-7.854 (3.535)**	-7.315 (1.726)*	-7.006 (1.725)*
Flev	-8.250 (2.074)*	-8.727 (2.097)*	0.790 (1.008)*	0.519 (1.023)
Fage	0.270 (0.217)	0.254 (0.217)	0.299 (0.105)	0.290 (0.105)*
Constant	49.621 (14.346)*	59.309 (15.352)*	23.53 (6.972)*	24.797 (7.492)*
F-statistic	4.93	3.93	4.95	3.78
Model fit	0.000	0.000	0.000	0.000
R-square	0.110	0.126	0.196	0.202
N	234	234	234	234
Hausman statistics	0.000 Fixed model	0.000 Fixed model	0.018 Fixed model	0.000 Fixed model

*Source: Authors' computation using Stata version 15.0. Values in parenthesis are the standard errors * p < 0.01, ** p < 0.05, *** p < 0.10; two-tailed tests.*

5. DISCUSSION

Corroborating with the previous research, the results showed that board busyness is positively and substantially related to a firm value (Field et al., 2013; Ferris et al., 2003). The multiple engagements of the board director aid in effective decision making because of their diverse market experience, thus resulting in greater stakeholders' and investors' confidence that further explains higher Tobin's Q. In conformity with the findings of Hanh et al. (2018), Malik and Makhdoom (2016), Vo and Bui (2017), and Gulzar et al. (2020), board meetings and board gender diversity were found to have a negative and significant relationship with ROA. The negative relation of board meetings with ROA suggests that the frequency of meetings is less important than the quality of discussion in the meeting about corporate issues. More meetings will increase the financial burden on the firm, thus accounting

performance will be affected adversely. As the past research also suggests, more meetings are not fruitful unless the important issues are discussed seriously and productive decisions are taken (Ahmed Haji, 2014).

Consistent with the findings of Adam and Ferreira (2009) and Vo and Bui (2017), the board gender diversity was found to have a negatively significant effect on ROA. This could be attributed to the fact that the women proportion in Indian corporate boards is very low, the majority of the corporate boards are male-dominated and the female members are just appointed to comply with the law. During the data collection, the authors found that only one company has appointed 5 female directors whereas four companies have up to 4 female directors, rest of the companies have 3 or fewer female directors. Also, not a single company in the sample is led (CEO/MD or chairperson) by a woman director. A woman's behaviour and opinion in a male-dominated board are influenced by the opinion of the majority. According to Torchia, Calabrò, and Huse (2011), at least 3 women are required to influence the board decisions because when there is only one woman on the board; she often conforms to the idea of the majority of the group.

However, the results are quite different from previous research (Chin et al., 2019) when board gender diversity is used as the moderator between the variables. Despite having a negative impact on ROA, board gender diversity positively moderates the relationship between the number of board meetings and ROA as well as board size and Tobin's Q. It shows that a lower proportion of female members has an indirect positive impact on both book and market performance. The results suggest that the appointment of women director (independent or non-independent) enhance the relationship between board size and market performance which is an outcome of more unbiased decision making. Moreover, as the female ratio improves on the board, the effectiveness of board meetings increases which ultimately leads to improved accounting performance. Table 5 below shows the summary of hypotheses testing.

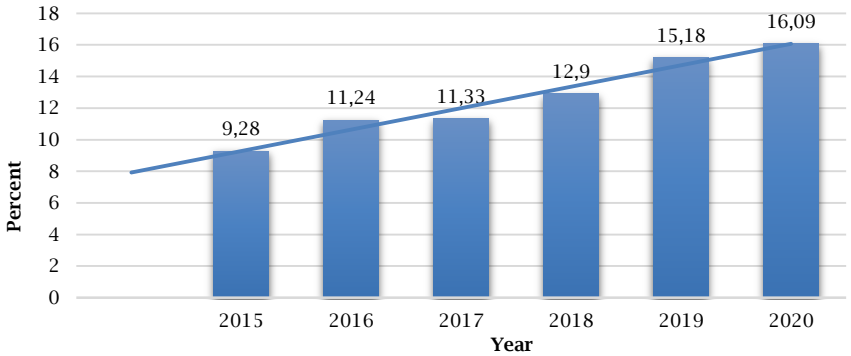
Table 5. Summary of hypotheses testing

Hypotheses	*ROA*	*Tobin's Q*	*Decision*
Direct impact			
H1: BS → FV	Insignificant	Insignificant	Not supported
H2: BI → FV	Insignificant	Insignificant	Not supported
H3: BM → FV	Negatively significant	Insignificant	Supported
H4: BB → FV	Insignificant	Positively significant	Supported
H5: BGD → FV	Negatively significant	Insignificant	Supported
Moderating impact			
*H6a: BS * BGD → FV*	Insignificant	Positively significant	Supported
*H6b: BI * BGD → FV*	Insignificant	Insignificant	Not supported
*H6c: BM * BGD → FV*	Positively significant	Insignificant	Supported
*H6d: BB * BGD → FV*	Insignificant	Insignificant	Not supported

Modern society has changed its view toward women; and because of their diverse strength, they are not limited to the house now. Their contributions and achievements in all walks of life can no longer be ignored. The new company law has mandated the appointment of at least one female director on the corporate board. However, at the stage of data collection, it has been observed that there are still companies that fail to appoint at least one female director every year and many companies have appointed a single non-independent/independent woman director just to comply with the minimum requirement. Also, their proportion to the total strength of the board is very less so they hardly have any impact on the performance (Bonn, Yoshikawa, & Phan, 2004). Moreover, among the total companies in the present sample, all the corporate boards are headed by a male director only, and not even a single company has a female at the designation of CEO, MD, or chairperson.

The maximum percentage of female directors on the board varies from 25 to 36.36%, which represents that despite the vulnerable position of female directors on the board, most companies have started giving importance to the board gender diversity and are appointing female directors beyond the mandatory requirement.

Figure 2. Average percentage of female board members in the Indian companies



Source: Authors' computation.

As evident in Figure 2, the average woman percentage on the board has steadily increased in the past years. The average representation of female directors in 2015 was 9.28%, which has increased to 16.09% in 2020. Moreover, while analysing annual reports, the authors found that among all the companies in the sample, Godrej Consumer Products Ltd. is the only company that has five female directors on the board. Cipla, Infosys, Power Grid Corporation, Titan, and Ultratech Cement are also giving opportunities to women, having appointed up to four female directors.

6. CONCLUSION

Enforcement of robust and well-founded corporate governance by the organizations gives value addition to the shareholder's wealth, employees' performance, public, and countries, thus contributing more to the society and nation's economy. Sound corporate governance enables a company to utilise its capital resources with greater efficiency, build and retain the investors' reliance, and improve overall performance along with the firm value. The present study validates the relationship between board characteristics (board size, board independence, board meetings, board gender diversity, and board busyness) and the firm's accounting and market performance (ROA and Tobin's Q ratio). Apart from assessing direct impact, the board gender diversity was further introduced as the moderating variable in the study to assess its role in moderating the relationship between other CG parameters and firm value.

When we check the direct impact of board characteristics along with the board gender diversity on the firm value the results suggested that the engagement of the board of directors in other companies brings diverse market experience and resources to the firm, so directors' busyness may be seen as a positive aspect for the firm. Further, it was also found that board gender diversity and board meetings have a significant and obverse impact on a firm performance. Increased board meeting frequency has detrimental results, so the top-level management of companies must avoid unnecessary board meetings and ensure that all the important issues have been properly discussed in the meetings conducted. The actual outcome of the board meetings has more weightage than the number of meetings conducted. The present study also observes that women's participation in the corporate board has continuously increased over the past six years and board gender diversity moderates the relationship between board characteristics (board size and the number of meetings) and firm performance. An apt ratio of female members on the corporate board enhances the relationship between overall board size and Tobin's Q as well as the number of board meetings and ROA. With the inclusion of female members in the total board size just and equitable decisions are made due to which the wealth of a firm is maximized and it gains a favourable market position. The inputs given by the female directors in the board meetings nullify the financial cost of board meetings and the outcome of the diverse decision taken in the meeting reflects in the accounting performance.

This study has the great implication and the findings of this study add to the existing literature and will also help the policymakers to comprehend, firstly, the gravity of board gender diversity and fix the appropriate male-female ratio in the corporate board, which is still poor when compared to other developed or developing nations and secondly, the obligation to shatter the glass ceiling to improve the vulnerable position of the female in the board. Based on the findings, it is recommended to appoint 30–40% female members on the board as the director (either executive or non-executive) like the other developed countries. In the short run, it may have a slight negative impact on the firm value but it is a positive moderator between board characteristics and firm value that will surely have a positive impact in the long run.

Every study has some inherent limitations and so does the present study. The study is limited to a time frame of 6 years and a sample of 39 companies from BSE India and cannot be generalised in the context of other countries. Also, the study did not consider the financial sector, so the study may be extended further in terms of the time period, sample firms, and sectors. Although most of the important CG measures have been considered in the study yet other variables remain undiscussed. The study can be further extended by introducing other explanatory variables like ownership concentration, audit committee characteristics, related party transaction corporate social responsibility (CSR) measures, etc., in the model. Other accounting-based measures (such as return on equity, return on sale, and return on capital employed) and market-based measures (such as market value added, and P/B ratio) may be introduced further to get more significant results. The study aimed to discuss the moderating role of board gender diversity, however, other measures like firm value and ownership concentration may also be considered as the moderating variables. Further, based on their relevance, the authors have specifically controlled three variables firm size, firm age, and firm leverage, future researchers can also include other variables in the control group. Lastly, the authors have used the panel data approach and applied the fixed-effect model for the analysis; further research using other methodology can be carried out to get more robust results.

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