







“Women on corporate boards in emerging economies: Relevance with firm performance in India”

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WOMEN ON CORPORATE BOARDS IN EMERGING ECONOMIES: RELEVANCE WITH FIRM PERFORMANCE IN INDIA

Abstract

Gender diversity fosters robust and effective corporate governance mechanisms by introducing diverse perspectives and signaling progressive organizational values. Recognizing the growing significance of inclusive leadership structures, this study examines the characteristics of corporate boards of companies listed on the Bombay Stock Exchange (BSE) and analyzes the impact of women on corporate boards on their financial performance. Drawing on panel data from 379 non-financial firms indexed in 500 BSE-listed companies between 2010 and 2020 the paper employs instrumental variable (IV) regression analysis to explore the relationship between gender diversity and key performance indicators, namely return on equity (ROE), return on sales (ROS), and return on assets (ROA). The empirical evidence indicates a continued predominance of men on Indian corporate boards; however, greater gender representation is associated with significant improvements in firm performance. Gender-diverse boards enhance organizational efficiency and profitability, underscoring the economic value of inclusion. These results suggest that strengthening board diversity constitutes a strategic mechanism for improving financial outcomes. The study supports the theoretical framework of resource dependency and agency theory, which asserts that gender balance improves business success. The study's emphasis on Indian firms within a specific timeframe limits the generalizability of its findings across other emerging economies. The results underscore the strategic significance of gender diversity, offering valuable evidence for policymakers, regulators, and corporate leaders to promote greater female board participation. The research contributes to the limited literature on board diversity in emerging economies, emphasizing its economic and organizational value.

Keywords

gender diversity, corporate boards, firm performance, Indian firms, corporate governance theories, emerging economies

JEL Classification

G34, L25, O16, G30, M14

INTRODUCTION

National public policies aiming to raise the overall number of women on boards have remained consistent for over a decade. Ethical and social justifications exist for incorporating more women on the board of directors (Briano-Turrent, 2021; Xie et al., 2020). Women are an indispensable part of society, making unquestionable contributions to all spheres, including the economy, social welfare, and culture. Over the years, women have come a long way to find places in their workspaces with equal opportunities and participation (Capel et al., 2021; McCandless et al., 2022). Numerous nations have implemented gender threshold requirements that mandate the nomination of female directors (Schoonjans et al., 2024; Wu et al., 2022; Lunawat et al., 2021; Reddy & Jadhav, 2019). Indian corporations are represented by males, which are historically aligned with the patriarchal culture of Indian society (Chatterjee & Nag, 2022). Despite having a male-dominated scenario at work for years,

organizations are now realizing the importance of diversity in their structure. Thus, they frame and implement various measures to incorporate women's participation in the board and other spheres of the organization (Maseda et al., 2022; Perryman et al., 2016). Growing concerns about gender imbalances have prompted new laws in many nations demanding that businesses have more women on their boards (Halliday et al., 2021; Martinez & Rambaud, 2019). The role of the board of directors in monitoring an organization's operations is a vital control mechanism for maintaining a firm's corporate governance. Therefore, an increased female presence on boards opens up more sources of talented individuals, which benefits businesses' financial success (Horak & Cui, 2017; Dezsö & Ross, 2012).

Concerns for enhancing the financial system have been growing over the last two decades, particularly after the 2008 global financial crisis. Similarly, board diversity has been one of the most essential executive-level measures for improving company management (Brahma et al., 2021). However, in Russell 3000 companies, boards substantially grew from 16% in 2017 to 30.1% in Q2 2025 (50/50 Women on Boards, 2025) whereas the average percentage of female board members in U.S. technological businesses has increased from 20.6% in 2020 to 33% in 2025 (Milhomem & Porter, 2025). Understanding the impact of female directors on business performance is crucial for improving legislation and regulation. Despite being a major growing economy, India lags in women's board representation. According to *The Wire* (July 15, 2024), the Companies Act of 2013's requirement for one female director reduced the number of boards without women from 53% to 10% within a year. Deloitte's 2022 report shows that Indian companies have 17.1% women on boards, below the global average of 19.7% and France's 43.2%. ILOSTAT 2024 reports that women's representation remains at 17% compared to 32.8% in advanced economies. Mixed-gender boards are vital in bringing diverse thinking, better governance, improved human development policies, innovation, risk mitigation, and reduced groupthink, enhancing consumer loyalty and investor confidence.

Having a diverse board in terms of gender promotes organizational inclusivity. Board women are essential in managing business and protecting shareholder interests (Briano-Turrent, 2021; De Masi et al., 2021). They determine company strategies, monitor senior management appointments and compensation, and facilitate information flow between the company and the external environment (Campbell & Mínguez-Vera, 2008). Resource dependency and agency theories show how diverse boards enhance organizational success (Fatma & Chouaibi, 2023). Resource dependency theory focuses on directors' capabilities, whereas agency theory emphasizes board autonomy for improved governance (Pandey et al., 2023). Some studies indicate a favorable correlation between metrics that measure the effectiveness of the board of directors and the presence of women on the company's board of directors (Khuong et al., 2022; Amin et al., 2021; Noguera, 2020; Reguera-Alvarado et al., 2017; Chen et al., 2021). However, other studies have concluded that gender diversity affects corporate performance (Wang et al., 2024; Darmadi, 2013; Rose, 2007; Miller & Triana, 2009). Most research on board gender diversity and corporate success centers in industrialized nations (Carter et al., 2010; Conyon & He, 2017). Research gaps exist regarding gender diversity and business success in emerging nations (Li & Chen, 2018). Hence, this study poses significant research questions: firstly, what is the impact of female directors on a firm's financial performance using return on equity (ROE), return on sales (ROS), and return on assets (ROA)? Secondly, how does the percentage of female directors affect financial performance? Lastly, what is the impact of board gender diversity (measured by the Blau Index) on firms' financial performance? Therefore, this study examines the relationship between company performance and gender diversity in developing countries by determining how female board members affect performance. Also, the relationship between board gender diversity and financial performance is evaluated using ROE, ROS, and ROA. It examines the impact of women's presence and percentage on boards and determines the effect of the Blau Index on firm performance.

1. LITERATURE REVIEW AND HYPOTHESES

The literature review for this study was divided into two parts: the theoretical framework and empirical literature. The first part explains *agency theory*, which describes the link between owners and managers of an organization where decision-making authority is delegated to managers expected to act in the owners' best interests (Jensen & Meckling, 1976). However, owing to human nature, managers may prioritize their interests, causing conflicts with owners. The premise that greater diversity in leadership roles might improve performance is supported by agency theory, which advocates that one of the most crucial business governance practices is gender diversity (Mansour et al., 2024; Amin et al., 2022; Gallego-Álvarez et al., 2010). This theory constitutes the main concept that clarifies how having diverse genders on boards enhances business success; therefore, women can significantly contribute to the board's management role in strategic matters (Martinez-Jimenez et al., 2020; Lucas-Pérez et al., 2015). Second, *resource dependency theory* articulates how external resources influence the behavior of an organization, in which firms adapt to and negotiate with their environment to secure necessary resources (Pfeffer & Salancik, 2015). Corporate governance should focus on forming relationships with beneficial resource providers and structuring board memberships to support such objectives. This theory analyzes the functions and outcomes of directors, who change the priority from the connection between management and ownership to the business and its surroundings (Goyal & Gulati, 2025). To maintain positive relationships with female consumers, some organizations designate female directors on their boards (Amin et al., 2022; Liu et al., 2014). Further, having more women in the boardroom enhances a company's credibility by demonstrating that it promotes equality (Isidro & Sobral, 2015). The literature has identified two distinct groups of diversity. The population demographic category is the first and is based on easy attributes, including gender, ethnicity, and level of education (Ghosh et al., 2023). The second category includes intangible qualities, such as expertise, talent, and unique abilities (Li & He, 2021).

The emphasis on gender diversity on boards is primarily defended by gender inequalities that frequently arise in the setting of businesses in almost

every geographic location, as well as by legislation and culture at large, which compel businesses to adopt more ethical and socially conscious practices by including women in leadership roles (Reguera-Alvarado et al., 2017). Women play a crucial role in overseeing a company because they are believed to be more committed to attending conferences, and their presence increases the probability that males will enhance their participation (Simionescu et al., 2021; Adams & Ferreira, 2009). Men focus on earnings, recognition, advancement, and duties as part of society's culture. In contrast, women are more concerned with appropriate living arrangements, cooperation with superiors, labor security, and teamwork, which leads to sound business administration (Gibert & Fedorets, 2025). The beneficial effects of gender balance among the board of directors on corporate governance have prompted scholars to explore the connection between the degree of heterogeneity on boards and the economic achievements of businesses (Carter et al., 2010). The literature has widely accepted the association between firm performance and excellent gender balance on boards, confirming that diverse gender impacts a company's strategic approach, creating better decisions by generating more creative solutions through intellectual disputes (Vafaei et al., 2020; Miller & Triana, 2009). Additionally, having a diverse board can help people understand the market better, especially when the industry is more diversified (Tang et al., 2021; Arora & Sharma, 2016). Boards with various women and men indicate that an organization is in a good position to comprehend the demands of market segments (Miller & Triana, 2009). The company's financial health was enhanced by having more female directors, especially in several Asian companies, including Hong Kong, South Korea, Singapore, and Malaysia (Low et al., 2015). Using a sample from Indonesian companies, Anita et al. (2024) revealed that having more female directors is associated with better firm value, enhancing shareholders' worth. Many organizations include women on their boards of directors to maintain positive relationships with their women's clients (Liu et al., 2014). Numerous prior studies indicate that a company's financial performance significantly improves when more women are in boardrooms, indicating a favorable connection between board gender diversity and business success. However, an additional study layer indicates an adverse association between the propor-

tion of women on boards and firm performance (Adams & Ferreira, 2009; Carter et al., 2010). Some studies found that gender equality on the board decreased corporate performance, while examining the correlation between financial success and the percentage of women on boards of directors in several U.S. corporations (Shrader et al., 1997; De Andres et al., 2005; Pelled et al., 1999). Despite the improved effectiveness of the board of directors in U.S. corporations, the presence of female members on the board of directors has a negative impact on the company's worth (Adams & Ferreira, 2009). The women on the board in the European location revealed a positive impact on corporate sustainability performance (Rahi, 2024); however, after a certain threshold of women's participation on the board, the market value of companies tends to be harmed whereas, Rose (2007) found no significant association between female directors on boards and firm performance, as determined by Tobin's Q measure. Inconsistent and opposed evidence relates to board gender balance and firm success. Variations throughout periods, organizational contexts, limited and non-standardized performance indicators, and exclusion of potential endogeneity between gender diversity in boards and firm performance are a few reasons for the conflicts in earlier literature (Borges et al., 2025; Sabatier, 2015). However, according to recent studies, laws regarding gender quotas alone are insufficient to increase the number of female directors on the board. This information implies that legitimacy within society, rather than rational justifications, may be the primary cause of its international spread.

Furthermore, studies in developing economies indicate that firm performance during the pandemic (post-2020) is influenced by factors specific to each industry (Singh et al., 2022; Patil et al., 2021). Analysis of firm performance in selected industries during the COVID-19 pandemic revealed that tourism, hospitality, and customer service were the most severely hit, while the construction and food industries faced relatively minor effects (Alsamhi et al., 2022). Additionally, the healthcare and pharmaceutical sectors experienced notable cumulative abnormal returns during this time (Mittal & Sharma, 2021). A similar investigation by Golubeva (2021), covering 13 countries, found that companies adjusted their business operations to address the challeng-

es posed by the pandemic. During the economic turmoil caused by COVID-19, most sectors generally showed negative performance (Pant et al., 2023; Defung et al., 2023; Alsamhi et al., 2022). Interestingly, the impact of gender diversity is more pronounced at higher quantiles of the conditional distribution of firm performance (Maji & Saha, 2021; Laskar et al., 2023; Boshnak et al., 2023). Consequently, this study omits abnormal economic events, such as COVID-19 and the 2008 Global Recession, which affected the overall market. During the pandemic, firm performance was primarily based on essential and non-essential goods and services announced by the government, rather than corporate governance and gender diversity. Drawing from the cited literature, it is presumed that the pandemic significantly affected firm performance nationwide. Thus, including post-2020 data may not be crucial in deriving meaningful insights into the impact of gender diversity on boards and firm performance. Hence, this study considers post-2020 data outliers and focuses on studies under normal market conditions.

Based on the above inclusion and exclusion criteria and the paradox in gender diversity and firm performance under normal market conditions, this study examines the characteristics of corporate boards of companies listed on the BSE. It analyzes the impact of women on corporate boards on firm performance in emerging markets, such as India. Furthermore, this study also investigates the potential correlation between gender diversity on the board of directors and financial outcomes based on the theoretical assumptions discussed above.

The paper proposes the following research hypotheses to serve this purpose.

H_{1a} : *Females on the board of directors significantly and favorably affect a company's performance.*

H_{1b} : *The percentage of current female directors significantly and favorably affects a firm's performance.*

H_{1c} : *Board gender diversity, measured using the Blau Index, has favorably affects firm performance*

2. METHODS

This study is based on panel data from 379 non-financial firms listed on the BSE. The dataset was obtained from the Prowess CMIE database and covers 11 years from 2010 to 2020. Of the 500 BSE-listed firms, 121 were excluded due to the unavailability of required data, resulting in a final sample of 379 firms. Regression analysis of instrumental factors examined the relationship between gender balance and corporate success. After considering the Variance Inflation Factor (VIF) values, three models were constructed with the dependent variables: Return on Assets (ROA), Return on Equity (ROE), and Return on Sales (ROS). The Blau Index measures the diversity among genders, asset size, leverage, percentage of women on the board, whether or not a woman is on the board (if a woman), and the number of independent directors as independent variables. The models are listed below.

Model 1a

$$\begin{aligned} \text{FIRM_PERFORMANCE ROA} = & \beta_0 \\ & + \beta_1 \cdot \text{AWOMAN} + \beta_2 \cdot \text{LNBSIZE} \\ & + \beta_3 \cdot \text{PINDB} + \beta_4 \cdot \text{SIZE} + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (1)$$

Model 1b

$$\begin{aligned} \text{FIRM_PERFORMANCE ROA} = & \beta_0 \\ & + \beta_1 \cdot \text{PWOMAN} + \beta_2 \cdot \text{LNBSIZE} \\ & + \beta_3 \cdot \text{PINDB} + \beta_4 \cdot \text{SIZE} + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (2)$$

Model 1c

$$\begin{aligned} \text{FIRM_PERFORMANCE ROA} = & \beta_0 \\ & + \beta_1 \cdot \text{BLGNDR} + \beta_2 \cdot \text{LNBSIZE} \\ & + \beta_3 \cdot \text{PINDB} + \beta_4 \cdot \text{SIZE} + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (3)$$

Model 2a

$$\begin{aligned} \text{ROE} = & \beta_0 + \beta_1 \cdot \text{AWOMAN} \\ & + \beta_2 \cdot \text{LNBSIZE} + \beta_3 \cdot \text{PINDB} + \beta_4 \cdot \text{SIZE} \\ & + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (4)$$

Model 2b:

$$\begin{aligned} \text{ROE} = & \beta_0 + \beta_1 \cdot \text{PWOMAN} \\ & + \beta_2 \cdot \text{LNBSIZE} + \beta_3 \cdot \text{PINDB} + \beta_4 \cdot \text{SIZE} \\ & + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (5)$$

Model 2c:

$$\begin{aligned} \text{ROE} = & \beta_0 + \beta_1 \cdot \text{BLGNDR} + \beta_2 \cdot \text{LNBSIZE} \\ & + \beta_3 \cdot \text{PINDB} + \beta_4 \cdot \text{SIZE} + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (6)$$

Model 3a

$$\begin{aligned} \text{ROS} = & \beta_0 + \beta_1 \cdot \text{AWOMAN} \\ & + \beta_2 \cdot \text{LNBSIZE} + \beta_3 \cdot \text{PINDB} \\ & + \beta_4 \cdot \text{SIZE} + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (7)$$

Model 3b

$$\begin{aligned} \text{ROS} = & \beta_0 + \beta_1 \cdot \text{PWOMAN} \\ & + \beta_2 \cdot \text{LNBSIZE} + \beta_3 \cdot \text{PINDB} \\ & + \beta_4 \cdot \text{SIZE} + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (8)$$

Model 3c

$$\begin{aligned} \text{ROS} = & \beta_0 + \beta_1 \cdot \text{BLGNDR} \\ & + \beta_2 \cdot \text{LNBSIZE} + \beta_3 \cdot \text{PINDB} \\ & + \beta_4 \cdot \text{SIZE} + \beta_5 \cdot \text{LEV} + \epsilon_i. \end{aligned} \quad (9)$$

Table 1. Description of variables

Variable	Nature	Description
ROA	Dependent variable	Net income as a percentage of total assets.
ROE	Dependent variable	Net income as a percentage of total equity.
ROS	Dependent variable	Net income as a percentage of net sales.
AWOMAN	Independent variable	When at least one woman is on the board of directors, a dummy variable returns 1; otherwise, it returns 0.
PWOMAN	Independent variable	The proportion of women on the board of directors
BLGNDR	Independent variable	The Blau index measures the assortment of genders on boards
LNBSIZE	Controlled variable	The logarithm of the overall number of board directors.
PINDB	Controlled variable	Percentage of the board's independent directors.
SIZE	Controlled variable	The total assets' logarithm
LEV	Controlled variable	Total liabilities as a percentage of total assets.

Table 1 presents the variables used in the study. A brief explanation of variables is as follows.

Return on Assets (ROA): This is the net income for the year divided by the average total assets of the

company for the period. It is given by net income/average total assets.

Return on Equity (ROE): ROE evaluates the monetary return on a shareholder's funding. The most widely used internal performance metric for shareholder value is ROE. It is comparatively easier for analysts to access computations because it only uses readily available data to the public. It is calculated as net income/average equity.

Return on Sales (ROS): The financial ratio assesses how a company or firm efficiently generates profits from its revenue. This helps measure a company's operational efficiency. It was calculated as the net income/total sales.

AWOMAN: It measures the presence of female members on a board. It is taken as 1 (one) when at least one woman is on the board of directors and Zero (0) when no woman is present.

PWOMAN: This measures the percentage of the board of directors held by female members of a company.

BLGNDR: This measures the Blau index of the board of directors. It measures the diversity of gender on the board of directors of a company.

LNBSIZE: This measures the logarithm of the overall number of directors on the board.

PINDB: This measures the percentage of positions held by independent directors on the board.

SIZE: It measures the logarithm of the assets held by the company.

LEV: Leverage is an essential mechanism that companies use to satisfy their funding requirements. This variable helps to measure companies' leverage to meet their financial requirements. This is calculated as total liabilities/total assets.

As the study analysis encounters the endogeneity problem, the IV Regression estimator is considered a powerful tool in econometrics to deal with it.

3. RESULTS

The fundamental descriptive statistics are listed in Table 2 for the following variables: asset size, leverage, percentage of females on the board of directors, Blau Index measuring diversity based on gender, whether a woman is on the board (AWOMAN), number of independent directors, Return on Equity (ROE), Return on Sales (ROS), and Return on Assets (ROA).

Table 2 provides an essential summary of the data comprising 4,169 observations for each variable. The statistics included the mean, standard deviation, and the minimum and maximum values. The Jarque-Bera (JB) test was used to assess the normality of distributions. Firm performance metrics include Return on Assets (ROA), Return on Equity (ROE), and Return on Sales (ROS). The mean value of ROA is 0.771, and the standard deviation is 0.0999, suggesting

Table 2. Descriptive statistics of variables

Variables	Mean	Std Dev.	Min	Max	JB test
FIRM_PERFORMANCE ROA	0.077164	0.099	-1.16	0.96	0.00
ROE	7.38344	23.412	-137.78	826.36	0.00
ROS	0.7213217	9.432	-23.31	221.35	0.00
AWOMAN	0.298153	0.457	0	1	0.00
PWOMAN	0.0341102	0.058	0	0.333	0.00
BLGNDR	0.0589326	0.097	0	0.44	0.00
LNBSIZE	10.42288	3.875	1	43	0.00
PINDB	0.470311	0.167	0	1	0.00
SIZE	137996.1	446875.8	18.7	9693320	0.00
LEV	0.1542888	0.157	0	1.26	0.00

Note: Observations (N) = 4,169.

that firms generate a return of 7.7% on their assets. The minimum ROA is -1.16 , and the maximum is 0.96 , indicating negative and very high returns. The mean ROE is 7.38 , with a high standard deviation of 23.41 , which indicates substantial ROE volatility.

The minimum value of -137.78 and the maximum of 826.36 represent abysmal and exceptional performances, respectively. In the case of ROS, the mean was 0.721 and the standard deviation was 9.43 . The minimum and maximum ROS values also show significant variations in sales profitability. The gender diversity variables consisted of AWOMAN, PWOMAN, and BLGNDR. The mean of AWOMAN is 0.298 , which indicates that almost 30% of the firms have women on the board. The standard deviation is 0.458 . The minimum and maximum values were 0 and 1 , respectively. The mean of PWOMAN was 0.034 , with a standard deviation of 0.058 , representing a small proportion of female representation on the board. The minimum and maximum values are 0 and 0.333 , respectively. The mean Blau index represented by BLGNDR was 0.059 , with a standard deviation of 0.098 . The Blau index helps us ascertain gender diversity within a firm, where values closer to 0 indicate low diversity and values closer to 1 indicate the opposite. Our sample's minimum and maximum values regarding BLGNDR were 0 and 0.44 , respectively, showing moderate gender diversity.

The mean of LNBSIZE is 10.42 , indicating a moderately sized firm board. A standard deviation of 3.875 indicates a considerable variation in board size across firms. The mean of the PINDB is 0.470 , indicating that nearly half of the board of directors in the sample are independent. The standard deviation is 0.168 , suggesting some variation in the level of independence across firms. The mean SIZE is 137996.1 , indicating a substantial asset base. A high standard deviation of 446875.8 indicates significant variation in firm size. The mean value of LEV is 0.154 , indicating relatively low debt compared to assets. A standard deviation of 0.157 indicates variability in leverage ratios across firms. The minimum leverage is 0 , indicating that some companies do not use debt to finance their operations, and the maximum is 1.26 , indicating that some companies use more leverage than assets.

The analysis uses three models for each firm performance indicator: ROA, ROE, and ROS. The three tables, Tables 3, 4, and 5, are constructed to show the analysis of ROA, ROE, and ROS, respectively, and the effects of AWOMAN, PWOMAN, and BLGNDR on ROA. As a result, the AWOMAN and IV regression estimator performances were significantly positively correlated ($\beta = 12.54$; $p < 0.05$) (Table 3). Furthermore, in every model, Performance and SIZE were positively correlated in a highly significant manner ($\beta = 1.301$; $p < 0.001$), whereas LEV had a highly significant negative correlation ($\beta = 0.147$; $p < 0.001$). The findings of the Wu-Hausman and Durbin tests showed that the null hypothesis of homogeneity was rejected. Because AWOMAN was considered throughout the investigation, it must be regarded as endogenous. This further demonstrates the inconsistency of the Ordinary Least Squares (OLS) and associated IV regression estimators, such as the 2-Stage Least Squares (2SLS) estimator. Following the recommendations, an over-identifying post-estimation evaluation was identified using the Sargan tests. The findings show that the experiments are not statistically significant, affirming the accuracy of the model provided in each estimator, or that the instruments employed were valid. The results reveal an extremely significant, favorable impact of PWOMAN on ROA at the one percent significance level in the IV regression assessor ($\beta = 2.358$; $p < 0.01$). Additionally, there was a strong correlation between each model's SIZE and its performance ($\beta = 1.215$; $p < 0.01$). The Durbin and Wu-Hausman tests were used to carry out endogeneity tests, and the findings indicated that the null hypothesis, assuming exogeneity, was rejected. Therefore, PWOMAN must be considered endogenous. It also demonstrates the rejection of the consistency of OLS and the accompanying IV regression estimators, such as 2SLS. Sargan tests were used for the overidentification study. As the test findings were not statistically significant, the study concluded that the instruments used were valid or that the model was accurately specified in each estimation. Finally, the IV regression estimator shows a substantial link between BLGNDR and performance (ROA) ($\beta = 139.0$; $p < 0.001$). This study suggests that the proportion of males and females on the board of directors should be even. Furthermore, SIZE significantly enhanced the performance of each model ($\beta = 1.112$; $p < 0.001$).

The effects of AWOMAN, PWOMAN, and BLGNDR on ROE are shown in Table 4. The findings of the Wu-Hausman and Durbin statistical tests demonstrate that the null hypothesis of exogeneity is rejected. As a result, OLS and related IV regression estimators, such as the 2SLS, must be rejected for consistency, and BLGNDR must be regarded as endogenous. Using the Sargan tests, over-identification was assessed after the post-estimation analysis. The test results were not statistically significant. As a result, either the model is appropriately defined in each estimator or the tools utilized are valid. This study also examines how the gender balance on boards affects ROS and ROE. The IV regression analysis was performed using similar methods. AWOMAN, PWOMAN, and BLGNDR were found to be endogenous us-

ing the Durbin and Wu-Hausman test, which also suggested the application of IV regression estimators.

The effects of AWOMAN, PWOMAN, and BLGNDR on the ROS are shown in Table 5. The findings showed that ROE and ROS significantly improved all models' AWOMAN, PWOMAN, and BLGNDR. The results show that each performance metric, such as ROA, ROE, and ROS, is linked to the AWOMAN, PWOMAN, and BLGNDR. Overall, the IV regression analysis findings showed that female directors significantly and favorably impacted company performance. To summarize the results from the regressions presented in Tables 3 to 5, women on corporate boards significantly and positively impact firm performance

Table 3. Analysis of ROA

Variables	Model I		Model II		Model III	
	OLS	IV Reg.	OLS	IV Reg.	OLS	IV Reg.
AWOMAN	-0.390 (-0.511)	12.54**(-2.966)				
PWOMAN			-0.00215 (-0.127)	2.358** (-2.057)		
BLGNDR					-0.715 (-0.351)	139.0*** (-3.089)
LEV	-0.147*** (-10.135)	-0.147*** (-10.125)	-0.148*** (-10.245)		-0.131*** (-5.167)	
SIZE	2.511*** (-4.111)	1.301*** (-4.341)	5.629** (-2.958)	1.215*** (-4.788)	1.491*** (-6.415)	1.112*** (-5.878)
BINDP	-0.0397* (-2.055)	-0.0175 (-0.515)	-0.0415* (-2.032)	0.151 (-1.395)	-0.0425* (-2.915)	0.1119 (-1.51)
LNBSIZE	2.455** (-2.477)		2.753** (-2.515)	2.346 (-0.398)	2.775** (-2.742)	-2.152 (-0.695)
Constant	-21.54*** (-4.542)	-23.78*** (-4.115)	-22.00*** (-4.772)	139.5** (-3.987)	-21.85*** (-4.118)	-78.15*** (-3.725)
Durbin		X ² (1): 5.995**		X ² (1): 118.48**		X ² (1): 131.411***
Wu-Hausman		F(1,815): 6.415**		F(1,815): 139.598***		F(1,815): 139.395***
Sargan		X ² (1): 0.410; p: 0.515		X ² (1): 0.232; p: 0.595		X ² (1): 0.651; p: 0.432

Note: Significant level *** = 0.01 sig. ** = 0.05 sig. * = 0.10 sig.

Table 4. Analysis of ROE

Variables	Model I		Model II		Model III	
	OLS	IV Reg.	OLS	IV Reg.	OLS	IV Reg.
AWOMAN	0.0587 (-1.775)	0.0511* (-2.615)				
PWOMAN			0.148* (-2.098)	3.176** (-3.15)		
BLGNDR					0.00192* (-2.117)	1.335** (-2.872)
LEV	-0.00344*** (-5.512)		-0.00339*** (-5.515)		-0.00345*** (-5.522)	
SIZE	0.0342*** (-3.510)	0.0571* (-2.36)	0.0359*** (-3.698)	0.132** (-2.698)	0.0351*** (-3.615)	0.0839** (-2.765)
BINDP	-0.000529 (-0.489)	0.00189 (-0.877)	-0.000479 (-0.463)	0.0039 (1.398)	-0.000475 (-0.455)	0.00315 (-1.349)
LNBSIZE	0.0491 (-0.949)	-0.19 (-1.588)	0.0677 (-1.210)	0.0508 (-0.477)	0.0566 (-1.115)	-0.0723 (-0.611)
Constant	-0.579** (-2.888)	-1.335** (-2.898)	-0.551** (-3.225)	-0.623** (-2.915)	-3.625** (-3.111)	2.113*** (-3.510)
Durbin		X ² (1): 19.67***		X ² (1): 18.31***		X ² (1): 19.77***
Wu-Hausman		F(1,815): 18.50***		F(1,815): 18.66***		F(1,815): 19.08***
Sargan		X ² (1): 0.0096; p: 0.811		X ² (1): 0.174; p: 0.651		X ² (1): 0.436; p: 0.498

Note: Significant level *** = 0.01 sig. ** = 0.05 sig. * = 0.10 sig.

Table 5. Analysis of ROS

Variables	Model I		Model II		Model III	
	OLS	IV Reg.	OLS	IV Reg.	OLS	IV Reg.
AWOMAN	-0.187 (-0.081)	172.8** (-2.552)				
PWOMAN			0.0309 (-0.355)	10.115** (-2.338)		
BLGNDR					0.0322 (-0.298)	621.7*** (-3.718)
LEV	0.575*** (-4.521)		-0.592*** (-4.399)		-0.555*** (-4.512)	
SIZE	6.665*** (-5.126)	12.12** (-4.554)	8.854*** (-4.115)	18.22** (-4.115)	7.765*** (-4.225)	13.42*** (-4.125)
BINDP	0.0479 (-0.65)	0.6671 (-1.91)	0.0561 (-0.812)	0.715 (-1.895)	0.0415 (-0.815)	0.712* (-2.009)
LNBSIZE	-8.52 (-1.215)	-58.32* (-2.635)	-7.1154 (-1.375)	-9.88 (-0.721)	5.445 (-1.092)	-28.15 (-1.779)
Constant	-88.35*** (-6.112)	-198.2*** (-3.378)	-88.94*** (-5.589)	-428.7** (-3.028)	-87.68*** (-5.911)	-274.2*** (-3.885)
Durbin		X ² (1): 76.21***		X ² (1): 79.55***		X ² (1): 77.88***
Wu-Hausman		F (1,815): 86.34***		F (1,815): 86.13***		F (1,815): 86.78***
Sargan		X ² (1): 0.0002; p: 0.988		X ² (1): 0.469; p: 0.488		X ² (1): 1.715; p: 0.188

Note: Significant level *** = 0.01 sig. ** = 0.05 sig. * = 0.10 sig.

in developing countries like India. Therefore, the study's findings support the hypotheses developed in this study ($H1_a$, $H1_b$, and $H1_c$). The boardroom's gender diversity substantially impacts a firm's performance in India. Hence, the results support previous studies conducted in China (Liu et al., 2014) and other recent studies conducted across the country (Askarany et al., 2025; Wang et al., 2024; Erhardt et al., 2003).

4. DISCUSSION

The board of directors is one of the most crucial corporate governance instruments for balancing the management's and shareholders' interests (Chatterjee & Nag, 2022; Amin et al., 2021). A company's board structure can affect the successful execution of its actions, affecting its performance (Berhe, 2023). The proportion of women in the workforce has been increasing daily. Discussions on the possible impact of board gender diversity on the financial performance of businesses increase as the number of female directors on the board increases. This study examines the connection between the economic health of a company and the gender diversity of its board. Firms with more gender-diverse boards are expected to perform better than their counterparts. These results support the idea that having female directors has a significant and advantageous effect on a company's financial performance, which aligns with the recent study (Lee & Thong, 2022). The performance of the company

in terms of economic aspects, as determined by ROA, ROE, and ROS, appears to be positively impacted by gender diversity in the boardroom, which is consistent with earlier research (Low et al., 2015; Liu et al., 2014). Because a diversified workforce has positive social impacts, companies are advised to nominate women for board positions. Numerous arguments have been made in the past to support the favorable relationship between gender diversity on the board of a company and firm performance; for example, decision-making processes are made more effective by bringing diverse viewpoints and unconventional methods for conducting meetings on boards (Wang et al., 2024); entities are granted the use of significant resources (Carter et al., 2010), positive relationships and communication are maintained with female clients when female directors are on the board, and the company's image can be enhanced (Askarany et al., 2025; Rose, 2007). Moreover, from a theoretical perspective, the results support Resource Dependency and Agency theory, which assert that gender balance improves business success. Having women on the board of directors can help companies operate better by introducing new ideas and approaches to board discussion, engaging with stakeholders, improving the company's image, and maintaining a competitive edge in the market.

This study has several limitations. First, board diversity is more than just gender. Therefore, future studies must examine the effects of additional board composition factors such as years of age,

knowledge, expertise, and cultural backgrounds on business performance. In addition, this research can be conducted in other developing nations to compare these results. Furthermore, the number of female participants in Indian forums is still quite low. Therefore, after the laws on gender quotas have been implemented, future studies should be conducted to reconsider how gender diversity and business performance are connected. Further, an interesting line of inquiry can be when, during the COVID-19 pandemic, businesses were disrupted and, in this line, there was a huge blow to workforces. A dedicated study

during this pandemic, measuring the impact of board diversity on firm performance, would unfold hidden paradigms about the dynamics at play for gender inclusion. This can be further compared by sector and country to examine firm performance and board diversity, and derive insights into how gender diversity affects business during the uneven course of business matters. Such an interesting situation that could help reveal gender diversity in the board could be examined by taking data during disrupted businesses, such as the global recession of 2008 and the COVID-19 pandemic.

CONCLUSION

The study investigates the role of gender diversity on corporate boards and its impact on firm performance in India. It explored whether the presence of women on boards of directors contributes to superior financial outcomes, addressing an important and ongoing debate in corporate governance research. While discussions on female representation have often been framed around ethical and anti-discrimination arguments, the study sought to provide empirical evidence of its economic implications. Using data from companies listed on the BSE over 11 years from 2010 to 2020, the study aimed to bridge the gap between theoretical arguments and practical realities in emerging economies. The analysis highlights the persistent dominance of men on Indian corporate boards, reflecting a continuing gender imbalance in corporate leadership structures. Despite this, the findings indicate that firms with greater gender diversity report enhanced financial performance, as measured by ROE, ROS, and ROA. These results demonstrate that gender-balanced boards are associated with more efficient decision-making, improved governance practices, and stronger economic outcomes. Thus, the study provides compelling evidence that gender diversity positively correlates with firm performance within the Indian corporate sector. The findings of this research offer several important implications. First, they reinforce the argument that gender diversity extends beyond being a matter of ethical or symbolic concern; it is also a strategic mechanism for improving financial performance. Fostering inclusivity at the highest levels of corporate governance can strengthen organizational efficiency, enhance profitability, and communicate a commitment to ethical and socially responsible practices. Second, the study highlights the importance of moving beyond tokenism in board appointments. Simply increasing the number of female directors is insufficient unless accompanied by meaningful participation and influence in corporate decision-making. For policymakers and regulators, the results underscore the need for sustained efforts to design and implement initiatives that encourage greater female representation to ensure fairness and strengthen the competitiveness of firms in emerging markets such as India.

Despite its contributions, the study acknowledges certain limitations. Its focus on Indian firms and a specific timeframe may restrict the generalizability of the findings to other contexts. Future research should therefore expand the scope by incorporating sector-specific analyses, exploring longitudinal impacts, and undertaking cross-country comparisons to assess whether similar dynamics exist in other emerging and developed economies. Such investigations will provide a more nuanced understanding of how gender diversity influences corporate outcomes under varied institutional frameworks and governance structures. By continuing to explore these dimensions, scholars can generate insights that inform both theory and practice, supporting the global movement toward more inclusive and effective corporate governance.

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