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Article

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FINANCIAL ECONOMICS | RESEARCH ARTICLE

Board meeting, promoter CEO and firm performance: Evidence from India

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Abstract: The study examined the relationship between board characteristics and firm performance and the moderating effects of firm size, the board size, and firm age between board characteristics and firm performance. This study considers the legal reforms implemented after the Indian Companies Act 2013. Data from 113 firms with 904 observations from 2012–13 to 2019–20 were analyzed using the fixed panel data estimation approach. A subsample analysis is employed, dividing the data by firm size, the board size, and firm age to test the robustness of the results. The results show that the board size, female director, Promoter CEOs, meeting frequencies, and attendance rate positively affect firm performance. At the same time, the impact of the



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PUBLIC INTEREST STATEMENT

This paper investigates the impact of board characteristics on Indian firm performance. This paper uses the hand collected data of board and CEO characteristics from annual report of the top 113 firms list on BSE based on market capitalization from 2013 to 2020. The financial data has been collected from CMIE PROWESSIQ database and Bloomberg database. Fixed effect, GMM estimation and Difference in difference methods have been used to analyze the impact of various board and CEO characteristics variables on the performance of Indian firms. To verify the robustness, a subsample analysis is used, splitting the data by company size, board size, and firm age. The findings suggest that the board size, female director, Promoter CEOs, meeting frequencies, and attendance rate positively affect firm performance. At the same time, the impact of the independent directors and busy CEO has a negative impact on performance. Male CEOs are beneficial for firm performance. The findings are consistent across all indicators of company performance as well as sub-samples based on firm size, firm age, and board size. The study contributes to the body of knowledge by highlighting essential board features in light of the current regulatory changes in emerging economies like India. It has implications for regulators and policymakers entrusted with developing corporate governance regulations. Concerned institutional investors, management, and minority shareholders may utilize this knowledge to maximize their gains.

independent directors and busy CEO has a negative impact on performance. Male CEOs are beneficial for firm performance. The study adds to the literature by identifying critical board characteristics in light of ongoing regulatory reform in emerging economies like India. It has implications for regulators and policymakers who are entrusted with the framing of corporate governance policies.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: Board meeting; clause 49; corporate governance; promoter CEO; firm performance

1. Introduction

The board of directors is the primary and most effective internal corporate governance system, which also plays a critical role in monitoring management and coordinating shareholder interests with management. After Satyam failure, the characteristics of the corporate board came to light. A question arises whether a board of directors' qualities impact performance or not. This study uses various theories, including stewardship theory, resource dependency theory (RDT), and agency theory. According to agency theory, a well-governed firm should perform better and be valued higher due to reduced agency costs (Jensen and Meckling, 1976). According to the RDT, the board of directors "provide networks, professional expertise, and experience to the firm and develops communication channels with the firm's essential external constituents." Additionally, they build their validity in their external surroundings and garner support and commitments from outsiders (Pfeffer & Salancik, 1978). The stewardship theory also states that "directors are the trustees of the organization's assets and optimise the firm's assets to maximise shareholder wealth." Hence, in this study, we examine the impact of board of director characteristics on the performance of Indian firms using the agency, resource dependency, and stewardship theory as well as preceding studies.

The current study provides empirical data on the influence of board features on firm performance in India, which addresses the literature gap and its relevance. There are many reasons to choose Indian firms as a suitable sample. First, this paper examines the significance of board features in light of recent legal changes following the Indian Companies Act, 2013. This Act has many additional obligations to achieve higher standards of corporate governance in Indian firms. For instance, Section 149 of the Companies Act 2013 mandates that there should be a minimum of three directors in a public limited company, two in private limited company, and one in a one-person company (OPC). A corporation may have a maximum of fifteen directors. After passing a special resolution in a general meeting, a firm may appoint more than fifteen directors for which the Central Government's consent is not necessary. Every company must nominate at least one director (resident director) who has spent a minimum of 182 days in India during the previous calendar year. In every listed company, at least one female director must be appointed on the board [(Section 149(1))]. A person may hold alternative directorships in up to 20 different companies. Out of which, a person can only serve as a director for ten public limited companies. The maximum number of directorships in 20 companies will not include directorships in any dormant or Section 8 companies (Non-profit companies) (Sec 165). A director must serve as an independent director in not more than three listed entities if he serves as a full-time director or managing director in any listed entities. At least one-woman director and not less than 50% non-executive directors must be on the board of directors, which must be made up of both executive and non-executive directors. If the listed firm has an executive chairperson, then at least half of the board of directors must be independent. If the board of directors' chairperson is a non-executive director, then at least one-third of the board must be independent directors. There must be at least six directors on the board of the top 2000 listed companies. According to the Companies Act of 2013, all publicly traded companies and other businesses with paid-up, share capital of at least ten crore rupees must designate a chief executive officer (CEO) as key managerial staff (KMP). Within 30 days of its incorporation, a firm must convene its first board meeting. Each firm must hold at

least four annual board meetings following the inaugural board meeting. There must be a gap of more than 120 days between two consecutive board meetings when they are held throughout the year. A quorum for a board of directors meeting is one-third of the total number of directors, or two directors, whichever is higher. The quorum for a section 8 company is eight members, or 25% of the total number of shareholders, whichever is less. These new legal reforms enshrined in the Companies Act 2013 are intended to promote higher governance standards, which may improve firm performance and rarely been discussed in the earlier studies.

The Indian firms are a good choice for this study's sample due to their diversified market structures and recent legal reforms. The sample of 113 Indian firms from 2013 to 2020 demonstrates that board size, female directors, and attendance rate has a positive impact on firm performance. Additionally, independent directors, busy CEO, and dual leadership negatively affect the performance. Male CEOs improve firm performance. The current study makes several contributions to the body of literature. In light of ongoing regulatory reforms, this study can be regarded as one of the earliest study to analyse the effect of board characteristics on the firm performance of Indian companies from the perspective of an emerging economy with a distinctive market structure and macroeconomic environment. Regulators can use the results of this study's findings to guide firms in strengthening their CG practices, which may improve firm performance as we assume that firms with better governance rules perform better.

The remainder of the study is organized as follows. Section 2 presents the literature review underpinning the development of hypotheses. Section 3 sheds light on the data and empirical models. The findings and analyses are presented in Section 4. The conclusion is provided in Section 5.

2. Literature review

2.1. Board size

The board is a critical resource for organisations (Nicholson & Kiel, 2007) as it aids firms in resource pooling through their social and business links (Pennings, 1980). Hence, larger boards have tremendous potential for variety and are consistent with RDT.¹ A large board can reduce environmental uncertainty (Goodstein et al., 1994) and transaction costs associated with environmental interdependence (Williamson, 1984) and improve firm performance (Goel et al., 2022; Goodstein et al., 1994; Gupta & Mahakud, 2021; Nepal & Deb, 2022; Pfeffer & Salancik, 1978). However, boards of more than seven or eight members are unlikely to be productive (Jensen, 1993). The costs of additional communication and decision-making as the board expands in size may outweigh the benefits of a larger board (B.E. Hermalin & Weisbach, 2000). Group dynamics literature suggests that small boards may be more effective since they may be focused, cohesive, and participatory (Evans & Dion, 2012). Hence, the size of a company's board is likely to impact the performance negatively (De Andres et al., 2005; Arora, 2022; Yermack, 1996). Despite the mixed findings, in line with the RDT, we propose the following hypothesis

H1: Board size is positively related to firm performance.

2.2. Board gender diversity

The literature suggests that women better understand the market and business stakeholders (Carter et al., 2003). They contribute to quality decision-making due to their capacity to present various viewpoints, adept at problem-solving (C.M. Daily & Dalton, 2003), creative and innovative (Anderson et al., 2011), and consistent with the RDT. The engagement level of female directors on various committees has a favorable relationship with ROA (Return on Assets). Women may be more effective supervisors, lower agency expenses and, thus, improve performance. However, the results regarding women's representation on boards are inconclusive. One body of research

identified a positive link between gender diversity and firm performance (Campbell & Mínguez-Vera, 2008; Post & Byron, 2015; Safiullah et al., 2022), while other studies found a negative link (Bøhren & Staubo, 2016; R.B. Adams & Ferreira, 2009). Women directors' strict monitoring may lead to a decrease in shareholder value (Almazan & Suarez, 2003) or a reduction in board member communications, probably due to a lack of cohesiveness (Herring, 2009). K. W. Lee and Thong (2022) revealed that firm performance is positively associated with the proportion of female directors on a board. The positive association between firm performance and the proportion of female directors on the board is higher in countries with stronger shareholder rights, stronger securities law regulations stipulating disclosure of board diversity, and stronger women's economic empowerment. Additionally, corporate financial distress risk is lower in firms with a higher proportion of female directors on the board. Rahman et al. (2022) inquire about the impact of the third Malaysian Code on Corporate Governance introduced in March 2012 on the level of boardroom gender diversity (BGD) and its possible association with firm financial performance (FFP). The study revealed that even a slight increase in BGD has pronounced its significant positive impact on ROA and decreased stock volatility after the enactment of the code. Arvanitis et al. (2022) also revealed an inverted U-shaped relation between the proportion of female directors and firm performance (measured by Tobin's Q). Moreover, they find that gender diversity could lead to maximization of corporate performance when female participation in the boardroom reaches 33%. Despite mixed findings based on institutional theory, we developed the following hypothesis.

H2: Female board representation is positively related to firm performance.

2.3. Board independence

Agency theory suggests that the existence of independent directors can influence the balance of power between insiders and outsiders (Fama & Jensen, 1983). They are more likely to protect the interests of other stakeholders than a board controlled by management. They are more inclined to work impartially (Bédard & Gendron, 2010). Furthermore, their presence reduces agency conflict by reducing management influence and safeguarding the interests of investors. It enhances board oversight, lowers agency costs due to resource misallocation (Haniffa and Hudaib, 2006), and eliminates information asymmetry created due to the presence of executive directors. According to Pearce and Zahra (1991) and Leung et al. (2014), board independence improves business performance. Hu et al. (2022) study the effect of corporate board independence on firm performance under different product market conditions. Using customer-supplier links to identify exogenous downstream demand shocks, we find that firm performance is positively associated with board independence when the firm-specific product demand drops. The results are more potent for smaller firms and firms with high growth and more volatile stock returns. The findings prevail if the firm faces a medium level of product market competition or downstream demand shock. It suggests evidence for the board's monitoring function driving the effectiveness of board independence in dire times of idiosyncratic risks rather than its advisory function. However, Yermack (1996) and Rashid (2018) suggested that board independence and firm performance are negatively related. Independent and executive directors may collaborate against stakeholders' interests and cause a decrease in firm value (Fama & Jensen, 1983). Thus we propose the following hypothesis.

H3: Board independence and firm performance are positively related.

2.4. CEO chairman duality

A unitary (single-tier) framework with a single Chairman and CEO (CEO duality) allows for speedy and high-quality results (Kim et al., 2009) and is consistent with stewardship theory. The findings of the earlier studies regarding the CEO-Chairman duality impact on performance are mixed. If the chair is knowledgeable and impartial, it can serve as a vital resource for the CEO (Dalton et al.,

1998). When the CEO and chair roles merge, the CEOs are well compensated, and CEO turnover is less affected by the company's performance (Goyal & Park, 2002). It may be more cost-effective than separate leadership in acquiring, transferring, and processing information (Yang & Zhao, 2014). Dual leadership ensures quick board initiatives, giving the company a competitive edge, especially under difficult business situations. Hence, it improves the firm performance (Gupta et al., 2022; Kaur & Singh, 2019; Kim et al., 2009). The evidence shows that the percentage of Standard & Poor 500 companies choosing to have a CEO duality leadership structure has reduced from 65% in 2007 to 41% in 2021 Yu (2022). However, the concentration of power gives firm executives great authority, which impacts firm performance adversely (Ali et al., 2022; Duru et al., 2016; Tang, 2017) and supports agency theory. Fan et al. (2020) indicate that CEO duality negatively moderates the relationship between board-CEO friendship ties and firm value, as board monitoring is weak. Despite the mixed evidence, we assume that CEO—Chairman duality is beneficial for firm performance, so we propose the following hypothesis.

H4: CEO chairman duality has a positive relationship with firm performance.

2.5. CEO gender

The relationship between CEO gender and business performance has gained attention in recent studies. (Khan & Vieito, 2013). The Indian Companies Act, 2013 requires the nomination of a woman director to the board of directors under section 149(1) for adequate company supervision. According to research on the relationship between CEO gender and firm performance (Khan & Vieito, 2013; Peni, 2014), firms with female directors perform better. Carter et al. (2010) argue that talented women should be allowed to serve on boards since they have peripheral networks and other attributes that corporations value. However, corporations are hesitant to hire female CEOs and weigh the benefits and drawbacks before hiring them. According to the researchers, women's enhanced supportive leadership strategy may be more productive than men's competitive approaches (Eagly & Carli, 2003). However, women are more conservative than males (Jianakoplos & Bernasek, 1998; Powell & Ansic, 1997; Sunden & Surette, 1998), prefer to avoid financial hardship and are hesitant to take excessive risks (Schubert, 2006). Martin et al. (2009) demonstrate the capital market's ability to differentiate gender variation in risk aversion and see a fall in capital market risk measures following the appointment of a female CEO. Similarly, Srivastava et al. (2018) discovered that the presence of female directors on the board, as well as their independence, have a negative relationship with the cost of equity. However, the amount of engagement of female directors on various committees has a positive relationship with ROA. According to X. Chen et al., (2021), male CEO-Chairs are more likely to be involved in bribery, indicating that males are more likely to be unethical, which is moderated by culture, specifically under the dimensions of institutional collectivism, future orientation, and performance orientation. This may influence the CEO's actions, resulting in lower performance. Smith et al. (2006) and Carter et al. (2003) found a favorable relationship between gender diversity and business performance, arguing that the presence of female directors increases the boards' overseeing functions and makes them more alert when making investment choices. Few studies, however, find an adverse relationship between female executives and business success. According to Bonner (2008), males are disproportionately overconfident, which is evident in their attitude, resulting in a considerable gap in their performance. P.M. Lee and James (2007) examined a sample of 1,556 enterprises and assessed shareholders' reactions to the news of hiring either a female or male CEO, revealing an adverse reaction of shareholders to the announcement of female CEO appointments relative to male CEO engagements. However, the unfavorable reaction is reduced if the female CEO is promoted inside the firm. Strelcova (2004) used stock price returns to study a sample of 58 companies managed by female CEOs from 1985

to 2004 and discovered that companies headed by male CEOs performed better relatively, as stock price returns declined significantly in the year of female CEO appointment but were insignificant in the following years and depended on other factors as well. Furthermore, Singhathep and Pholphirul (2015), Amran (2011), and Gupta and Mahakud (2020a, 2020b) show that male CEOs improve business performance more than female CEOs. As a result, following previous research, we hypothesize the following:

H4. CEO gender affects firm performance.

2.6. CEO busyness

CEO busyness is a condition in which the CEO serves on the boards of other firms. According to the RDT, inter-board links enhance the company's performance by allowing for the exchange of resources, networking (Fernandez Mendez et al., 2017), and acquiring more incredible business skills and experience (Chiang & He, 2010). According to the busyness hypothesis (Ferris et al., 2003), a CEO with many directorships may have difficulty in managing the business efficiently. It is assumed that directors with several directorships are too busy to oversee management appropriately, which may result in excessive agency expenses. As a result, such directors may be overcommitted and are likely to shirk their obligations, resulting in poor performance. However, another body of literature contends that directors with several directorships have more robust professional networks, more honesty, and a better reputation, which may benefit organizations (Fernandez Mendez et al., 2017; Masulis & Mobbs, 2014). Previous researchers have found both positive (Fama & Jensen, 1983; Geletkanycz & Boyd, 2011; A. Pandey et al., 2019) and negative (Fich & Shivdasani, 2007; Peni, 2014) relationships between CEO activity and performance. Jiraporn et al. (2009) reveal that busy CEOs are more experienced in monitoring and advising duties. Similarly, Chiang and He (2010) argue that CEOs with multiple jobs have superior business knowledge and expertise. In contrast, Pandey et al. (2015) investigated whether CEOs' workload influenced the success of family businesses and discovered an inverse link between CEO busyness and company performance (Harymawan et al., 2019). According to Saleh et al. (2020), a CEO's "busyness" diminishes their performance and is connected with losses in the firms. Crossing a threshold level has a detrimental influence on company performance, particularly in family businesses (Fama & Jensen, 1983; Pandey et al., 2015; Pombo & Gutiérrez, 2011). Ineffective board monitoring and decision-making may be hampered by a lack of dedication and workload (Jiraporn et al., 2008). Even though the findings are mixed, we assume that the busy CEOs may undermine their responsibilities which may adversely affect the firm performance. As a result, we expect a negative relationship between CEO busyness and firm performance. Hence, we propose:

H6: CEO busyness is negatively related to firm performance

2.7. Promoter CEO

According to resource dependency theory, promoter CEOs are generally from the founder's family (Jackling & Johl, 2009) and are a vital resource to the firm (Hillman et al., 2000). Stewardship theory regards them as stewards owing to their lion's share (Chami, 2001). On the other hand, the agency model says that a CEO from the founder family may lack the critical characteristics required for the company's efficient operation (K.C. Chen et al., 2011). However, the available literature's conclusions are mixed. According to Bertrand et al. (2008) and Pandey et al. (2011), the promoter CEO has a detrimental influence on firm performance. They may be ineffective owing to a lack of skills and experience and occasional family concerns (Barth et al., 2005). In contrast, CEOs are increasingly being chosen based on family links despite their degrees and skills in developing economies. It results in less diverse boards and "controlling-shareholder expropriation" (Carter et

al., 2003; K.C. Chen et al., 2011). However, given their regulatory and monitoring roles, promotional CEOs may be able to reduce agency expenses (Anderson & Reeb, 2003). Though the findings are inconclusive, we propose that promoter CEOs may influence decision-making and formulate the following hypothesis.

H7: promoter CEOs are negatively associated with firm performance

2.8. Board monitoring activities

The number of meetings held and attended by board members in a year is one of the activities through which the board monitors the firms. Board meetings are required for directors to monitor, oversee, and make strategic decisions. According to RDT, board meeting attendance makes a company's essential resources available. Frequent board meetings allow board members to exchange ideas, monitor management, and discuss long-term strategies for smooth operation. According to agency theory, management operations require adequate oversight while being aware and attentive to firm activity. Board meeting results, on the other hand, are mixed. According to Chou et al. (2013), Lin et al. (2014), and Kyei et al. (2022), there is a positive association between board meeting frequency and performance. Higher-level meetings reflect the willingness and skill of directors to carry out their fiduciary obligations, as well as their responsiveness to the firm. It keeps the board of directors more informed and vigilant about the organization's activities. More frequent board meetings result in higher corporate performance (Hossain and Oon, 2022) since the chance of financial fraud decreases (Abbott et al., 2004). Higher meeting participation, particularly for family directors at board meetings, corresponds to higher business performance (Buchdadi et al., 2019; Chou et al., 2013; Lin et al., 2014). On the other hand, more meetings may also result in lower market value and firm performance (Amran, 2011; Kakanda et al., 2017). Furthermore, higher company performance is contingent on having meetings, members' active involvement, and adequate meeting time. Hence, we suggest the following hypothesis following the prior discussion and RDT.

H8. The frequency of board meetings is positively related to firm performance.

H9. Board meetings attended by board members is positively related to firm performance.

3. Data and variable

3.1. Data

We focused on companies listed on the Bombay Stock Exchange in India. We have excluded banks and financial companies since they are subject to separate governance regulations under the Indian Companies Act 2013. Finally, utilizing 904 firm-year observations, we generated a panel data sample of 113 firms from 2012–2013 to 2019–2020. We collected information about board characteristics from annual reports, the companies' websites, and Bloomberg database. We used the CMIE ProwessIQ database to gather the financial data. For the robustness test, we classified the data into subsets based on firm size, the board size, and firm age. We have also used GMM as additional robustness test.

3.2. Variables

The firms' performance indicators include ROA, ROCE, and RONW. ROA ratio measures how efficiently a business utilizes its assets to generate revenue. The ROCE measures how effectively a company utilizes its capital to generate profit. A larger ratio shows significant business growth. RONW is the earnings per rupee invested by equity shareholders. A company with a high RONW

appeals to investors as it demonstrates how well it can invest its money to generate profit (See, Table 1 and 2 in Appendix for definitions).

The board characteristics include the board size, percentage of female directors, percentage of independent directors. CEO Chairman Duality, CEO gender, CEO busyness, and promoter CEO are four leadership factors where CEO is considered as a proxy for the leadership position. It also includes the frequency of board meetings and board meetings attended by directors on the board. (See, Table 2 in Appendix for operationalization of variables).

We have used four control variables in the study: firm size, firm age, leverage, and sales growth (Core et al., 1999; Gillan et al., 2003). Firm size has been measured as the natural log of the firm's total assets (Bhagat & Bolton, 2008). Larger organizations may get more funding and attract highly skilled labor as they can adapt more innovative and efficient organizational practices (Amatori et al., 2013). The larger firms may have a higher market influence which may enable them to set higher prices and thus generate more revenue (Pervan & Višić, 2012) and better performance (Gadzo & Asiamah, 2018; Majumdar, 1997). On the other hand, huge enterprises experience increased agency costs, administrative procedures, and managerial costs (Burson, 2007; Lee, 2009; Pasiouras & Kosmidou, 2007; Stiroh & Rumble, 2006), which may be detrimental to firm performance. Furthermore, when it comes to firm age, young enterprises are more likely to multiply than older ones (FAGE; Gibrat, 1931). However, younger firms are more vulnerable to "liabilities of newness," which may be numerous poorly understood factors that may fail (Stinchcombe, 1965). Due to the "inertia effects," younger firms may find it challenging to adapt swiftly to changing business environments (Barron et al., 1994). With the increasing age, the companies may foster the required expertise (Coad et al., 2013), resulting in reduced plant failure (Dunne et al., 1989) and enhanced diversity (Campa & Kedia, 2002; Villalonga, 2004). Over the period of time, the cost of capital (Hadlock & Pierce, 2010) and investor uncertainty are reduced, making stock returns more predictable (Pastor & Veronesi, 2003). Consequently, their performance improves due to consistent growth in productivity, profit, and assets (Akben Selçuk, 2016; Coad et al., 2013; Ghafoorifard et al., 2014; Osunsan, 2015). Similarly, the agency cost theory suggests that there may be a positive relationship between leverage and company performance. The performance of the company improved since the return is higher than the average interest rate on leverage (Robb & Robinson, 2014). In addition to serving as a tax shelter, leverage can be used to discipline management (DeAngelo & Masulis, 1980). According to Jensen (1986), it is an indicator of a company's profitability, suggesting a positive relationship between leverage and financial performance (Detthamrong et al., 2017; Gadzo & Asiamah, 2018; Tripathy & Shaik, 2020). Nevertheless, it has a limit (Cheng et al., 2010). The organisation might be in a high-risk zone with negative effects if it crossed the threshold (Ibhagui & Olokoyo, 2018; Ren et al., 2019; Zheng et al., 2022). Additionally, sales growth (SG) aids investment planning, indicates consumer demand for a company's goods, and improves the operation of the business (Mak & Kusnadi, 2005). More assets and high sales growth of the companies leads to better firm performance (Ren et al., 2019). However, companies might compromise quality in order to increase sales, which would have a negative impact including losing clients or money (Brush et al., 2000). Hence, we use sales growth to control firm performance (Deloof, 2003).

3.3. Models specification and empirical methods

The following is the panel data model that assumes a linear link between board characteristics and firm performance:

$$FP_{it} = \alpha_i + \beta_1 BS_{it} + \beta_2 FD_{it} + \beta_3 ID_{it} + \beta_4 CEOD_{it} + \beta_5 MCEO_{it} + \beta_6 BCEO_{it} + \beta_7 PCEO_{it} + \beta_8 BM_{it} + \beta_9 BMA_{it} + \beta_{10} FAGE_{it} + \beta_{11} FS_{it} + \beta_{12} LEV_{it} + \beta_{13} SG_{it} + \epsilon_{it}$$

Where FP_{it} = firm performance indicators measured by ROA, ROCE, and ROE, ϵ_{it} is the disturbance term, i is the firm from 1 to 113, and t is the years from 2012–13 to 2019–20. The β parameters

Table 1. Descriptive statistics and correlation matrix of all the variables used in this analysis

Variables	N	Mean	ROA	ROCE	RONW	BS	FD	ID	CEOD	MCEO	BCEO	PCEO	BM	BMA (%)	FAGE	FS	LEV	SG
ROA	904	10.76	1															
ROCE	904	16.11	0.894*	1														
RONW	904	20.04	0.829*	0.933*	1													
BS	904	10.53	0.013	0.003	0.064	1												
FD (%)	904	11.14	0.055	0.035	0.003	-0.144*	1											
ID (%)	904	52.21	-0.055	-0.064*	-0.039	-0.076*	0.192*	1										
CEOD	904	0.33	-0.019	-0.041	-0.009	-0.011	-0.167**	-0.102	1									
MCEO	904	0.95	0.018	0.045*	0.056	-0.056	-0.262*	-0.008	0.082*	1								
BCEO	904	0.65	-0.039	-0.064	-0.026	-0.091*	0.088*	0.056	-0.135*	-0.062	1							
PCEO	904	0.32	-0.106*	-0.025	-0.031	0.029	-0.008	0.187*	0.239*	-0.105*	-0.079*	1						
BM	904	6.56	0.066*	0.055	0.015	0.099*	-0.116*	-0.319*	0.263*	0.036	0.056	-0.289*	1					
BMA (%)	904	79.26	0.127*	0.093*	0.064	-0.182*	0.129*	0.339*	-0.358*	0.014	0.168*	0.179*	-0.565*	1				
FAGE	904	44.16	0.002	0.108*	0.038	0.172*	-0.071*	0.049	-0.045	0.062	0.072*	-0.241*	0.084*	0.021	1			
FS	904	11.95	-0.334*	-0.331*	-0.236*	0.209*	-0.083*	-0.162*	0.173*	0.026	-0.031	-0.238*	0.474*	-0.316*	0.086*	1		
LEV	904	0.78	-0.343*	-0.325*	-0.068*	-0.148*	0.006	-0.032	0.001	-0.179*	-0.037	-0.118*	0.117*	-0.003	-0.181*	0.422*	1	
SG	904	25.78	0.018	0.022	0.003	-0.081*	-0.045	-0.033	0.052	0.009	0.028	-0.023	0.053	0.011	-0.058	-0.034	0.031	1

Note: * shows 10% level of significance

capture the possible effect of explanatory variables on firm performance indicators". The board attributes used in the study are as follows: BS is the total number of members on the board, FD is the percentage of female directors, ID is the percentage of independent directors, CEO is CEO-chairman duality, MCEO (male CEO) is the dummy variable for the gender of CEO, BCEO is CEO's busyness, PCEO is the CEO who is also a promoter of the company, BM is the total number of board meetings in a year, BMA is meetings attended by the directors in a year, FAGE is the firm age, FS is the firm size, LEV is the debt-to-equity ratio of the firm, SG is yearly growth in firm's sales (See, Table 2 in Appendix for operationalization of variables).

This study uses the panel data models with the standard errors clustered at the industry level. "We have used the panel data techniques to estimate the models, as the unobservable heterogeneity and endogeneity of board characteristics cannot be captured through pooled regression estimation. Fixed and random effect models are the most commonly used static panel data models (Renée B. Adams & Mehran, 2008). The fixed-effect model allows control for unobserved heterogeneity, which describes individual-specific effects not captured by observed differences across individuals (banks), each individual's intercept is time-invariant. The F-statistics specify the correctness of the models. The Lagrange multiplier (LM) test and Hausman test have been carried out to find out a suitable panel data technique for estimating the bank performance equation. The LM test (Breusch-Godfrey test), tests for autocorrelation in the errors in a regression model. Breusch and Pagan's (1980) LM test, for random effects in a linear model, is based on pooled ordinary least squares (OLS) residuals, while estimation of the alternative model involves generalized least squares either based on a two-step procedure or maximum likelihood. The Hausman test detects endogenous regressors in a regression model. The Hausman test is sometimes described as a test for model misspecification. In panel data analysis, the Hausman test helps to choose between the fixed-effects model or a random effects model. This test is called the DWH or augmented regression test for endogeneity. All these tests ultimately preferred the use of the fixed-effect model over the random effect model. Additionally, we conduct robustness tests to check the models' strengths" (Gupta & Mahakud, 2020a, b, 2021; Gupta et al., 2021a, b).

4. Results

The descriptive statistics and correlation matrix for performance variables, board characteristics, and firm-level control variables are presented in Table 1. It shows that the mean ROA of all the firms is 10.76. Overall, the data indicates that the average size of the board is 10.53. On average, the board consists of 11.14% of female directors. Boards are occupied by more than fifty percent of independent directors (mean = 52.21%). One-third of the firms have CEOs who also hold the chairman's position (mean = 33%), and in 32% of firms, the CEO is also one of the founders. The data further reveals that the male CEOs mostly dominate the management of the Indian firms (95%). The average busyness of the CEOs is 65%. We observed that, on average, firms hold 6.56 board meetings yearly. The directors attended 79.26% of board meetings held.

The correlation matrix eliminates the problem of multicollinearity because the coefficient values are minimal, and the majority of the coefficients are statistically insignificant. Similarly, the VIF of the explanatory variables is less than 5, indicating no multicollinearity. The board size, female participation, male CEOs, board meetings, and board meeting attendance positively affect the performance. In contrast, board independence, CEO duality, busy CEOs, and promoter CEOs negatively affect the firms' performance. Regarding firm-specific characteristics, leverage and size have a negative relationship, whereas firm age and sales growth have a positive relationship with performance.

4.1. Hypothesis testing

Table 2 shows the panel data results of the board characteristics and firm performance for all firms. The LM and Hausman tests show that the fixed effect model estimation is appropriate for this study. At a 1% level, the p-value of F- statistics is significant, showing that the model is fit. The

Table 2. Board characteristics and firm performance (Random and fixed effect estimation results for the whole sample)

Variables	Random Effect Model			Fixed Effect Model		
	ROA	ROCE	RONW	ROA	ROCE	RONW
BS	0.157** (0.065)	0.134** (0.063)	0.172* (0.093)	0.256** (0.101)	0.133** (0.061)	0.299** (0.104)
FD	0.047** (0.022)	0.038** (0.012)	0.045** (0.015)	0.036** (0.014)	0.038** (0.011)	0.091** (0.039)
ID	-0.038** (0.018)	-0.028** (0.011)	-0.052** (0.026)	-0.041** (0.019)	-0.036** (0.012)	-0.057** (0.029)
CEOD	-0.472 (0.395)	-0.129 (0.788)	-0.466 (0.389)	-0.346 (0.473)	-0.004 (0.023)	-0.758 (0.577)
MCEO	0.148** (0.051)	0.804** (0.356)	0.998*** (0.237)	0.318** (0.074)	0.547*** (0.098)	0.669*** (0.085)
BCEO	-0.583** (0.143)	-0.227* (0.108)	-0.664** (0.202)	-0.626** (0.258)	-0.346** (0.185)	-0.613** (0.236)
PCEO	0.448*** (0.069)	0.668** (0.289)	0.938** (0.435)	0.615*** (0.191)	0.642*** (0.041)	0.954*** (0.132)
BM	0.131 (0.081)	0.221 (0.138)	0.476 (0.365)	0.109 (0.082)	0.206 (0.141)	0.488 (0.367)
BMA	0.031** (0.013)	0.075** (0.022)	0.076** (0.027)	0.025* (0.014)	0.084** (0.024)	0.101** (0.029)
FAGE	0.037** (0.017)	0.113** (0.049)	0.101* (0.051)	0.119** (0.061)	0.266** (0.105)	0.245** (0.125)
FS	-0.672*** (0.089)	-0.535*** (0.063)	-0.358*** (0.045)	-0.195** (0.0591)	-0.054** (0.011)	-0.597*** (0.104)
LEV	-0.537*** (0.124)	-0.962*** (0.153)	-0.648** (0.319)	-0.402** (0.193)	-0.714** (0.358)	-0.638*** (0.094)

(Continued)

Table 2. (Continued)

Variables	Random Effect Model			Fixed Effect Model		
	ROA	ROCE	RONW	ROA	ROCE	RONW
SG	0.004** (0.002)	0.007** (0.003)	0.018** (0.009)	0.004** (0.002)	0.015** (0.007)	0.019** (0.009)
Constant	28.006*** (4.863)	53.695*** (8.297)	76.124*** (9.395)	31.896*** (6.037)	55.632*** (10.339)	88.497*** (12.323)
LM Test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman Test	0.001	0.002	0.003	0.001	0.002	0.003
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.171	0.173	0.066	0.103	0.091	0.014

Notes: We estimate all models controlling for heteroscedasticity and firm-level clustering. Standard errors are in parentheses. *, ** and *** show the 10%, 5% and 1% significance level respectively

proportion of variation reported by the explanatory factors influencing the dependent variable is also seen in the adjusted R^2 .

According to the findings, larger boards improve the performance of the firms. It is consistent with the resource dependency theory that having a large number of board members brings vital resources, expertise, and experience to the firms and thus improves firm performance (Alabdullah et al., 2018; Goel et al., 2022; Mohapatra, 2017). Consistent with this view, our results show a positive impact of female participation on the performance indicators (Post & Byron, 2015; Safiullah et al., 2022). Women may be more effective supervisors and contribute to quality decision-making due to their diverse viewpoints (C.M. Daily & Dalton, 2003). The percentage of independent directors leads to reduced firm performance and is supported by the findings of Bhagat and Black (2001) and Rashid (2018). It may be due to reliance on promoters, management, and auditors for acquiring information connected to corporate matters to make decisions, as Indian firms are governed by family mainly (Economic Times Bureau, December 2017). Independent and executive directors may collaborate against stakeholders' interests and cause a decrease in firm value (Fama & Jensen, 1983).

The variable CEO duality is insufficient to explain all firms' performance, suggesting that agency theory is inconclusive in the Indian context. The findings are consistent with the findings of Baliga et al. (1996), C. M. Daily and Dalton (1997), and Dahya (2005). Results are consistent irrespective of the inter-change of leadership structure (C. W. Chen et al., 2008). Companies led by male CEOs outperform their female counterparts and support the findings of Gupta and Mahakud (2020a). It may be because of male CEOs' risk-taking attitudes, which lead to improved performance (Bliss & Potter, 2002). The variable busy CEO demonstrates an inverse relationship with firm performance (Harymawan et al., 2019; Saleh et al., 2020). Such directors may be overcommitted and tend to shirk their responsibilities leading to lower performance. Our findings indicate that CEOs who are also promoters of the company have a positive effect (Jackling & Johl, 2009; Parthasarathy et al., 2006) on firm performance, consistent with the stewardship theory (Chami, 2001).

The overall effect of the frequency of board meetings is insignificant to the performance of firms and contradicts the resource dependency theory. Furthermore, as the attendance rate increased, so did the effectiveness, which is consistent with the studies of Lin et al. (2014) and Buchdadi et al. (2019). It indicates how corporate boards are supervised (Lin et al., 2014). These findings may be the outcome of the unique nature of Indian firm boards and regulations. The overall fixed effect regression results show that board characteristics play a significant and vital role in the performance of Indian firms.

4.2. Size effect

The effectiveness of board characteristics is determined by the company's size, climate, ownership, and structure. According to the research, board composition, structure, and company size all favour performance (Alabdullah et al., 2018; Arnegger et al., 2014). The impact of board size, outside director ratio, and board diversity varies according to the company's size (Zona et al., 2013). According to the formal theory of differentiation, when enterprises grow in size, administrative differentiation in organizations emerges for improved coordination (Blau, 1970) and environmental complexity (Lawrence & Lorsch, 1967), both of which necessitate constant supervision (Arnegger et al., 2014). We expect the influence of board characteristics to vary depending on various factors, including the company's size. Hence, we categorized the firms into large and small firms.

The regression results for large and small firms are in Table 3. The board size and female participation on board have an inverse relationship with the performance of small firms. Increased board independence and male CEOs boost the performance of both large and small firms. CEOs, who are also promoters of the company, negatively affect the large firms while it enhances the performance of small firms. Adopting the dual leadership system proves beneficial

Table 3. Board characteristics and firm performance (fixed effect estimation results for large and small firms)

Variables	Large Firms			Small Firms		
	ROA	ROCE	RONW	ROA	ROCE	RONW
BS	0.156 (0.101)	0.491 (0.353)	0.354 (0.283)	-0.442** (0.161)	-0.379** (0.122)	-0.505** (0.252)
FD	0.036 (0.024)	0.117 (0.098)	0.131 (0.109)	-0.106* (0.057)	-0.027* (0.15)	-0.195** (0.026)
ID	0.041** (0.019)	0.101** (0.046)	0.151** (0.063)	0.031** (0.015)	0.154** (0.071)	0.101** (0.038)
CEOD	0.447** (0.173)	0.805*** (0.182)	0.902*** (0.221)	-0.083 (0.068)	-0.161 (0.148)	-0.093 (0.349)
MCEO	0.818** (0.375)	0.581*** (0.204)	0.589** (0.229)	0.858** (0.334)	0.418** (0.186)	0.715** (0.312)
BCEO	-0.627** (0.259)	-0.251** (0.103)	-0.792** (0.305)	-0.561* (0.242)	-0.905** (0.394)	-0.947** (0.462)
PCEO	-0.615** (0.292)	-0.536* (0.247)	-0.877** (0.403)	0.301** (0.147)	0.977** (0.423)	0.992** (0.455)
BM	0.111** (0.042)	0.541** (0.282)	0.751** (0.316)	0.176 (0.261)	0.646 (0.525)	0.991 (0.874)
BMA	0.025* (0.014)	0.181*** (0.034)	0.178*** (0.038)	0.066** (0.035)	0.172** (0.069)	0.179** (0.076)
FAGE	0.119** (0.062)	0.101** (0.031)	0.083** (0.035)	0.119** (0.019)	0.141*** (0.038)	0.142** (0.042)
FS	-0.595*** (0.091)	-0.484** (0.151)	-0.758** (0.353)	-0.427** (0.219)	-0.877** (0.396)	-0.634** (0.303)
LEV	-0.442** (0.213)	-0.362*** (0.043)	0.536* (0.173)	-0.571*** (0.066)	-0.365*** (0.041)	-0.654** (0.284)

(Continued)

Table 3. (Continued)

Variables	Large Firms			Small Firms		
	ROA	ROCE	RONW	ROA	ROCE	RONW
SG	0.004** (0.002)	0.008** (0.003)	0.009** (0.004)	0.009** (0.004)	0.002** (0.001)	0.002** (0.001)
Constant	31.897*** (6.038)	28.807 (44.815)	43.661 (50.191)	21.529 (16.615)	101.591** (33.409)	139.89*** (36.527)
Restricted F Test	F (44, 301) = 2.27 (0.000)	F (44, 301) = 2.11 (0.000)	F (44, 301) = 2.01 (0.000)	F (44, 301) = 1.73 (0.004)	F (44, 301) = 1.19 (0.022)	F (44, 301) = 1.41 (0.014)
LM Test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman Test	0.001	0.003	0.000	0.005	0.006	0.000
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.276	0.299	0.145	0.261	0.303	0.201

Notes: We estimate all models controlling for heteroskedasticity and firm-level clustering. Standard errors are reported in parentheses. *, **and ***show the 10%, 5% and 1% significance level respectively

for large firms. Busy CEOs cannot articulate the link between corporate performance and their workload in both types of firms. The frequency of board meetings helps increase the performance of large firms, whereas attendance at board meetings improves firms' performance in both types of firms. The results of other firm-specific control variables align with the overall sample results.

4.3. Board size effect

The earlier research shows a link between the size of a company's board of directors and its performance (Dalton et al., 1999). According to resource dependency theory, large boards attract essential resources by expanding their network and diversity scope (Goodstein et al., 1994). Furthermore, the benefits of having a large board may outweigh the disadvantages if the board's size exceeds a specific limit. As the board's size rises, the effectiveness of the decision-making process may decrease, posing a risk to the firm's success. The advantages of small boards cannot be overlooked. Having a small size makes it more cohesive, participatory, and focused. Thus we investigate the role of board size on the relationship between board features and firm performance.

The regression findings of board characteristics and performance of firms with large and small boards are in Table 4. The large boards with higher female representation and dual leadership have an advantageous position over large boards with independent directors. Male CEOs perform well on both large and small boards. The RDT supports busy leadership in small board firms, which helps to increase the performance, whereas it has an inverse relationship with the performance of the large board firms. Promoter CEOs negatively affect the performance of large board firms, while small board firms benefit. Board monitoring initiatives (BM and BMA) contribute to the large board firms' improved performance. The results of other firm-specific control variables align with the overall sample results.

4.4. Firm age effect

The impact of board characteristics on firm performance varies depending on the age of the board and market maturity. Older companies may face poor governance, larger boards, and higher CEO remuneration (Loderer & Waelchli, 2010). The complexity of a corporation grows with age but not with maturity (Boone et al., 2007). The influence of age on board size decreases with age (Linck et al., 2008). Based on the primary data, we expected varied effects of board features on company performance moderated by firm age.

The regression results of the board feature on the performance of old and young firms are given in Table 5. The larger boards in old firms lower the performance, whereas the participation of female directors is advantageous. Independent directors benefit both old as well as young firms. Young firms in which CEOs are the company's chairman and promoters increase the firm performance. Male CEOs, regardless of the firm age, helps improve the success of both types of firms. Busy CEOs harm the performance of the old firms. More board meetings in old firms prove to be ineffective. Old firms benefit from board meeting attendance, whereas the young firms suffer. Other firm-specific control variables yield results that are consistent with the whole sample. The findings demonstrate that the board of directors significantly impacts the Indian firm's performance.

4.5. Endogeneity concern

Endogeneity is common (B. Hermalin & Weisbach, 2003). We used two-step System-GMM (Generalized Method of Moments) to estimate the model (Binh Tran & Le, 2017). "In the presence of heteroskedasticity and autocorrelation, it is trustworthy (Arellano & Bover, 1995; Blundell & Bond, 1998). The panel data model handles heterogeneity by taking the initial differences and removing the individual impact, resulting in unbiased estimates. It also addresses the issue of endogeneity. It primarily uses lagged independent variables as instruments, allowing for new instruments by taking advantage of the orthogonality conditions among the delays in explanatory variables (Arellano & Bond, 1991). For autocorrelation of the disturbance term e_{it} , we use the Arellano-Bond test, the Sargan tests for over-identifying limitations, and the Wald test for the joint significance of the estimated coefficients for all variables". Table 6 shows the results of the GMM

Table 4. Board characteristics and firm performance (fixed effect estimation results for large and small boards)

Variables	Large Boards			Small Boards		
	ROA	ROCE	RONW	ROA	ROCE	RONW
BS	0.385 (1.135)	0.492 (1.644)	0.171 (0.733)	-0.523 (0.319)	-0.014 (0.092)	-0.712 (0.543)
FD	0.141** (0.071)	0.216** (0.103)	0.246** (0.109)	-0.033 (0.062)	-0.109 (0.147)	-0.092 (0.158)
ID	-0.077** (0.026)	-0.103** (0.041)	-0.133** (0.065)	0.036 (0.029)	0.067 (0.069)	0.059 (0.075)
CEOD	0.253** (0.171)	0.381** (0.136)	0.458** (0.194)	-0.871 (0.915)	-0.534 (0.642)	-0.111 (0.316)
MCEO	0.494** (0.156)	0.638** (0.278)	0.869* (0.449)	0.223** (0.084)	0.443** (0.218)	0.656** (0.292)
BCEO	-0.617** (0.295)	-0.631* (0.331)	-0.962** (0.455)	0.436** (0.205)	0.507** (0.221)	0.162* (0.092)
PCEO	-0.812** (0.341)	-0.639*** (0.091)	-0.276** (0.127)	0.775*** (0.059)	0.191** (0.081)	0.284** (0.132)
BM	0.341*** (0.057)	0.768*** (0.062)	0.946** (0.361)	-0.097 (0.231)	-0.613 (0.541)	-0.604 (0.585)
BMA	0.163*** (0.028)	0.229*** (0.041)	0.241*** (0.043)	-0.011 (0.025)	-0.049 (0.061)	-0.113 (0.165)
FAGE	0.048** (0.023)	0.075** (0.034)	0.085** (0.035)	0.008** (0.003)	0.173*** (0.043)	0.186*** (0.046)
FS	-0.589** (0.224)	-0.568** (0.259)	-0.981*** (0.081)	-0.589** (0.221)	-0.829** (0.408)	-0.801** (0.317)
LEV	-0.641*** (0.073)	-0.926*** (0.085)	-0.727** (0.323)	-0.844** (0.375)	-0.681** (0.326)	-0.964** (0.299)

(Continued)

Table 4. (Continued)

Variables	Large Boards			Small Boards		
	ROA	ROCE	RONW	ROA	ROCE	RONW
SG	0.063*** (0.016)	0.078** (0.024)	0.084** (0.025)	0.009** (0.002)	0.007** (0.002)	0.005 (0.002)
Constant	21.364 (13.309)	28.419 (19.279)	26.362 (20.329)	15.695 (13.964)	65.341** (32.712)	99.637** (35.376)
Restricted F Test	F (44, 301) = 3.82 (0.000)	F (44, 301) = 3.26 (0.000)	F (44, 301) = 3.28 (0.000)	F (44, 301) = 3.63 (0.000)	F (44, 301) = 2.42 (0.000)	F (44, 301) = 1.93 (0.001)
LM Test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman Test	0.004	0.000	0.002	0.001	0.014	0.001
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.245	0.276	0.203	0.261	0.235	0.096

Notes: We estimate all models controlling for heteroscedasticity and firm-level clustering. Standard errors are in parentheses. *, ** and *** show the 10%, 5% and 1% significance level respectively

Table 5. Board characteristics and firm performance (fixed effect estimation results for old and young firms)

Variables	Old Firms			Young Firms		
	ROA	ROCE	RONW	ROA	ROCE	RONW
BS	-0.026** (0.005)	-0.388** (0.194)	-0.378** (0.137)	-0.002 (0.244)	0.214 (0.359)	-0.008 (0.502)
FD	0.009** (0.003)	0.006** (0.002)	0.008** (0.002)	0.021 (0.043)	0.079 (0.064)	0.077 (0.089)
ID	0.029** (0.013)	0.091** (0.025)	0.075** (0.018)	0.061** (0.027)	0.044** (0.021)	0.093** (0.045)
CEOD	-0.286 (0.781)	-0.773 (0.698)	-0.041 (1.951)	0.502* (0.261)	0.823** (0.367)	0.411** (0.209)
MCEO	0.698* (0.352)	0.871*** (0.139)	0.232*** (0.061)	0.586** (0.242)	0.029** (0.014)	0.481* (0.268)
BCEO	-0.572*** (0.061)	-0.339*** (0.048)	-0.233** (0.101)	-0.765 (0.782)	-0.585 (1.152)	-0.781 (0.611)
PCEO	-0.121 (0.151)	-0.862 (0.784)	-0.081 (0.224)	0.927*** (0.151)	0.446** (0.201)	0.989** (0.457)
BM	-0.346** (0.133)	-0.406** (0.189)	-0.569* (0.332)	-0.035 (0.126)	-0.155 (0.186)	0.213 (0.259)
BMA	0.116** (0.014)	0.071** (0.031)	0.071** (0.035)	-0.023** (0.004)	-0.025** (0.005)	-0.121** (0.049)
FAGE	0.078** (0.028)	-0.309* (0.171)	-0.391** (0.196)	0.139 (0.095)	-0.065 (0.141)	-0.291 (0.195)
FS	-0.126*** (0.028)	-0.313** (0.141)	-0.667** (0.295)	-0.891*** (0.055)	-0.859*** (0.093)	-0.561*** (0.061)
LEV	-0.832*** (0.095)	-0.261*** (0.041)	-0.902** (0.384)	-0.962*** (0.247)	-0.251** (0.164)	-0.244** (0.109)

(Continued)

Table 5. (Continued)

Variables	Old Firms			Young Firms		
	ROA	ROCE	RONW	ROA	ROCE	RONW
SG	0.025** (0.005)	0.005** (0.002)	0.006** (0.002)	0.005** (0.002)	0.007** (0.003)	0.004** (0.002)
Constant	41.669*** (7.595)	98.669*** (16.503)	104.447*** (18.957)	42.606*** (5.288)	73.569*** (7.785)	90.928*** (10.879)
Restricted F Test	F (44, 301) = 30.44 (0.000)	F (44, 301) = 42.23 (0.000)	F (44, 301) = 32.12 (0.000)	F (44, 301) = 25.31 (0.000)	F (44, 301) = 21.46 (0.000)	F (44, 301) = 12.81 (0.000)
LM Test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman Test	0.002	0.009	0.003	0.012	0.001	0.009
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.159	0.062	0.008	0.196	0.182	0.047

Notes: We estimate all models controlling for heteroskedasticity and firm-level clustering. Standard errors are in parentheses. *, ** and *** show the 10%, 5% and 1% significance level respectively

estimation. The findings show that large boards, female directors, male CEOs, and promoter CEOs improve the company's performance. The percentage of board independence, dual leadership, and CEO busyness negatively impact the performance of all firms. The attendance rate in board meetings is positively associated with company performance. The overall GMM estimation results are consistent with the fixed-effect estimations of whole samples.

Table 6. Board characteristics and firm performance (GMM estimation results for the total sample firms)

Variables	ROA	ROCE	RONW
L1	0.123*** (0.008)	0.754*** (0.051)	0.569*** (0.044)
BS	0.129** (0.051)	0.146** (0.078)	0.141** (0.048)
FD	0.043** (0.022)	0.016** (0.006)	0.049** (0.018)
ID	−0.019** (0.007)	−0.027** (0.012)	−0.032** (0.012)
CEOD	−0.404 (0.308)	−0.107 (0.277)	−0.293 (0.284)
MCEO	0.671** (0.204)	0.182** (0.091)	0.738** (0.322)
BCEO	−0.612** (0.273)	−0.337** (0.169)	−0.148** (0.055)
PCEO	0.496** (0.141)	0.354** (0.188)	0.469** (0.191)
BM	0.192 (0.192)	0.357 (0.304)	0.175 (0.187)
BMA	0.017** (0.004)	0.028** (0.008)	0.034** (0.015)
FAGE	0.031*** (0.006)	0.217*** (0.032)	0.189*** (0.036)
FS	−0.865** (0.377)	−0.237*** (0.034)	−0.702** (0.301)
LEV	−0.081** (0.035)	−0.251** (0.116)	−0.294*** (0.035)
SG	0.004** (0.002)	0.008** (0.002)	0.005** (0.002)
Constant	15.641** (6.793)	53.776** (15.811)	58.861** (19.734)
Wald-test (χ^2)	523.66 (0.000)	735.46 (0.000)	545.82 (0.000)
Sargan test (p-value)	38.491 (0.1051)	31.922 (0.1319)	21.694 (0.2998)
AB test AR (1) (p-value)	3.388 (0.1007)	4.241 (0.1002)	3.343 (0.2008)
AB test AR (2) (p-value)	0.677 (0.4984)	1.671 (0.1074)	1.776 (0.1757)

We estimate all models controlling for heteroskedasticity and firm-level clustering. Standard errors are in parentheses below the coefficient estimates. *Significance at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level

4.6. Chow test

To confirm the results reported in Tables 3, 4, and 5 that the impact of board and CEO characteristics vary across the types of companies classified based on board size, firm size, and firm age, the Chow test has been carried out, and the results are reported in Table 7, 8, and 9. From the results, we found that the impact of board and CEO characteristics on firm performance has been significantly different concerning the board size, firm size, and age of the firms.

5. Discussion

Section 149(1) of the Indian Companies Act 2013 requires at least one female director to be appointed to the board. The terms of an Individual's Directorship are specified in Section 165. An individual may serve as a director in up to 20 distinct companies. An individual can only act as a director for ten public limited companies. If a director is a full-time director or managing director in any listed entity, he must serve as an independent director in not more than three listed businesses. If the listed company has an executive chairperson, at least half of its board of directors must be independent. If the chairperson of the board of directors is a non-executive director, at least one-third of the board must be independent. The regression results confirm our first hypothesis that board size has a beneficial influence on performance, which is consistent with the finding of Goel et al. (2022). Furthermore, the influence of female directors is favourable. It backs up our notion, which is congruent with the findings of Safiullah et al. (2022). Our findings show that independent directors are unable to improve performance, which contradicts our hypothesis. Furthermore, CEO duality is detrimental to Indian firms and contradicts our hypothesis. Firms led by male CEOs do well, which lends credibility to our hypothesis. Family-owned firms outperform professionally managed companies in wealth creation. According to a recent poll performed by EMA partners that aids organizations in selecting skilled executives for local and international enterprises, between 2016 and 2020, the top 250 listed Indian companies earned an average total return of -2% to shareholders (TRS). Family member CEOs outperformed the market, with a positive 2% average TRS return, but professional CEOs had an opposing 4% average TRS growth. Our findings also support the

Table 7. Chow test for Return on Assets (ROA)

	ROA		
	Large Firms Vs. Small Firms	Large Boards Vs. Small Boards	Old Firms Vs. Young Firms
BS	F (2, 716) = 46.29*** (0.0001)	F (2, 716) = 2.20 (0.1119)	F (2, 716) = 5.94** (0.0028)
FD	F (2, 716) = 48.70*** (0.0001)	F (2, 716) = 3.53** (0.0298)	F (2, 716) = 4.01** (0.0185)
ID	F (2, 716) = 46.52*** (0.0001)	F (2, 716) = 3.22** (0.0405)	F (2, 716) = 3.51** (0.0304)
CEOD	F (2, 716) = 44.61*** (0.0001)	F (2, 716) = 3.00* (0.0505)	F (2, 716) = 3.81** (0.0226)
MCEO	F (2, 716) = 45.88*** (0.0001)	F (2, 716) = 3.14** (0.0439)	F (2, 716) = 6.75** (0.0013)
BCEO	F (2, 716) = 46.52*** (0.0001)	F (2, 716) = 3.88** (0.0211)	F (2, 716) = 3.94** (0.0199)
PCEO	F (2, 716) = 42.77*** (0.0001)	F (2, 716) = 3.22** (0.0407)	F (2, 716) = 4.43** (0.0123)
BM	F (2, 716) = 31.97*** (0.0001)	F (2, 716) = 15.43*** (0.0001)	F (2, 716) = 4.92** (0.0075)
BMA	F (2, 716) = 44.03*** (0.0001)	F (2, 716) = 3.44** (0.0326)	F (2, 716) = 5.11** (0.0063)

Notes: Figures in the parenthesis show the probability values. ***, ** and * indicate 1, 5 and 10% level of significance, respectively

Table 8. Chow test for return on capital employed (ROCE)

	ROCE		
	Large Firms Vs. Small Firms	Large Boards Vs. Small Boards	Old Firms Vs. Young Firms
BS	F (2, 716) = 50.59*** (0.0001)	F (2, 716) = 2.27 (0.1041)	F (2, 716) = 6.07** (0.0024)
FD	F (2, 716) = 49.09*** (0.0001)	F (2, 716) = 3.50** (0.0307)	F (2, 716) = 3.47* (0.0316)
ID	F (2, 716) = 46.36*** (0.0001)	F (2, 716) = 5.13** (0.0061)	F (2, 716) = 3.71* (0.0249)
CEOD	F (2, 716) = 52.37*** (0.0001)	F (2, 716) = 4.97** (0.0072)	F (2, 716) = 3.15** (0.0434)
MCEO	F (2, 716) = 48.73*** (0.0001)	F (2, 716) = 4.09** (0.0171)	F (2, 716) = 18.63*** (0.0001)
BCEO	F (2, 716) = 49.20*** (0.0001)	F (2, 716) = 3.41** (0.0336)	F (2, 716) = 4.51** (0.0113)
PCEO	F (2, 716) = 50.16*** (0.0001)	F (2, 716) = 3.18** (0.0422)	F (2, 716) = 8.80** (0.0002)
BM	F (2, 716) = 40.28*** (0.0001)	F (2, 716) = 7.99** (0.0004)	F (2, 716) = 3.32** (0.0369)
BMA	F (2, 716) = 55.56*** (0.0001)	F (2, 716) = 3.35** (0.0356)	F (2, 716) = 3.62** (0.0273)

Notes: Figures in the parenthesis show the probability values. ***, ** and * indicate 1, 5 and 10% level of significance, respectively

Table 9. Chow test for Return on Net Worth (RONW)

	RONW		
	Large Firms Vs. Small Firms	Large Boards Vs. Small Boards	Old Firms Vs. Young Firms
BS	F (2, 716) = 20.79*** (0.0001)	F (2, 716) = 1.21 (0.2988)	F (2, 716) = 3.70** (0.0252)
FD	F (2, 716) = 26.14*** (0.0001)	F (2, 716) = 5.78** (0.0032)	F (2, 716) = 3.13** (0.0443)
ID	F (2, 716) = 23.13*** (0.0001)	F (2, 716) = 7.93** (0.0004)	F (2, 716) = 3.98** (0.0191)
CEOD	F (2, 716) = 26.75*** (0.0001)	F (2, 716) = 6.09** (0.0024)	F (2, 716) = 3.26** (0.0390)
MCEO	F (2, 716) = 24.03*** (0.0001)	F (2, 716) = 7.35** (0.0007)	F (2, 716) = 13.85*** (0.0001)
BCEO	F (2, 716) = 25.37*** (0.0001)	F (2, 716) = 5.43** (0.0046)	F (2, 716) = 3.78** (0.0233)
PCEO	F (2, 716) = 24.32*** (0.0001)	F (2, 716) = 5.36** (0.0049)	F (2, 716) = 5.17** (0.0059)
BM	F (2, 716) = 20.51*** (0.0001)	F (2, 716) = 8.90** (0.0002)	F (2, 716) = 4.21** (0.0152)
BMA	F (2, 716) = 34.19*** (0.0001)	F (2, 716) = 7.02** (0.001)	F (2, 716) = 3.20** (0.0413)

Notes: Figures in the parenthesis show the probability values. ***, ** and * indicate 1, 5 and 10% level of significance, respectively

previous study's conclusions that promoter CEOs assist firms in improving their performance. SEBI also recognizes the critical role that promoters and entrepreneurs play in wealth generation (*Tussle between professional CEOs and promoters, The Hindu Business Line, 9 April 2021*). Furthermore, conducting more board meetings and increasing attendance at board meetings improves company performance, which supports our hypothesis.

Variables	Hypothesis	Findings (status)
BS	±	+
FD	±	+
ID	+	-
CEOD	±	-
MCEO	+	+
BCEO	±	-
PCEO	±	+
BM	±	+
BMA	+	+

6. Conclusions

We investigate whether the new Companies Act, 2013, affects the functioning of board characteristics and, as a result, firm performance. It also examines the influence of various board features on firms of diverse size, the board size and firm ages. Previously, this was rarely mentioned in the Indian context. We believe that board characteristics are essential (Sarbanes-Oxley Act 2002; Clause 49 listing agreement). We selected nine board characteristics that may influence firms' performance based on earlier studies. We investigate whether board features explain the performance success of Indian firms. In line with previous research, we estimate the fixed effect estimation model to find board features that influence company performance. Hence, this study examined the influence of board characteristics on the performance of 113 Indian enterprises from 2012–13 to 2019–20. The data is divided into three categories: firm size, board size, and firm age. The analysis was controlled by four variables: firm size, firm age, debt-to-equity ratio, and sales growth. We discover that CEOs who are also company promoters play an essential role in Indian firms and positively impact firm performance. The independence of the board has a negative relationship with performance. Merely holding the board meeting will not suffice the firm performance. The meeting should be attended actively in order to enhance the performance. The results are similar across firm performance measures and subsamples based on firm size, board size, and firm age.

Overall, our findings contribute to the board and corporate governance literature by examining the influence of board features on firm performance across firm ages. Furthermore, it investigates the influence of various board features after the enactment of Indian Companies Act, 2013, on firm performance in an emerging country with a diverse market structure and macroeconomic environment. Finally, our research has implications for regulators in guiding businesses in improving their CG practices, which may increase firm performance. CEOs should focus only on their present responsibilities and avoid having several directorships. The findings imply that management should consider improving independent directors' timely access to corporate information in order for independent directors to be more successful on the board. Rather than increasing the number of board meetings, greater emphasis should be placed on the directors' attendance and involvement. This study has several drawbacks as well. The data were collected by hand and the study has been conducted for eight years only, from 2012–13 to 2019–20, so the longer-term

impacts of board qualities on business success cannot be investigated using this data. Future scholars might expand their investigation by examining data from other periods of financial recession to understand better which board elements and when they are most important. Our findings support the agency, stewardship, and RDT. Our research eventually shows that board characteristics significantly impact Indian firm performance.

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Note

1. Resource dependency theory

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Appendices

Table A1. Number and proportion of firms by industry classification

Industry	Number	Percentage
Automobile and textile	13	11.50
Drugs and Health care	11	9.73
Finance services and others	10	8.85
Oil, Gas, and Refinery	10	8.85
Consumer products and Tobacco	9	7.96
Steel and Metals	9	7.96
IT	8	7.08
Cement, Paints and varnishes	8	7.08
Electrical machinery, tyres & tubes and transport services	7	6.20
Electricity and Telecommunication services	5	4.44
Engineering, Construction and allied activities	4	3.54
Machinery and industrial equipment	4	3.54
Chemicals	2	1.77
Media-broadcasting	2	1.77
Others	11	9.73
Total	113	100

Table A2. Operationalization of variables

Variables	Proxy	Operationalization	Predicted Sign	Source
Panel A: Dependent Variables (Firm Performance)				
Firm Performance	ROA	Net Profit/Total Assets		Bloomberg
	ROCE	Earnings before interest and taxes/ (Total assets—Current liabilities)		Bloomberg
	RONW	Net Profit/Total Equity		Bloomberg
Panel B: Independent Variables (Board Characteristics)				
Size	BS	Total number of directors on board during the year	±	Annual Report
Gender diversity	FD	Percentages of women directors on board during the year	±	Annual Report
Independence	ID	Percentages of independent directors on board during the year	+	Annual Report
Leadership	CEOD	If both Chairman and CEO is one person = 1 or else 0	±	Annual Report
	MCEO	If the CEO is a male = 1 or else 0	+	Annual Report
	BCEO	If the CEO has more than three directorships other than the home company = 0 or else 1	±	Annual Report
Monitoring	PCEO	If the CEO is a promoter = 1 or else 0	±	Annual Report
	BM	Total number of board meetings during the year	±	Annual Report
	BMA	Percentage of board meetings attended by the total board members during the year	+	Annual Report

(Continued)

Table A2. (Continued)				
Variables	Proxy	Operationalization	Predicted Sign	Source
Panel C: Control Variables				
Firm Size	FS	Natural log of total assets		Prowess IQ
Leverage	LEV	Debt-to-equity ratio		Prowess IQ
Firm Age	FA	Age of the firm up to 2020 since its incorporation year		Prowess IQ
Sales Growth	SG	(Present value of sales—the past value of sales)/past value of sales		Prowess IQ



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