CONCATENATION OF BOARD GENDER DIVERSITY WITH MANAGERIAL EFFICIENCY IN SELECTED FORTUNE INDIAN COMPANIES

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Abstract

Even with the substantial developments made by organisations over the last 20 years for encouraging the participation and representation of women at the board level, they occupy only a small number of seats on the board. The study intends to examine the nexus between gender diversity among corporate boards and managerial efficiency of selected Fortune Indian companies (HCL Technologies, Hindustan Unilever, ONGC, ITC and WIPRO) for 2018-2022. The chosen indicators for managerial efficiency were Debtors Turnover Ratio (DTR) and Inventory Turnover Ratio (ITR), and for Board Gender Diversity, the number of females on board, respectively. Data for the study was collected from the company's annual reports. The study's research design is cross-sectional, and analysis was performed using panel-regression techniques. The findings aim to deliver new perceptions to the empirical managerial efficiency literature. They will help the companies confront the gender inequality challenges faced head-on, fostering them to create a more welcoming and supportive culture that ultimately benefits their bottom line and drives better business outcomes. An insignificant positive association was found between the two variables.

Keywords: Gender diversity, corporate boards, managerial efficiency, debtors' turnover, inventory turnover ratio, Fortune Indian companies.

1. Introduction

In today's global business environment, sustainable corporate performance is essential (Imuentiyan & Dibie, 2021). Corporate governance provides a strong foundation for companies to establish goals, measure performance, and manage operations effectively (Deepshikha, 2021). The goal of corporate governance is to ensure that the company operates in a transparent, ethical, and responsible manner while maintaining its profitability and sustainability. This concept is becoming increasingly important as investors, customers, and other stakeholders

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demand more accountability and transparency from businesses (Infosys, 2023). Implementing effective corporate governance can help companies build trust, enhance their reputation, and mitigate risks, ultimately leading to long-term success. Many studies have demonstrated the link between corporate governance and financial metrics, but other factors are equally important (Eysink & Paape, 2016). In addition to financial considerations, corporate health encompasses a wide range of business sustainability measures, including managerial efficiency (Imuentiyan & Dibie, 2021).

As a manager, it is essential to always strive for efficiency. Whether streamlining processes, delegating tasks effectively, or finding ways to automate repetitive tasks, efficiency can significantly impact productivity and overall success. Managerial Efficiency can be described as the extent of specific capabilities of administrative people to produce revenue by employing a firm's physical and non-physical resources (Demerijian, Lev, & McVay, 2012). A manager's competence in efficiently handling his organisation is reflected in his firm's value (Cho & Lee, 2019). Studies have conclusively demonstrated that organisations possessing diverse boards, particularly gender diversity, tend to exhibit best management practices. In addition, by incorporating various perspectives and backgrounds at the decision-making level, companies can enhance their decision-making capabilities, spur innovation, and achieve better financial performance. Therefore, companies must prioritise promoting diversity and inclusion within their leadership teams for representation and the organisation's overall benefit.

For years, gender inequality has been a persistent issue in the corporate world. Despite some progress, women still face significant obstacles in advancing their careers. Women often encounter the "glass ceiling" phenomenon that hinders their progress in senior management positions. Biased hiring and promotion practices, as well as profoundly ingrained gender role stereotypes, are often to blame for this. Additionally, cultural barriers in patriarchal societies and women's reluctance to occupy managerial positions that require extensive travel, long work hours, and public appearances can contribute to this problem. However, the social revolution and technological advancement over the years have enabled and proved that females in our country are competent enough to occupy managers, politicians, and researchers positions while discharging their roles (Modish Project, 2012). Companies must acknowledge these problems and take concrete steps to create a more inclusive and equitable work environment that values all employees regardless of gender. This can be achieved by implementing policies such as flexible work arrangements, offering mentorship and leadership development opportunities, and actively endorsing diversity and inclusion initiatives.

In recent years, there has been a growing recognition of the importance of gender diversity on corporate boards. However, despite progress made in other countries, gender diversity on corporate boards of Indian companies remains relatively low. According to a study by Catalyst Inc., women held only 15.2% of board seats in India's top 500 companies as of March 2021. Many research studies have tested the relationship between the presence of female executives and directors on the board on firms' financial performance and market value (Vahamaa & Peni, 2010). However, academic literature is still lacking with results of the association of board gender diversity and managerial efficiency. Thus, an attempt has been made in this paper to extend this literature by concentrating on the effects of females on the board of directors on the managerial efficiency of the selected companies.

2. Literature Review and Development of Hypotheses

Performance evaluation is vital to organisational functioning as it helps in various purposes and functions like resolving performance glitches, setting targets, managing rewards, discipline, and dismissal (Dickinson, 1993). Companies survive, prosper and grow only through continuous monitoring and appraisal of their overall performance (Khauoe, Joubert, & Karodia, 2015). Three fundamental criteria for assessing the performance of employees are trait-based; behaviour-based; and results-based criteria (Grobler, Warnich, Carrel, Elbert, & Hatfiel, 2011). Trait-based criteria deal with individual traits of employees; behaviour-based criteria are related to visible results of performance, whereas outcome or results-based criteria are objective in nature and measure production data, be it profits, the volume of sales and units manufactured (Bateman & Snell, 2013). Contemporary trends in the field of corporate performance appraisal inculcate measuring the company's economic, social, environmental, and governance performance and corporate sustainability reporting practices (Hrebicek, Stencl, Trenz, & Soukopova, 2014). Companies interested in having a short-term overview of the anticipated results in a short time usually use financial measures to exhibit their business status (Mashovic, 2018). Further, these measures best signify the financial position of the companies and offer an adequate basis for comprehending the same by appraising firms' performance (Bogicevic, Domanovic, & Krstic, 2016). In contrast, the firms' future is usually determined by assessing the non-financial measures (Van Looy & Shafagatova, 2016) like relationships with customers, employees, quality, and cycle time and aid in accomplishing the strategic goals of organisations.

Efficiency can be defined as the achievement of or aptitude to execute a job with the least possible expenditure of energy and time (Ahmad, 2019). Managerial efficiency, thus, can be described as the yield generated by the management people in an organisation concerning the investment made and expenditure incurred (Spacey, 2018). Moreover, it is the fraction of overall organisational resources that aid in production during the manufacturing process, and the more significant this ratio, the more efficient the manager is (Brown, 2021). In addition, several efficiency ratios are available for the investors and business analysts interested in profits generated by companies through the firms' normal activities like assets turnover ratio, inventory turnover ratio, investment turnover rate, receivables collection period, payables payment period, and average raw material holding (Bansal, 2018). These common efficiency ratios are like liquidity ratio analysis, which assesses current assets and liabilities. Recent research shows that maintaining healthy debtors and inventory turnover ratios is any business's success. Therefore, it is imperative that businesses closely monitor their debtors to ensure that they are paying their debts on time, as late payments can cause serious cash flow issues and indicate potential financial problems for the debtor. Therefore, businesses must have a robust system for managing debtors and collecting payments promptly. Similarly, the inventory turnover ratio is a crucial measure of how efficiently a business sells its inventory. A high inventory turnover ratio indicates that a business effectively manages its inventory and efficiently sells its products (Thrive Technologies, 2023). Conversely, a low inventory turnover ratio can indicate that a business is holding onto excess inventory, which can tie up valuable resources and create significant cash flow issues. By staying on top of these crucial metrics, businesses can make informed decisions and take proactive steps to improve their financial health- and those that do not struggle to stay afloat in today's competitive business environment (Barter, 2023).

The literature on board composition is quite diverse, with board demographic diversity being one of its vital phenomena (Rao & Tilt, 2015). Diversity of the board (DIB) encompasses

some visible criteria like gender, age, nationality or tenure; certain intangible aspects like qualification; and the occupational and operational history of the board members (Kang, Cheng, & Gray, 2007). These demographic characteristics tend to influence the board's functioning in one way or another (Post & Byron, 2015). The most widely researched variable among the observable attributes of diversity is 'gender diversity' (Hillman, 2015). This dimension of board diversity encapsulates three comprehensive perspectives: theoretical, ethical and moral, and business case (Pfeffer & Salancik, 1978). A diverse board is believed to have many ideas and opinions, free from manipulations of any kind, effective in administrative tasks, and members devoted towards achieving companies' interests, not their own (Imuentiyan & Dibie, 2021). Country-specific studies show significant developments towards promoting gender diversity. In Sweden, for instance, almost a decade ago, they have been increasing their focus on women's participation in top management positions leading to more diverse boards. It is expected that greater gender diversity will broaden the available pool of director talent, thus enhancing an organisation's effectiveness, among other benefits. However, despite the numerous advantages diverse boards offer, certain conflicting opinions on board diversity exist whereby boards fail to handle diversity efficiently, thereby presenting tension, distrust, misunderstandings, communication gaps, lack of cohesion and conflicts (Gasper, et al., 2010).

Concatenation of Board Gender Diversity and Managerial Efficiency

Based on an analysis of relevant literature, it was revealed that literature is lacking as far as the relationship between board gender diversity and managerial efficiency is concerned. Literature on the relationship between these two variables is very scarce, as reported by existing research studies. Some studies documented a positive association, while others testified a negative influence. Previous studies on managerial efficiency in organisations describe it as an outstanding feature for the adoption of corporate social responsibility (CSR) practices by aiding in organising, executing, communicating and interacting with the critical stakeholders in the society outside the firm (Slater, 2009) (Attig & Cleary, 2015) (Osagie, Blok, Lans, & Mulder, 2016). It was found that flexibility, as a fundamental characteristic of CSR activities, assists in boosting the financial performance of companies and is associated with the degree of managerial efficiency. Thus, any further change in corporate social performance had a positive linkage with managerial efficiency (Cho & Lee, 2019). A study on the correlation between managerial skills and efficiency discovered that the human, conceptual and scientific skills possessed by managers and supervisors significantly influence the managers' effectiveness in the workplace (Divleli & Ergun, 2015). A comparative study of Indian managers based on tangible and intangible characteristics like gender, age, tenure, position in the company, and institutional ownership status offer an understanding of the matters of productivity, flexibility and adaptability as the constructs of managerial efficiency (Bamel, Rangnekar, Stokes, & Rastogi, 2015). The results of panel regression analysis on data from large listed Indian companies revealed that a significant relationship exists between independent gender-diverse boards and the financial position of companies, calculated through market performance measures (Haldar, Shah, & Rao, 2015). A study on data from Chinese listed firms on board gender diversity and managerial efficiency during the first two quarters of 2020 demonstrated that factors such as board size, board independence, and managerial ownership have a direct or indirect impact on the companies' profit, operating efficiency, and shareholder wealth (Pandey, et al., 2022). As per the statistics of 393 Bursa Malaysia listed companies for four years, it was found that independent directorship and board membership harm the level of earnings management (Roy & Alfan, 2022). Another empirical study on the relationship between board characteristics (specifically board gender diversity) and earning management procedures of topmost public companies of Kazakhstan for five years from 2010 to 2016 reveals that

companies with more diverse boards are more successful in constraining earnings management (Orazalin, 2019). The female directorship was found to increase Return on Assets (ROA) significantly and Return on Equity (ROE) which are measures of firms' accounting performance, and decrease substantially Tobin's Q indicating market-based performance in a sample of 394 French firms (Bennouri, Chtioui, Nagati, & Nekhili, 2018). Also, by employing instrumental variables regression analysis, it was discovered that female directors on the board positively influence the financial performance of entities listed on the Bora Istanbul, measured by returns on assets, equity and sales (Kilic Karamahmutoglu & Kuzey, 2016). On the other hand, a panel data analysis on 500 companies belonging to the IT sector for twelve years shows the statistically significant correlation of board gender diversity with return on assets ratio but a positive impact of the per cent of women on board on a price-to-earnings balance (Simionescu, Gherghina, & Tawil, 2021).

2.1 Research Objectives

This study aims to analyse the relationship between gender diversity in corporate boards and the managerial efficiency of selected Fortune Indian companies. The primary focus is to investigate how board gender diversity affects the debtors' turnover ratio and the inventory turnover ratio of these companies. A thorough examination of these factors aims to gain a deeper understanding of the impact of gender diversity on corporate performance and ultimately promote greater diversity and inclusivity in the corporate world.

3. Materials and Methods

The study population comprised five Fortune Indian companies that acquired a place among the top fifty companies per the Fortune India List 2022-23, i.e., HCL Technologies, Hindustan Unilever, Oil and Natural Gas Commission (ONGC), ITC, and WIPRO. The Fortune India List holds immense significance as it is a highly respected and influential ranking of India's top companies. This list is compiled based on a multitude of factors, including revenue, profits, market capitalisation, and shareholder returns. It is widely utilised by investors, analysts, and business leaders as a benchmark for measuring the performance and success of Indian companies. HCL Technologies is a global leader in IT and engineering services and offers a wide range of solutions to help businesses improve their productivity and efficiency. With a focus on innovation and customer satisfaction, the company is a trusted partner for businesses of all sizes and lays immense emphasis on innovation and customer satisfaction. It provides help in software development, IT infrastructure management, and digital transformation with the required experience and expertise (HCL Technologies, 2022). Hindustan Unilever is an eminent name in the FMCG industry in India, with an extensive array of products catering to the diverse needs of the Indian consumer, ranging from personal care to home care products. With a strong foothold in the Indian market for decades, the company is known for its top-notch quality products and innovative marketing strategies (Hindustan Unilever, 2022). The Oil and Natural Gas Commission is India's largest crude oil and natural gas provider, contributing a staggering 70% to the country's domestic production. ONGC's Energy business is structured and holistic, giving them an edge to play an increasingly vital role as India's energy cornerstone. Furthermore, their emphasis on sustainability and social responsibility is commendable (Oil and Natural Gas Commission, 2022). ITC is a highly reputed Indian private sector company with a diversified presence in FMCG, Hotels, Packaging, Paperboards & Specialty Papers, and Agri-Business. ITC's businesses and value chains support sustainable livelihoods for over 6 million people, most of whom are the poorest in rural India (ITC, 2022). WIPRO Limited is a leading global company providing information

technology, consulting, and business process services. They utilise various innovative technologies like cognitive computing, hyper-automation, robotics, cloud, and analytics to assist their clients in adapting to the digital world and achieving success. With over 240,000 dedicated employees, they serve clients in 66 countries across six continents (WIPRO, 2022).

To fulfil the research objectives, data from these companies were taken for five years, from 2017-18 to 2021-22. The independent variable in the study, which is 'Board Gender Diversity (BGD)' is measured on a ratio scale, and the dependent variable, 'managerial efficiency' is gauged by Debtors' Turnover Ratio (DTR) and Inventory Turnover Ratio (ITR). In addition, 'Firm size' (FS) and 'Firm leverage' (FL) are selected as control variables. Panel Regression analysis was employed for the analysis of collected data. The study is purely based on secondary data from the corporate annual reports of the five selected companies over the last five years, from 2017-18 to 2021-22. The use of corporate accounts was made due to reasons of credibility and accessibility.

3.1 Research Model

A research model is a structured framework that assists in designing and conducting studies in an organised manner. Against the above framework, it is anticipated that a functional relationship exists between board gender diversity and the managerial efficiency of companies which can be presented through the following equations:

$$DTR_{it} = F(BGD_{it}\ FS_{it}\ FL_{it}) \dots \dots \dots \dots (1)$$
$$ITR_{it} = F(BGD_{it}\ FS_{it}\ FL_{it}) \dots \dots \dots \dots (2)$$

The above equations (1) and (2) can be expressed in econometric forms as:

$$DTR_{it} = \beta_0 + \beta_1 BGD_{it} + \beta_2 FS_{it} + \beta_3 FL_{it} + \mu_{it} \dots \dots \dots \dots (3)$$
$$ITR_{it} = \beta_0 + \beta_1 BGD_{it} + \beta_2 FS_{it} + \beta_3 FL_{it} + \mu_{it} \dots \dots \dots \dots (4)$$

Here, 'DTR' is for Debtors Turnover Ratio, 'ITR' is for Inventory Turnover Ratio, 'BGD' is the Board Gender Diversity, 'FS' shows the Firm Size, 'FL' represents Firm Leverage, 'i' represents the company, 't' is for the period, and 'μ' is the error term. Research and hypotheses suggest that a varied representation of genders on corporate boards may enhance a company's managerial effectiveness ($\beta_1 > 0$).

4. Results & Discussion

4.1 Data Analysis and Interpretation of Results
4.1.1 Univariate Analysis

Univariate analysis is a crucial statistical approach that involves scrutinising a single variable at a time. It is an indispensable tool in data analysis that detects patterns and trends in the data. Table 1 presents the descriptive statistics of the collected data. The mean, maximum and minimum values, standard deviation, kurtosis and Jarque-Bera values are shown to assess the normality of data. The dependent variables under study, DTR (Debtors' Turnover Ratio) and ITR (Inventory Turnover Ratio) were measured by 'net credit sales to average accounts receivable' and 'cost of goods sold to average inventories', respectively. The results reveal that the standard deviation of DTR and ITR is 10.59 and 4.32, less than the average values of 14.81 and 9.98, respectively. This indicates that the data are not widely dispersed from the mean. The skewness of DTR and ITR was found to be 0.49 and 0.37, indicating that the distribution is pretty symmetrical. The kurtosis values lie between -2 and +2, which is acceptable to prove

normal univariate distribution (George & Mallery, 2010). Other researchers have also argued that the data is standard if the value of skewness is between -2 and +2 and of kurtosis is between -7 and +7 (Hair, Black, Babin, & Anderson, 2010). The Jarque-Bera statistics of DTR is 3.34 with a p-value of 0.19, which accepts the null hypothesis of a normal distribution. Similarly, the value of the statistics is 2.42 (p>0.05) for ITR, assuming the null hypothesis of a normal distribution. The independent variable under study, Board Gender Diversity (BGD), had an average value of 0.16, measured as the ratio of female directors in the entire board of directors of the companies under study. The skewness value of 0.52 shows the distribution is moderately skewed, and the kurtosis value of 2.93 proves the distribution is normal. The Jarque-Bera value of BGD is 1.15 with a probability of 0.56, which is more than a 5 per cent significance level, accepting the null hypothesis of a normally distributed population. Firm Size (FS), i.e., the log of total assets, had an average value of 11.44 and maximum and minimum values of 13.28 and 9.79, respectively. Therefore, the Jarque-Bera statistics for FS are 1.25 and a p-value of 0.53 (>0.05), which accepts the null hypothesis of a normally distributed population. The other control variable under study, Firm Leverage (FL), was measured by the Debt-Equity Ratios of companies. FL had a mean value of 0.25, maximum and minimum values of 1.4 and 0, respectively, and a standard deviation of 0.43. In addition, FL reported the Jarque-Bera value of 7.38 with a p-value of 0.00 (<0.05), which means that the null hypothesis of a normal distribution is rejected.

4.1.2 Correlation Analysis

Understanding the correlation between variables is crucial, and it can aid in predicting outcomes and supporting decision-making. Table 2 presents the correlation results among the variables. As per the results, BGD was negatively correlated to DTR by a correlation value of -.51 and a p-value of .01 is significant at 1 per cent. In contrast, it was positively related to ITR with a correlation value of .13 and a p-value of .53, making it insignificant at a 5% significance level. Also, the Firm size was found to have a negative correlation with both dependent variables, i.e., DTR and ITR. The relationship of FS with DTR was found to be significant at a 5 per cent significance level since the p-value was less than 0.05 and insignificant with ITR since the p-value was greater than 0.05. FL reported a significant and positive association with DTR at a .47 correlation value and a .02 p-value at a 5% significance level. It also had a positive correlation with ITR with a correlation value of .46 and p-value of .02 at a 5 per cent significance level. The results reported a significant negative relationship of FL with BGD with a correlation of -.43 (p-value .03<0.05) and a significant negative association of FL with FS with a Pearson's coefficient of -.61 (p-value .001) at a 1 per cent level of significance.

4.1.3 Panel Regression Analysis

Panel regression is a valuable tool for comprehending complex relationships and making informed decisions based on data-driven insights. The Hausman test is a statistical test used to determine whether the coefficients in a regression model are consistent with a particular theory. The results of the Hausman test for the dependent variable DTR are presented in Table 3. The value of the chi-square statistic was found to be 5.99 with a probability value of 0.11. Since the p-value was more significant than the 0.05 level of significance, the null hypothesis that the random effect would be more appropriate was accepted, and the fixed effect was rejected. Table 4 displays the results of the random effect model. As per the preliminary analysis of data, it was found that the value of the coefficient of multiple determination (R^2) is 0.03. However, the adjusted value is -0.10, which indicates an inverse relationship between the parameters tested, and the model chosen does not follow the data trend. The value of the F-

statistic was 0.26 with a probability of 0.86. Since the p-value is more than 0.05 level of significance, the null hypothesis is accepted that no significant relationship exists between board gender diversity and managerial efficiency predicted by the debtor's turnover ratio. The Durbin- Watson statistic value of 1.47, being close to the benchmark value of 2.0, represents that auto-correlation is not present in the data.

In the case of the Hausman test for the dependent variable ITR presented in Table 5, the chi-square statistic was found to be 4.10 with a probability value of 0.25. Since the p-value was more significant than a 5 per cent significance level, the null hypothesis of the supremacy of the random effect model was accepted, and the fixed effect was rejected. Table 6 shows the results of the random effect model for the dependent variable, ITR. The results display that the R-squared value is 0.24. In contrast, the adjusted R-squared is 0.13, indicating that around 13 per cent of systematic cross-sectional variation in Inventory turnover ratio (ITR) is due to board gender diversity. The value of the F- statistic is 2.19, with a probability of 0.12. Since the value is more than a 5 per cent significance level, it makes it insignificant and shows that the model has low predictive power. Moreover, a 2.0 on the DW statistic indicates zero autocorrelation (Kenton, 2021). Since the reported value is 1.64, close to the benchmark, no autocorrelation can be expected in the regression model.

4.2 Discussion of Findings

Regarding the relationship between board gender diversity and debtors' turnover ratio, the coefficient value was positive, i.e., 7.37, t- statistic was 0.54, and the probability value was 0.60 at the 5 per cent significance level. Similarly, the impact of board gender diversity on the inventory turnover ratio was also positive but insignificant as the p-value was more than 5 per cent, i.e., 0.13. The coefficient value was 17.74 with a t- statistic of 1.56. It can be said that the analysis results are statistically insignificant, even though an increase in the gender diversity ratio is likely to increase the managerial efficiency calculated through both debtor turnover and inventory turnover ratios. The result of the study is somewhat obvious as the mean of the percentage of female directors on the board to total board size was found to be only 16 per cent, as disclosed by the average values in Table 1. Numerous former studies are also found in line with the results of the present study. A positive and insignificant impact of board gender diversity was observed on managerial efficiency (Imuentiyan & Dibie, 2021). A survey of the relationship between gender diversity and board performance indicated that the presence of females on the board had a positive insignificant effect on the overall performance of the board (Kakabdse, et al., 2015). Further, in an econometric analysis of IT firms, the results reveal no significant relationship between board gender diversity and return on assets but a positive impact of the percentage of females on the board on the price-earnings ratio (Simionescu, Gherghina, & Tawil, 2021). Various studies show conflicting results also. A study of financial firms in the UK shows that women's board representation is significantly associated with firm performance (Brahma, Nwafor, & Boateng, 2020).

5. Conclusion

An extensive literature review shows that research on the correlation between board gender diversity and managerial efficiency is lacking. Despite numerous evaluations on the impact of gender diversity in the boardroom on firm performance, there is still no clear evidence for or against the appointment of women for positive company performance. To address this gap, a study was conducted on five Fortune Indian companies using the random effects estimation model of panel regression. The study found a positive but insignificant

association between board gender diversity and managerial efficiency. Therefore, it can be concluded that board gender diversity does not directly lead to better company performance regarding managerial efficiency ratios, despite its appeal. It is recommended that the appointment of women to boards should be made for reasons of gender equality rather than for enhancing corporate performance through gender diversity. However, the robust positive correlation observed between board gender diversity and debtors and inventory turnover ratios makes it clear that companies that boast of diverse boards indisputably exhibit better turnover ratios, a testament to their superior management efficiency. The underlying reason for this trend could be attributed to the fact that a diverse board presents a wide array of perspectives and experiences, culminating in better decision-making and problem-solving. Furthermore, a diverse board is more attuned to its diverse customer base's needs, which is invaluable in making informed inventory decisions. Consequently, fostering board gender diversity is a crucial step towards enhancing a company's bottom line. A report on board gender diversity and managerial efficiency also highlighted the fact how incorporating policies aimed at raising awareness towards achieving better-balanced boards can lead to long-lasting changes in social responsibility within organisations while driving better managerial efficiency through improved managerial decision-making abilities, ultimately benefiting all stakeholders involved including shareholders (Pandey, et al., 2022). Talking about the measures to enhance gender diversity on corporate boards in India, it could be beneficial to adopt gender quotas, as other countries have done. Additionally, companies should actively search for competent female candidates for board positions by expanding recruitment efforts beyond personal networks and traditional channels and promoting job postings in women-focused professional networks. Companies should provide training and support for female board members to ensure their success and retention. This can include mentoring programs, leadership development opportunities, and access to resources that promote effective decision-making and governance. Companies should establish clear criteria for board member selection that prioritises diversity and inclusion. This can include setting specific targets for female representation on the board or including diversity as a critical factor in the selection process. Enhancing gender diversity in corporate boards requires a sustained commitment to equality and inclusion. By taking these steps, companies can create more dynamic and effective boards that better reflect the diversity of their stakeholders and the communities they serve.

6. Delimitations and Future Research Attempts

Based on the information provided, the study may have some limitations regarding the breadth and precision of its conclusions. Concentrating only on one aspect of diversity and examining a limited number of companies could constrain the importance of the findings. It would be intriguing to observe further research on the impact of gender diversity in the boardroom on managerial efficiency and the contributing factors to this correlation. In order to advance understanding of the topic, future research attempts should focus on exploring alternative methodologies and gathering data from a more diverse and representative sample. Additionally, investigating the long-term effects of the interventions used in previous studies could provide valuable insights into the sustainability of their impact. Enhancing gender diversity in corporate boards requires a sustained commitment to equality and inclusion. By taking these steps, companies can create more dynamic and effective boards that better reflect the diversity of their stakeholders and the communities they serve.

Funding Acknowledgements

Declaration of conflicting interests
'The Author(s) declare(s) that there is no conflict of interest'.

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Appendices

Tables and Figures

Table 1: Descriptive Statistics

	DTR	ITR	BGD	FS	FL
Mean	14.81	9.98	0.16	11.44	0.25
Median	9.31	9.70	0.15	11.23	0.10
Maximum	33.40	18.20	0.31	13.28	1.4
Minimum	4.00	4.95	0.06	9.79	0.00
Std. Dev.	10.59	4.32	0.06	1.00	0.43
Skewness	0.49	0.37	0.52	0.54	2.12
Kurtosis	1.50	1.67	2.93	2.82	5.88
Jarque-Bera	3.34	2.42	1.15	1.25	27.38
Probability	0.19	0.30	0.56	0.53	0.00
Sum	370.16	249.43	4.11	286.10	6.27
Sum Sq. Dev.	2689.97	448.24	0.08	23.83	4.49
Observations	25	25	25	25	25

Table 2: Correlation Analysis

Correlation t- statistic Probability	DTR	ITR	BGD	FS	FL
DTR	1.00 ----------- -----------				
ITR	0.14 0.66 0.51	1.00 ---------- ----------			
BGD	-0.51 -2.85 0.01	0.13 0.64 0.53	1.00 ---------- ----------		
FS	-0.49 -2.70 0.01	-0.14 -0.68 0.50	0.10 0.48 0.63	1.00 ---------- ----------	
FL	0.47 2.55 0.02	0.46 2.46 0.02	-0.43 -2.30 0.03	-0.61 -3.67 0.00	1.00 ---------- ----------

Table 3: Hausman Test (Dependent Variable: DTR)

Test Summary	Chi- sq. Statistic	Chi- sq. d.f.	Prob.
Cross-section random	5.99	3	0.11

Table 4: Results of Random Effect (Dependent Variable: DTR)

Variable	Coefficient	Std. Error	t- Statistic	Prob.
BGD	7.37	13.74	0.54	0.59
FL	-0.84	3.62	-0.23	0.82
FS	-2.01	2.97	-0.68	0.51

C	36.83	34.42	1.07	0.30

Effects Specification				
	S.D.		Rho	
Cross-section random	8.27		0.92	
Idiosyncratic random	2.48		0.08	

Weighted Statistics				
R- squared	0.03	Mean dependent var		1.96
Adjusted R- squared	-0.10	S.D. dependent var		2.52
S.E. of regression	2.65	Sum squared resid		147.06
F- statistic	0.25	Durbin- Watson stat		1.47
Prob (F- statistic)	0.86			

Unweighted Statistics			
R- squared	0.08	Mean dependent var	14.81
Sum squared resid	2471.18	Durbin- Watson stat	0.088

Table 5: Hausman Test (Dependent Variable: ITR)

Test Summary	Chi- sq. Statistic	Chi- sq. d.f.	Prob.
Cross-section random	4.10	3	0.25

Table 6: Results of the Random Effect (ITR)

Variable	Coefficient	Std. Error	t- Statistic	Prob.
BGD	17.74	11.40	1.56	0.13
FL	3.14	2.00	1.57	0.13
FS	5.95	2.70	2.21	0.04
C	-30.33	23.26	-1.30	0.21

Effects Specification				
	S.D.		Rho	
Cross-section random	4.35		0.81	
Idiosyncratic random	2.13		0.19	

Weighted Statistics				
R- squared	0.24	Mean dependent var		2.13
Adjusted R- squared	0.13	S.D. dependent var		2.34
S.E. of regression	2.19	Sum squared resid		100.40
F- statistic	2.19	Durbin- Watson stat		1.64
Prob (F- statistic)	0.12			

Unweighted Statistics			
R- squared	0.08	Mean dependent var	9.98
Sum squared resid	412.58	Durbin- Watson stat	0.40

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